CONTRACT DOCUMENTS & SPECIFICATIONS

TAXIWAY 'A' PAVEMENT REHABILITATION & LIGHTING

LAGRANGE CALLAWAY AIRPORT (LGC)

AIP NO: AP024-9052-44(285)

BENESCH PROJECT NO: 19024029.01

GDOT PROJECT ID: T007816

PREPARED FOR:

TROUP COUNTY
LAGRANGE, GEORGIA

ISSUED FOR BID - APRIL 2025

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PROPOSAL SUBMITTAL CHECKLIST

Airport: **LaGrange-Callaway Airport (LGC), LaGrange, Georgia**
Project: **Partial Taxiway 'A' Pavement Rehabilitation & Lighting**
AIP No.: **AP024-9052-44(285)**

The "Proposal Submittal Checklist" below is to help identify the documents that need to be completed and/or submitted when submitting a proposal. The itemized list below does not relieve prospective bidders from ensuring compliance with all the bid submittal requirements of the Contract Documents and Specifications.

PROPOSAL SUBMITTAL CHECKLIST
***Note: The entire bound bid booklet shall be submitted. Do NOT detach any of the booklet pages. Any additions added to the booklet (such as bid guaranty, evidence of authority to sign, etc.) should be stapled inside the bid booklet.*

The following items need to be completed and/or submitted by prospective bidders with their proposal unless otherwise stated below.

PROPOSAL FORM (pages Pages P.1 thru P.30**)**
□ **UNIT PRICE AMOUNTS, EXTENSION AMOUNTS, TOTAL BID AMOUNTS** (Pages P.1 thru P.4)

□ **ADDENDUM ACKNOWLEDGMENT** (Page P.6)

□ **ADDITIONAL INSURANCE CHARGE AMOUNT** (Page P.10)

□ **SIGNATURE OF BIDDER** (Attach Evidence Of Authority To Sign, If Required) (Pages P.11, P.12 or P.13)

□ **DBE UTILIZATION STATEMENT** (Page P.15)

□ **DBE LETTER OF INTENT** (For each DBE firm utilized.) (Page P.17)
(If multiple sheets are needed make necessary copies and staple additional sheets into proposal booklet)
(If DBE firms are utilized, the Letter of Intent form does not have to be signed at time of the bid submittal, but the successful low bidder will be required to provide written confirmation, by providing letter of intent(s) signed by each DBE firm(s) utilized, from all participating DBE firms verifying their intent to participate in the project ***within the timeframe specified in the "Disadvantaged Business Enterprise" section of the FAA's current "Contract Provisions" provided in Article 2****.*

□ **BID GUARANTY**

□ **TENTATIVE LIST OF SUBCONTRACTORS** (Page P.19)

□ **CERTIFICATION OF COMPLIANCE WITH FAA BUY AMERICAN PREFERENCE – CONSTRUCTION PROJECTS** (Page P.23)

□ **BUY AMERICAN WAIVER REQUEST** (Page P.25)
(If required, the low bidder agrees to prepare and submit to the Owner the B.A. waiver request form ***within the timeframe specified on the Buy American Certification form in the proposal****.*

□ **BUY AMERICAN COMPONENT COST CALCULATION TABLE** (Page P.27)
(If required, the low bidder agrees to prepare and submit to the Owner the B.A. cost calculation table ***within the timeframe specified on the Buy American Certification form in the proposal****.*

□ **BUY AMERICAN CONFORMANCE LISTING** (Page P.29)
(If required, the low bidder agrees to prepare and submit to the Owner the B.A. conformance listing ***within the timeframe specified on the Buy American Certification form in the proposal****.*

CERTIFICATION SHEET

Professional Civil Engineer, Alfred Benesch & Company, seal applies to the following:

Article 1: Contract Documents
Article 2: Contract Provisions
Article 3: Davis-Bacon Wage Determinations
Article 4: FAA General Contract Provisions Specifications
Article 5: Benesch Created Specifications
Article 6: GDOT Specifications

Appendix 1 – FAA Standard Specifications:
C-100: Contractor Quality Control Program
C-102: Temporary Air and Water Pollution, Soil Erosion and Siltation Control
C-105: Mobilization
C-110: Method of Estimating and Percentage of Material Within Specifications Limits (PWL)
P-101: Preparation/Removal of Existing Pavements
P-151: Clearing and Grubbing
P-152: Excavation, Subgrade and Embankment
P-207: In-Place Full Depth Reclamation (FDR) Recycled Asphalt Aggregate Base Course (8" thick)
P-209: Crushed Aggregate Base Course
P-603: Emulsified Asphalt Tack Coat
P-605: Joint Sealants for Pavements
P-610: Concrete for Miscellaneous Structures
P-620: Runway and Taxiway Marking
T-901: Seeding
T-905: Topsoil
T-908: Mulching

Professional Electrical Engineer, Alfred Benesch & Company, seal applies to the following:

Appendix 1 – FAA Standard Specifications:
L-108: Underground Power Cable for Airports
L-109: Airport Transformer Vault and Vault Equipment
L-110: Airport Underground Electrical Duct Banks and Conduits
L-115: Electrical Manholes and Junction Structures
L-125: Installation of Airport Lighting Systems

Stamp (Professional Civil Engineer)	Stamp (Professional Electrical Engineer)
	

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ARTICLE 1

CONTRACT DOCUMENTS

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REQUEST FOR BIDS/INVITATION FOR BIDS
(Newspaper Advertisement)

TROUP COUNTY
LAGRANGE-CALLAWAY AIRPORT, LAGRANGE, GEORGIA
Taxiway 'A' Pavement Rehabilitation & Lighting Project (2024)
AIP Project No: AP024-9052-44(285)

Sealed bids will be received by the Owner, the **Troup County Board of Commissioners, LaGrange, Georgia**, at the **Offices of Purchasing Director**, at **100 Ridley Ave, Suite 3100, LaGrange, Georgia, 30240** until 10:00 a.m. local time, on **May 15th, 2025** and then publicly opened and read aloud in the Commissioners Conference Room, for furnishing all labor, materials and equipment, and performing all work necessary for completing the **Taxiway 'A' Pavement Rehabilitation & Lighting.**

In general, the improvements on which bids are requested will require the following major construction items:

- Installation of temporary airport safety measures to allow for construction operations.
- Installation of ducts, bored conduit, and trenches to run necessary electrical circuitry.
- Installation, removal, and relocation of airfield lighting.
- Full depth reclamation of Taxiway A, with milling and overlay of taxiway outer edge to create paved shoulders.
- Marking of new taxiway centerline and taxiway edges.
- New Guidance Sign Panels for the renaming of taxiways B,C, T and S.
- Minor grading to accommodate new Taxiway Fillets.
- Seeding and Mulching for staging areas (where necessary).

Copies of the bid documents including project drawings and technical specifications are on file and may be inspected at the following locations:

- LaGrange-Callaway Airport, 200 Airport Parkway, LaGrange, Georgia, 30240, (706) 523-2298
- Troup County Board of Commissioners/Purchasing Office, 100 Ridley Ave, Suite 3100, LaGrange, Georgia, 30240, (706) 833-1610
- Alfred Benesch & Company, 600 Peachtree Street NE, Suite 940, Atlanta, Georgia 30308, (404) 850-2481

A complete set of electronic plans and specifications, not including referenced documents, may be obtained from the Engineer via an Engineer hosted FTP site at no cost. To request electronic plans/specifications from Benesch, please send an email request to both of the following email addresses with the required info:

Benesch Email Addresses: **AMooney@Benesch.com (Alex Mooney - Project Manager)**
DLeoni@Benesch.com (David Leoni – Aviation Designer II)

Email Information
Email Title: Taxiway 'A' Pavement Rehabilitation & Lighting – Plan/Spec Request
Contractor Email Address: Email Address Where FTP Link Can Be Sent
Contractor Contact Name: Name of Person To Be "Attentioned" On Email
Contractor Phone Number: (Area Code) Phone #

Parties then interested in submitting an official bid must contact Benesch (404-850-2481) and request an official electronic copy bid booklet. The electronic documents on the Engineer hosted FTP site do not contain the official bid booklet. Contractors must obtain an official electronic copy bid booklet from Benesch to submit a bid.

Pre-Bid Meeting On-Site:

A non-mandatory **pre-bid meeting** will be held in conjunction with this project. The pre-bid conference for this project will be held on Thursday, May 1st, 2025 at 10 a.m. at the Airport Terminal of LaGrange-Callaway Airport (KLGC). All bidders are required to examine the site to become familiar with all site conditions.

Contractors shall coordinate with Troy Anderson, Airport Manager, (706) 616-1553, for site visit opportunities. The Owner reserves the right, at the time of the site visit, to reject requests to inspect specific areas of the airfield, if it is not conducive to airport operations at the time.

Contractors bidding need not be pre-qualified but shall be qualified to do the work.

A Bidder's bond must be executed on the form furnished by the Owner, and the required bond, cash, cashier's check, or certified check must accompany each proposal, in the amount of 5% of the total amount of the proposal. A 100% performance bond and a 100% payment bond will be required of the Contractor at time of contract execution. A Georgia Resident Agent must countersign all bonds from a surety company authorized by law to do business in this State pursuant to a current certificate of authority to transact surety business by the Commissioner of Insurance; no bond shall be approved unless the surety is on the United States Department of Treasury's list of approved bond sureties.

All proposals submitted in accordance with the instructions presented herein will be subject to evaluation. Bids may be held by the **Troup County Board of Commissioners** of **LaGrange, Georgia** for a period not to exceed **one-hundred twenty (120) calendar days** from the date of the bid opening for the purpose of evaluating bids prior to award of contract.

Award of contract will be based on the lowest aggregate sum proposal (for the award option that is in the Owner's best interest based on available Federal Funding) submitted from those bidders that are confirmed as being responsive and responsible. **Contractors bidding shall bid all items.** The right is reserved, by the Owner, to reject any and all bids and to waive any or all irregularities, technicalities, informality or any information in the bids received.

The successful bidder will be required to complete a Troup County Vendor Package.

The successful bidder will be required to furnish separate performance and payment bonds, each in an amount equal to 100% of the contract.

Prospective Bidders are hereby advised that award of contract is contingent upon owner receiving Federal funding assistance under the Airport Improvement Program (AIP). State funded the LGC Taxiway 'A' Pavement Rehabilitation & Lighting Project.

DBE Requirement: This project is subject to the requirements of 49 CFR Part 26 Disadvantaged Business Enterprise Participation. The owner has established a contract participation goal of **9.73 percent** for small business concerns owned and controlled by certified socially and economically disadvantaged business enterprise (DBE). The Owner's award of this contract is conditioned upon Bidder or Offeror satisfying the good faith effort requirements of 49 CFR §26.53.

The **Troup County Board of Commissioners**, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 U.S.C. §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders that it will affirmatively ensure that for any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and will not be discriminated against on the grounds of race, color, or national origin in consideration for an award.

Federal Provisions

Award of contract is also subject to the following provisions:
Each bidder shall be aware and acknowledge that the project is subject to the FAA's current *Contract Provision Guidelines for Obligated Sponsors and Airport Improvement Program Project* itemized as follows and included in Article 2 Contract Provisions of the contract documents:

- Affirmative Action Requirement
- Buy American Preference
- Civil Right – Title VI Assurance
- Davis Bacon Requirements
- Debarment and Suspension
- Disadvantaged Business Enterprise

- Lobbying and Influencing Federal Employees
- Certification of Offeror/Bidder Regarding Debarment and Certification of Lower Tier Contractors Regarding Debarment
- Federal Fair Labor Standards Act (Federal Minimum Wage)
- Trade Restriction Certification
- Procurement of Recovered Materials

By: ***The Troup County Board of Commissioners*** *of the* ***LaGrange, Georgia.***

END OF REQUEST FOR BIDS

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NOTICE TO BIDDERS

TROUP COUNTY
LAGRANGE-CALLAWAY AIRPORT, LAGRANGE, GEORGIA
Taxiway 'A' Pavement Rehabilitation & Lighting Project (2024)
AIP Project No: AP024-9052-44(285)

Sealed bids will be received by the Owner, the **Troup County Board of Commissioners, LaGrange, Georgia**, at the **Office of the Purchasing Director**, at **100 Ridley Ave, Suite 3100, LaGrange, Georgia, 30240, until 10:00 a.m.** local time, on **Thursday, May 15th, 2025** and then publicly opened and read aloud, for furnishing all labor, materials and equipment, and performing all work necessary for completing the **Taxiway 'A' Pavement Rehabilitation & Lighting.**

Request for additional information should be sent to rgillham@troupcountyga.gov no less than 7 days prior to the bid opening - May 8th by 5:00 p.m. All addenda answering the request for additional information will be posted on the Troup County website www.troupcountyga.org not less than 5 days prior to the bid opening (May 10th).

Copies of the bid documents including project drawings and technical specifications are on file and may be inspected at the following locations:

- LaGrange-Callaway Airport, 200 Airport Parkway, LaGrange, Georgia, 30240, (706) 523-2298
- Troup County Board of Commissioners/Purchasing Director, 100 Ridley Ave, Suite 3100, LaGrange, Georgia, 30240, (706) 833-1610
- Alfred Benesch & Company, 600 Peachtree Street NE, Suite 940, Atlanta, Georgia 30308 (404-850-2481)

A complete set of electronic plans and specifications, not including referenced documents, may be obtained from the Engineer via an Engineer hosted FTP site at no cost. To request electronic plans/specifications from Benesch, please send an email request to both of the following email addresses with the required info:

Benesch Email Addresses: **AMooney@benesch.com (Alex Mooney - Project Manager)**
DLeoni@benesch.com (David Leoni – Aviation Designer)

Email Information
Email Title: Taxiway 'A' Pavement Rehabilitation & Lighting – Plan/Spec Request
Contractor Email Address: Email Address Where FTP Link Can Be Sent
Contractor Contact Name: Name of Person To Be "Attentioned" On Email
Contractor Phone Number: (Area Code) Phone #

Parties then interested in submitting an official bid must contact Benesch (404) 850-2481 and request an official electronic copy bid booklet. The electronic documents on the Engineer hosted FTP site do not contain the official bid booklet. Contractors must obtain an official electronic copy bid booklet from Benesch to submit a bid.

Pre-Bid Meeting On-Site:

A non-mandatory **pre-bid meeting** will be held in conjunction with this project. The pre-bid conference for this project will be held on **Thursday, May 1st, at 10:00 AM** at **LaGrange-Callaway Airport, 200 Airport Parkway, LaGrange, Georgia, 30240**. All bidders are required to examine the site to become familiar with all site conditions.

Contractors shall coordinate with Troy Anderson, Airport Manager, (706) 616-1553, for site visit opportunities. The Owner reserves the right, at the time of the site visit, to reject requests to inspect specific areas of the airfield, if it is not conducive to airport operations at the time.

Contract Work Items
In general, this project work will involve the work items identified in the table below. Prospective Bidders are hereby advised that the quantities indicated herein are approximate and are subject to change per Section 40 of the General Provisions.

SEE SCHEDULE OF QUANTITIES BELOW:

SCHEDULE OF APPROXIMATE QUANTITIES				
ITEM NO.	**SPEC ITEM NO.**	**DESCRIPTION**	**APPROX. QUANTITY**	**UNIT**
BASE BID 1 - TAXIWAY 'A' PAVEMENT REHABILITATION				
1-1	C-100-1	Contractor Quality Control Program (CQCP)	1	L.S.
1-2	C-105-1	Site Preparation and Mobilization (10% Max Bid Section 1)	1	L.S.
1-3	P-101-1	Full Depth Pavement Removal	6,848	S.Y.
1-4	P-151-1	Clearing and Grubbing	944	S.Y.
1-5	P-152-1	Unclassified Excavation (cut)	250	C.Y.
1-6	P-152-2	In-Place Embankment (fill)	3,809	C.Y.
1-7	C-102-1	Temporary Sediment Trap	2	EA
1-8	C102-2	Crushed Aggregate, for Stone outlet protection (St) and Rock Dam (Rd) (18" depth)	111	S.Y.
1-9	C102-3	Construction Entrance & Staging Area	3	EA
1-10	P-207-1	In-Place Full Depth Reclamation (FDR) Recycled Asphalt Aggregate Base Course (8" thick)	13,005	S.Y.
1-11	P-209-1	Crushed Aggregate Base Course, 8.0" Thick	221	S.Y.
1-12	GDOT 400-1	Asphalt Surface Course, 3.0" Thick (assume 160lbs/CF)	2,341	Tons
1-13	P-620-1	Taxiway Marking And Striping, Yellow, Including Reflective Media And Microbicide	8,249	S.F.
1-14	GDOT 656-1	Obliterate Pavement Markings	656	S.F.
1-15	T-901-1	Seeding & Fertilizing	3	AC
1-16	T-905-1	Topsoil (Furnished From Off The Site)	866	C.Y.
1-17	T-908-1	Mulching	3	AC
BASE BID 2 - TAXIWAY 'A' ELECTRICAL				
2-1	C-105-2	Site Preparation and Mobilization (10% Max Bid Section 2)	1	L.S.
2-2	L-125-6	Remove Base Mounted Sign, Including Foundation, Complete	4	EA
2-3	L-125-7	Remove Existing Taxiway Sign and Reuse Foundation	28	EA
2-4	L-125-8	Remove Base Mounted Taxiway Edge Light	70	EA
2-5	L-125-9	Remove Stake Mounted Taxiway Edge Light	170	EA
2-6	L-108-1	Trenching for Direct Buried Cable, 18-inch minimum depth	17,000	L.F.
2-7	L-108-2	#8 AWG, 5 kV, L-824, Type C Cable, Installed in Trench, Duct Bank or Conduit	20,801	L.F.
2-8	L-108-3	No. 6 AWG, Solid, Bare Copper Counterpoise Wire, Installed In Trench, Above the Duct Bank Or Conduit, Including Connections/Terminations	16,295	L.F.
2-9	L-108-4	No. 6 AWG, Insulated, Stranded "Green" Equipment Ground, Installed in Duct Bank or Conduit	17,073	L.F.
2-10	L-109-1	New Electrical Vault, Includes All Work To Transfer Equipment And To Separate Vaults	1	EA
2-11	L-109-2	Install New L-829 10 kW Constant Current Regulator (Taxiway)	1	EA
2-12	L-110-1	Non-Encased, Electrical Conduit, 1-Way 2-Inch (50mm) C	500	L.F.
2-13	L-115	Electrical Handhole, L-867 Size B, With Blank Cover	8	EA
2-14	L-125-1	Medium Intensity, LED, Taxiway Edge Light, L-861T(L), Blue Filter, Class 1, Mode 1, Option 4, Stake Mounted	161	EA
2-15	L-125-2	Medium Intensity, LED, Taxiway Edge Light, L-861T(L), Blue Filter, Class 2, Mode 1, Option 4, Base Mounted	69	EA
2-16	L-125-3	1 Module Mandatory Guidance Sign, L-858R, LED, Size 2, Style 2, Mode 1, Complete	5	EA

2-17	L-125-4	2 Module Mandatory Guidance Sign, L-858R, LED, Size 2, Style 2, Mode 1, Complete	17	EA
2-18	L-125-5	3 Module Mandatory Guidance Sign, L-858R, LED, Size 2, Style 2, Mode 1, Complete	6	EA
ALTERNATE A: BASE BID 1 - UNNAMED TAXIWAY (Full Width M/O, 35' Wide Marking)				
A-1	P-101-1	Full Depth Pavement Removal	436	S.Y.
A-2	P-152-2	In-Place Embankment (fill)	196	C.Y.
A-3	P-207-1	In-Place Full Depth Reclamation (FDR) Recycled Asphalt Aggregate Base Course (8" thick)	1,820	S.Y.
A-4	GDOT 400-1	Asphalt Surface Course, 3.0" Thick	328	Ton
A-5	GDOT 656-1	Obliterate Pavement Markings	151	S.F.
A-6	P-620-1	Taxiway Marking And Striping, Yellow, Including Reflective Media And Microbicide	1,873	S.F.
A-7	T-901-1	Seeding & Fertilizing	1	AC
A-8	T-905-1	Topsoil (Furnished From Off The Site)	48	C.Y.
A-9	T-908-1	Mulching	1	AC
ALTERNATE B: BASE BID 1 - TAXIWAY 'T' (Full Width M/O, 35' Wide Marking)				
B-1	P-101-1	Full Depth Pavement Removal	2,869	S.Y.
B-2	P-152-2	In-Place Embankment (fill)	1,348	C.Y.
B-3	P-207-1	In-Place Full Depth Reclamation (FDR) Recycled Asphalt Aggregate Base Course (8" thick)	14,568	S.Y.
B-4	P-209-1	Crushed Aggregate Base Course, 8.0" Thick	166	S.Y.
B-5	GDOT 400-1	Asphalt Surface Course, 3.0" Thick	2,622	Ton
B-6	P-620-1	Taxiway Marking And Striping, Yellow, Including Reflective Media And Microbicide	8,074	S.F.
B-7	GDOT 656-1	Obliterate Pavement Markings	178	S.F.
B-8	T-901-1	Seeding & Fertilizing	1	AC
B-9	T-905-1	Topsoil (Furnished From Off The Site)	319	C.Y.
B-10	T-908-1	Mulching	1	AC
ALTERNATE C: BASE BID 1 - TAXILANE (Full Width M/O, 35' Wide Marking)				
C-1	P-101-6	Cold Mill (0 to 2 inches)	2,061	S.Y.
C-2	GDOT 400-1	Asphalt Surface Course, 2.0" Thick	247	Ton
C-3	P-603-1	Emulsified Asphalt Tack Coat	515	GAL
C-4	P-620-1	Taxiway Marking And Striping, Yellow, Including Reflective Media And Microbicide	989	S.F.
C-5	GDOT 656-1	Obliterate Pavement Markings	59	S.F.
ALTERNATE D: BASE BID 1- TAXIWAY 'A' PARTIAL FDR				
D-1	P-101-1	Full Depth Pavement Removal	7,274	S.Y.
D-2	P-152-2	In-Place Embankment	3,556	C.Y.
D-3	GDOT 656-1	Obliterate Pavement Markings	51	S.F.
D-4	T-901-1	Seeding & Fertilizing	2	AC
D-5	T-905-1	Topsoil (Furnished From Off The Site)	808	C.Y.
D-6	T-908-1	Mulching	2	AC

Contract Time
The owner has established a contract performance time as shown below beginning on the date of the Notice-to-Proceed. The first calendar day charged, according to General Provisions 80-07 paragraph "(b)", will be the effective Notice-to-Proceed date. A formal Notice-To-Proceed letter will be issued by the Owner/Engineer for each phase. All project work shall be substantially completed within the stated timeframe(s). All project work shall be substantially completed within the stated timeframe. This project is subject to liquidated damages as prescribed below.

Element	Calendar Days
1A	60
1B	30
2A	60
2B	30
3A	60
3B	30
Total	180

*Phases A & B will occur concurrently for each numbered phase
See General Provisions Section 80-08 and the CSPP Plans for additional information.

Liquidated Damages
This project is subject to liquated damages as prescribed below.

The Contractor agrees that all contract work shall be prosecuted regularly, diligently, and uninterrupted at such a rate of progress as will ensure full completion thereof within the time specified. It is expressly understood and agreed, by and between the Contractor and the Owner that the time for the completion of the contract work set forth in the Contract Documents is a reasonable time for delivery of equipment and materials and completion of the contract work as specified.

The time limit for the completion of all the work, as herein provided, is of the essence of this contract. In case the Contractor fails to complete the work hereunder within the Contract time, the Contractor agrees to pay the Owner the amount listed below for each and every calendar day consumed in the performance and completion of the project, which exceeds the time allowed for that purpose. This sum, in view of the difficulty in ascertaining the loss which the Owner will suffer by reason of delay in the performance of the work hereunder, is hereby agreed upon, fixed, and determined by the parties hereto as the liquidated damages the Owner will suffer by reason of any delay and default, and are not penalties.

Failure to complete a phase and the Taxiway 'A' Pavement Rehabilitation & Lighting within the respective specified calendar day, working day, or night closure, as specified in the contract, or an occurrence of a runway opening delay, will result in damages being assessed in the amount(s) shown below and as specified in General Provisions 80-08.

The Owner shall deduct and retain the amount of such liquidated damages from the money that may be due or become due the Contractor under this contract. In arriving at the daily rate, as agreed upon, liquidated damages as herein set forth, the Owner has estimated that should the period of performance be extended beyond the period hereinbefore set forth for completion of the work, the Owner could reasonably anticipate suffering at least the following damages:

Element	Calendar Days
1A	$500
1B	$2,500
2A	$500
2B	$2,500
3A	$500
3B	$2,500

Refer to General Provisions Section 80-08 "*Failure To Complete On Time*" for more information regarding Liquidated Damage assessments.

Bid Security
Each proposal must be accompanied by a bid guaranty (per 49 CFR Part 18.36(h)(1)) in the amount of not less than five (5) percent of the total amount of the total amount of the bid. The bid guaranty may be by certified check on a solvent bank or bid bond made payable to the **Troup County Board of Commissioners in the of LaGrange, Georgia.**

A Bidder's bond must be executed on the form furnished by the Owner, and the required bond, cash, cashier's check, or certified check must accompany each proposal, in the amount of 5% of the total amount of the proposal. A 100% performance bond and a 100% payment bond will be required of the Contractor at time of contract execution. A Georgia Resident Agent must countersign all bonds from a surety company authorized by law to do business in this State pursuant to a current certificate of authority to transact surety business by the Commissioner of Insurance; no bond shall be approved unless the surety is on the United States Department of Treasury's list of approved bond sureties.

Bonding Requirements
The successful bidder will be required to furnish separate performance (per 49 CFR Part 18.36(h)(2)) and payment (per 49 CFR Part 18.36(h)(3)) bonds, each in an amount equal to 100% of the contract at the time of contract execution.

Award of Contract
All proposals submitted in accordance with the instructions presented herein will be subject to evaluation. Bids may be held by the **Troup County Board of Commissioners in the city of LaGrange, Georgia** for a period not to exceed **one-hundred twenty (120) calendar days** from the date of the bid opening for the purpose of evaluating bids prior to award of contract.

Award of contract will be based on the lowest aggregate sum proposal (for the award option that is in the Owner's best interest based on available Federal Funding) submitted from those bidders that are confirmed as being responsive and responsible. Contractors bidding shall bid all items. The right is reserved, by the Owner, to reject any and all bids and to waive any or all irregularities, technicalities, informality or any information in the bids received.

Prospective Bidders are hereby advised that award of contract is contingent upon owner receiving Federal funding assistance under the Airport Improvement Program (AIP).

Each bidder, in submitting a bid, acknowledges that the **Troup County Board of Commissioners in the city of LaGrange, Georgia** in its sole discretion will evaluate all bids and additional information and make the determination as to the lowest responsible and responsive bidder. The submission of a bid by any bidder and the opening and recording of the bid by the **Troup County Board of Commissioners in the city of LaGrange, Georgia** shall confer no right upon the bidder and obligation upon the **Troup County Board of Commissioners in the city of LaGrange, Georgia**. The submission of a bid by any bidder and the opening and recording of such bid by the **Troup County Board of Commissioners in the city of LaGrange, Georgia** does not result in a finding or presumption of either responsiveness or responsibility. The **Troup County Board of Commissioners in the city of LaGrange, Georgia** may require the submission of additional information relating to any bidder during the bid evaluation process and each bidder by submitting a bid agrees to comply with any such request.

Federal Provisions
Each bidder shall be aware and acknowledge that the project is subject to the FAA's current *Contract Provision Guidelines for Obligated Sponsors and Airport Improvement Program Project* itemized as follows and included in Article 2 Contract Provisions of the contract documents:

- Buy American Preference – Title 49 USC § 50101; Executive Order 14005, *Ensuring the Future is Made in America by All of America's Workers*; Bipartisan Infrastructure Law (Pub. L. No. 117-58, Build America, Buy America (BABA).
- Civil Rights – Title VI Assurances – 49 USC §47123; FAA Order 1400.11 and Title VI Solicitation Notice
- Davis Bacon Requirements – 2 CFR Part 200, Appendix II(D); 29 CFR Part 5; 49 USC § 3141-3144,3146, and 3147.
- Certification of Offeror/Bidder Regarding Debarment and Certification of Lower Tier Contractors Regarding Debarment - 2 CFR PART 180 (Subpart B); 2 CFR Part 200, Appendix II(H); 2 CFR Part 1200; DOT Order 4200.5; Executive Orders 12549 and 12689.
- Lobbying and Influencing Federal Employees – 31 USC § 1352 – Byrd Anti-Lobbying Amendment; 2 CFR

part 200, Appendix II(I); and 49 CFR part 20, Appendix A.

- Procurement of Recovered Materials – 2 CFR § 200.323; 2 CFR Part 200, Appendix II(J); 40 CFR Part 247; 42 USC § 6901, et seq (Resource Conservation and Recovery Act (RCRA)).

TRADE RESTRICTION CERTIFICATION

By submission of an offer, the Offeror certifies that with respect to this solicitation and any resultant contract, the Offeror –

1) is not owned or controlled by one or more citizens of a foreign country included in the list of countries that discriminate against U.S. firms as published by the Office of the United States Trade Representative (USTR);

2) has not knowingly entered into any contract or subcontract for this project with a person that is a citizen or national of a foreign country included on the list of countries that discriminate against U.S. firms as published by the USTR; and

3) has not entered into any subcontract for any product to be used on the Federal project that is produced in a foreign country included on the list of countries that discriminate against U.S. firms published by the USTR.

This certification concerns a matter within the jurisdiction of an agency of the United States of America and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18 USC § 1001.

The Offeror/Contractor must provide immediate written notice to the Owner if the Offeror/Contractor learns that its certification or that of a subcontractor was erroneous when submitted or has become erroneous by reason of changed circumstances. The Contractor must require subcontractors provide immediate written notice to the Contractor if at any time it learns that its certification was erroneous by reason of changed circumstances.

Unless the restrictions of this clause are waived by the Secretary of Transportation in accordance with 49 CFR § 30.17, no contract shall be awarded to an Offeror or subcontractor:

1) who is owned or controlled by one or more citizens or nationals of a foreign country included on the list of countries that discriminate against U.S. firms published by the USTR; or
2) whose subcontractors are owned or controlled by one or more citizens or nationals of a foreign country on such USTR list; or
3) who incorporates in the public works project any product of a foreign country on such USTR list.

Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by this provision. The knowledge and information of a contractor is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

The Offeror agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in all lower tier subcontracts. The Contractor may rely on the certification of a prospective subcontractor that it is not a firm from a foreign country included on the list of countries that discriminate against U.S. firms as published by USTR, unless the Offeror has knowledge that the certification is erroneous.

This certification is a material representation of fact upon which reliance was placed when making an award. If it is later determined that the Contractor or subcontractor knowingly rendered an erroneous certification, the Federal Aviation Administration (FAA) may direct through the Owner cancellation of the contract or subcontract for default at no cost to the Owner or the FAA.

EQUAL EMPLOYMENT OPPORTUNITY (*EXECUTIVE ORDER 11246 AND 41 CFR PART 60*)

The Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth within the supplementary provisions. The successful Bidder shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, or national origin.

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (*41 CFR PART 60-4)*

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

   Timetables

   Goals for minority participation for each trade: ***31.6%***

   Goals for female participation in each trade: 6.9%

   These goals are applicable to all of the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and non-federally involved construction.

   The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a) and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs (OFCCP) within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

4. As used in this notice and in the contract resulting from this solicitation, the "covered area" is the **City of LaGrange, Georgia, Troup County.**

CIVIL RIGHTS - TITLE VI SOLICITATION NOTICE

The **Troupe County**, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 USC §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders or offerors that it will affirmatively ensure that for any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and no

businesses will be discriminated against on the grounds of race, color, national origin (including limited English proficiency), creed, sex (including sexual orientation and gender identity), age, or disability in consideration for an award.

DISADVANTAGED BUSINESS ENTERPRISE (49 CFR Part 26)

DBE Requirement: This project is subject to the requirements of 49 CFR Part 26 Disadvantaged Business Enterprise Participation. The owner has established a contract participation goal of **9.73 percent** for small business concerns owned and controlled by certified socially and economically disadvantaged business enterprise (DBE). The Owner's award of this contract is conditioned upon Bidder or Offeror satisfying the good faith effort requirements of 49 CFR §26.53.

DAVIS-BACON ACT, AS AMENDED (DOL REGULATION 29 CFR PART 5)

The Contractor is required to comply with wage and labor provisions and to pay minimum wages in accordance with the current schedule of wage rates established by the United States Department of Labor.

Additional Provisions
Modification to the project documents may only be made by written addendum by the Owner or Owner's authorized Representative.

The proposal must be made on the forms provided within the bound hard-copy official bid booklet. Bidders must supply all required information prior to the time of bid opening.

Contractors bidding need not be pre-qualified but shall be qualified to do the work.

Contractors bidding shall identify proposed subcontractors on the "Tentative List of Subcontractors" form included in the proposal.

Submittal of Proposals
Additional information and instruction for submittal of a proposal are provided within the Instructions-to-Bidders. Envelopes containing bids must be sealed and addressed to:

Troup County
200 Airport Parkway
LaGrange, Georgia 30240

If bids are mailed in lieu of hand-delivery, the contractor shall write on the front of the package:

"Not To Be Opened Until 10:00 a.m. Local Time On Thursday, May 15th, 2025. Contains Confidential Bid Information"

The upper left hand corner of the sealed envelope must identify the following information:

CONTRACT PROPOSAL
Bid of {Name of Contractor}
For construction improvements at LaGrange-Callaway Airport, Lagrange, Georgia
AIP Project No.: AP024-9052-44(285)
To be opened at: 10:00 a.m. local time on Thursday, May 15th, 2025

END OF REQUEST FOR BIDS

INSTRUCTIONS TO BIDDERS

TROUP COUNTY
LAGRANGE CALLAWAY AIRPORT, LAGRANGE, GEORGIA
Taxiway 'A' Pavement Rehabilitation & Lighting
AIP Project No: AP024-9052-44(285)

Owner and Owner's Representative
The Owner as stated herein refers to the **Troup County, LaGrange, Georgia** The Owner's authorized representative as stated herein refers to the Owner's Consultant, Alfred Benesch & Company, herein referred to as Engineer.

Advertisement [G.P. 20.01] (Notice to Bidders).
For bid opening information (location, time, obtaining plans and specifications, etc.), refer to the Notice-To-Bidders.

Qualification Of Bidders [G.P. 20.02]
Each bidder shall submit evidence of competency and evidence of financial responsibility to perform the work to the Owner at the time of bid opening.

Evidence of competency, unless otherwise specified, shall consist of statements covering the bidder's past experience on similar work, and a list of equipment and a list of key personnel that would be available for the work.

Each bidder shall furnish the Owner satisfactory evidence of their financial responsibility. Evidence of financial responsibility, unless otherwise specified, shall consist of a confidential statement or report of the bidder's financial resources and liabilities as of the last calendar year or the bidder's last fiscal year. Such statements or reports shall be certified by a public accountant. At the time of submitting such financial statements or reports, the bidder shall further certify whether their financial responsibility is approximately the same as stated or reported by the public accountant. If the bidder's financial responsibility has changed, the bidder shall qualify the public accountant's statement or report to reflect the bidder's true financial condition at the time such qualified statement or report is submitted to the Owner.

Unless otherwise specified, a bidder may submit evidence that they are prequalified with the State Highway Division and are on the current "bidder's list" of the state in which the proposed work is located. Evidence of State Highway Division prequalification may be submitted as evidence of financial responsibility in lieu of the certified statements or reports specified above.

Each bidder shall submit "evidence of competency" and "evidence of financial responsibility" to the Owner if requested at the time of bid opening.

Contents of proposal forms [G.P. 20.03]
The Owner's proposal forms (Official Bid Booklet) state the location and description of the proposed construction; the place, date, and time of opening of the proposals; and the estimated quantities of the various items of work to be performed and materials to be furnished for which unit bid prices are asked. The proposal form states the time in which the work must be completed, and the amount of the proposal guaranty that must accompany the proposal. The Owner will accept only those Proposals properly executed on physical forms or electronic forms provided by the Owner. Bidder actions that may cause the Owner to deem a proposal irregular are given in paragraph G.P. 20-09 Irregular Proposals, of this Instructions To Bidders document.

Mobilization is limited to 10 percent of the total project cost.

Pre-Bid Meeting On-Site:

A non-mandatory **pre-bid meeting** will be held in conjunction with this project. The pre-bid conference for this project will be held on **Thursday, May 1st, 2025 at 10:00 a.m. at LaGrange-Callaway Airport, 200 Airport Parkway, LaGrange, Georgia, 30240**. All bidders are required to examine the site to become familiar with all site conditions.

Issuance of Proposal Forms [G.P. 20.04]
The Owner reserves the right to refuse to issue a proposal form to a prospective bidder should such bidder be in default for any of the following reasons:

- **a.** Failure to comply with any pre-qualification regulations of the Owner, if such regulations are cited, or otherwise included, in the proposal as a requirement for bidding.
- **b.** Failure to pay, or satisfactorily settle, all bills due for labor and materials on former contracts in force (with the Owner) at the time the Owner issues the proposal to a prospective bidder.
- **c.** Documented record of Contractor default under previous contracts with the Owner.
- **d.** Documented record of unsatisfactory work on previous contracts with the Owner

Interpretation of Estimated Proposal Quantities [G.P. 20.05]
An estimate of quantities of work to be done and materials to be furnished under these specifications is given in the proposal. It is the result of careful calculations and is believed to be correct. It is given only as a basis for comparison of proposals and the award of the contract. The Owner does not expressly, or by implication, agree that the actual quantities involved will correspond exactly therewith; nor shall the bidder plead misunderstanding or deception because of such estimates of quantities, or of the character, location, or other conditions pertaining to the work. Payment to the Contractor will be made only for the actual quantities of work performed or materials furnished in accordance with the plans and specifications. It is understood that the quantities may be increased or decreased as provided in the General Provisions, Section 40, paragraph 40-02, ALTERATION OF WORK AND QUANTITIES without in any way invalidating the unit bid prices.

Examination of Plans, Specifications, And Site [G.P. 20.06]
The bidder is expected to carefully examine the site of the proposed work, the proposal, plans, specifications, and contract forms. Bidders shall satisfy themselves as to the character, quality, and quantities of work to be performed, materials to be furnished, and as to the requirements of the proposed contract. The submission of a proposal shall be prima facie evidence that the bidder has made such examination and is satisfied as to the conditions to be encountered in performing the work and as to the requirements of the proposed contract, plans, and specifications.

Boring logs and other records of subsurface investigations and tests are available for inspection of bidders. It is understood and agreed that such subsurface information, whether included in the project drawings, specifications, or otherwise made available to the bidder, was obtained and is intended for the Owner's design and estimating purposes only. Such information has been made available for the convenience of all bidders. It is further understood and agreed that each bidder is solely responsible for all assumptions, deductions, or conclusions which the bidder may make or obtain from their own examination of the boring logs and other records of subsurface investigations and tests that are furnished by the Owner.

Preparation of Proposal [G.P. 20.07]
The bidder shall submit their proposal on the forms furnished by the Owner. All blank spaces in the proposal forms, unless explicitly stated otherwise, must be correctly filled in where indicated for each and every item for which a quantity is given. The bidder shall state the price (written in ink or typed) ~~both~~ in ~~words and~~ numerals for which they propose to do for each pay item furnished in the proposal. In the situation where an extension of a unit price is found to be incorrect, the stated unit price and correct extension will govern.

The bidder shall correctly sign the proposal in ink. If the proposal is made by an individual, their name and post office address must be shown. If made by a partnership, the name and post office address of each member of the partnership must be shown. If made by a corporation, the person signing the proposal shall give the name of the state where the corporation was chartered and the name, titles, and business address of the president, secretary, and the treasurer. Anyone signing a proposal as an agent shall file evidence of their authority to do so and that the signature is binding upon the firm or corporation.

Responsive and responsible bidder [G.P. 20.08]
A responsive bid conforms to all significant terms and conditions contained in the Owner's invitation for bid. It is the Owner's responsibility to decide if the exceptions taken by a bidder to the solicitation are material or not and the extent of deviation it is willing to accept.

A responsible bidder has the ability to perform successfully under the terms and conditions of a proposed procurement,

as defined in 2 CFR § 200.318(h). This includes such matters as Contractor integrity, compliance with public policy, record of past performance, and financial and technical resources.

Irregular Proposals [G.P. 20.09]
Proposals shall be considered irregular for the following reasons:

- **a.** If the proposal is on a form other than that furnished by the Owner, or if the Owner's form is altered, or if any part of the proposal form is detached.
- **b.** If there are unauthorized additions, conditional or alternate pay items, or irregularities of any kind that make the proposal incomplete, indefinite, or otherwise ambiguous.
- **c.** If the proposal does not contain a unit price for each pay item listed in the proposal, except in the case of authorized alternate pay items, for which the bidder is not required to furnish a unit price.
- **d.** If the proposal contains unit prices that are obviously unbalanced.
- **e.** If the proposal is not accompanied by the proposal guaranty specified by the Owner.
- **f.** If the applicable Disadvantaged Business Enterprise information is incomplete.

The Owner reserves the right to reject any irregular proposal and the right to waive technicalities if such waiver is in the best interest of the Owner and conforms to local laws and ordinances pertaining to the letting of construction contracts.

Bid Guarantee [G.P. 20.10]
Each separate proposal shall be accompanied by a bid guaranty (per 49 CFR Part 18.36(h)(1)) in the amount of not less than five (5) percent of the total amount of the bid. The bid guaranty may be by certified check on a solvent bank or bid bond made payable to the **Troup County, LaGrange, Georgia.**

Delivery of Proposal [G.P. 20.11]
Each proposal submitted shall be placed in a sealed envelope plainly marked with the project number, location of airport, and name and business address of the bidder on the outside. When sent by mail, preferably registered, the sealed proposal, marked as indicated above, should be enclosed in an additional envelope. No proposal will be considered unless received at the place specified in the advertisement or as modified by Addendum before the time specified for opening all bids. Proposals received after the bid opening time shall be returned to the bidder unopened.

If bids are mailed in lieu of hand-delivery, the contractor shall write on the front of the package:
"**Not To Be Opened Until 10:00 a.m. Local Time On Day, Month Date, Year. Contains Confidential Bid Information.**"

Withdrawal Or Revision Of Proposals [G.P. 20.12]
A bidder may withdraw or revise (by withdrawal of one proposal and submission of another) a proposal provided that the bidder's request for withdrawal is received by the Owner **[** in writing **] [** ~~by fax~~ **] [** ~~by email~~ **]** before the time specified for opening bids. Revised proposals must be received at the place specified in the advertisement before the time specified for opening all bids.

No bid may be withdrawn by the bidder within ninety (90) days after the actual date of the bid opening.

Public Opening Of Proposals [G.P. 20.13]
Proposals shall be opened, and read, publicly at the time and place specified in the advertisement. Bidders, their authorized agents, and other interested persons are invited to attend. Proposals that have been withdrawn (by written request) or received after the time specified for opening bids shall be returned to the bidder unopened.

Disqualifications of Bidders [G.P. 20.14]
A bidder shall be considered disqualified for any of the following reasons:

- **a.** Submitting more than one proposal from the same partnership, firm, or corporation under the same or different name.
- **b.** Evidence of collusion among bidders. Bidders participating in such collusion shall be disqualified as bidders for any future work of the Owner until any such participating bidder has been reinstated by the Owner as a qualified bidder.
- **c.** If the bidder is considered to be in "default" for any reason specified in the paragraph G.P. 20-04, ISSUANCE OF PROPOSAL FORMS, of this ~~section~~ instructions-to-bidders document.

Discrepancies and Omissions [G.P. 20.15]
A Bidder who discovers discrepancies errors, ambiguity, or omissions with the project bid documents shall immediately notify the Owner's Engineer with written notice of the matter. The written notice shall identify the nature and location of the error, discrepancy, ambiguity, or omission. A bidder that has doubt as to the true meaning of a project requirement may submit to the Owner's Engineer a written request for interpretation no later than **[seven (7)]** days prior to bid opening.

Any interpretation, correction, or modification of the project bid documents by the Owner's Engineer will be by written addendum issued by the Owner. The Owner will not consider any instructions, clarifications or interpretations of the bidding documents in any manner other than written addendum.

Consideration of proposals [G.P. 30.01]
After the proposals are publicly opened and read, they will be compared on the basis of the summation of the products obtained by multiplying the estimated quantities shown in the proposal by the unit bid prices.

Until the award of a contract is made, the Owner reserves the right to reject a bidder's proposal for any of the following reasons:

a. If the proposal is irregular as specified in Section G.P. 20-09, IRREGULAR PROPOSALS, of this instructions-to-bidders document.
b. If the bidder is disqualified for any of the reasons specified in Section G.P. 20-14, DISQUALIFICATION OF BIDDERS, of this instructions-to-bidders document.

In addition, until the award of a contract is made, the Owner reserves the right to reject any or all proposals, waive technicalities, if such waiver is in the best interest of the Owner and is in conformance with applicable state and local laws or regulations pertaining to the letting of construction contracts; advertise for new proposals; or proceed with the work otherwise. All such actions shall promote the Owner's best interests.

Award Of Contract [G.P. 30.02]
The award of a contract, if it is to be awarded, shall be made within **one-hundred twenty (120) calendar days** calendar days of the date specified for publicly opening proposals, unless otherwise specified herein.

If the Owner elects to proceed with an award of contract, the Owner will make award to the responsible bidder whose bid, conforming with all the material terms and conditions of the bid documents, is the lowest in price.

Cancellation Of Award [G.P. 30.03]
The Owner reserves the right to cancel the award without liability to the bidder, except return of proposal guaranty, at any time before a contract has been fully executed by all parties and is approved by the Owner in accordance with the paragraph G.P. 30-07, APPROVAL OF CONTRACT, of this instructions-to-bidders document**.**

Return Of Proposal Guaranty [G.P. 30.04]
All proposal guaranties, except those of the two lowest bidders, will be returned immediately after the Owner has made a comparison of bids as specified in the paragraph G.P. 30-01,CONSIDERATION OF PROPOSALS, of this instructions-to-bidders document. Proposal guaranties of the two lowest bidders will be retained by the Owner until such time as an award is made, at which time, the unsuccessful bidder's proposal guaranty will be returned. The successful bidder's proposal guaranty will be returned as soon as the Owner receives the contract bonds as specified in the paragraph G.P. 30-05, REQUIREMENTS OF CONTRACT BONDS, of this instructions-to-bidders document.

Requirements Of Contract Bonds [G.P. 30.05]
The successful Bidder shall furnish separate performance and payment bonds each in the amount of 100% of the contract price. The bonds shall be made payable to the Owner as security for faithful performance of the contract and for the payment of all persons, firms or corporations to whom the Bidder may become legally indebted for labor, materials, tools, equipment or services in the performance of the project work. The form of the bond shall be that provided within the bid documents. The current power of attorney for the person signing the bond as a representative of the surety shall be attached to the bonds.

The executed bonds shall be delivered to the Owner **within 15 calendar days** from the date mailed or otherwise delivered to the successful bidder. Bonds should **not be executed prior to execution of the contract agreement**. The bonds shall be issued by a solvent Surety, which is certified to operate within the State the project work is located, and which is listed in the current issue of the U.S. Treasury Circular 570. If specifically requested by the Owner, the successful Bidder shall obtain and submit information on the surety's financial strength rating.

~~At the time of the execution of the contract, the successful bidder shall furnish the Owner a surety bond or bonds that have been fully executed by the bidder and the surety guaranteeing the performance of the work and the payment of all legal debts that may be incurred by reason of the Contractor's performance of the work. The surety and the form of the bond or bonds shall be acceptable to the Owner. Unless otherwise specified in this subsection, the surety bond or bonds shall be in a sum equal to the full amount of the contract.~~

Execution Of Contract [G.P. 30.06]
The successful bidder shall sign (execute) the necessary agreements for entering into the contract and return the signed contract to the Owner, along with the fully executed surety bond or bonds specified in paragraph G.P. 30-05, REQUIREMENTS OF CONTRACT BONDS, of this instructions-to-bidders document, within **[** 15 **]** calendar days from the date mailed or otherwise delivered to the successful bidder.

The successful Bidder shall **not** add any additional contract stipulations during the execution period of the contract documents.

Approval of Contract [G.P. 30.07]
Upon receipt of the contract and contract bond or bonds that have been executed by the successful bidder, the Owner shall complete the execution of the contract in accordance with local laws or ordinances, and return the fully executed contract to the Contractor. Delivery of the fully executed contract to the Contractor shall constitute the Owner's approval to be bound by the successful bidder's proposal and the terms of the contract.

Upon satisfactory execution of the contract by the successful Bidder and the Owner, all references to "Bidder" in the bid documents become equivalent to the term "Contractor".

Failure To Execute Contract [G.P. 30.08]
Failure of the successful bidder to execute the contract and furnish an acceptable surety bond or bonds within the 15 calendar day period specified in the paragraph G.P. 30-06, EXECUTION OF CONTRACT, of this instructions-to-bidders document shall be just cause for cancellation of the award and forfeiture of the proposal guaranty, not as a penalty, but as liquidation of damages to the Owner.

NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY *(41 CFR PART 60-4)*

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

   Timetables

   Goals for minority participation for each trade: 31.6% (COUNTY)

   Goals for female participation in each trade: 6.9%

   These goals are applicable to all of the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and non-federally involved

construction.

The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a) and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs (OFCCP) within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

As used in this notice and in the contract resulting from this solicitation, the "covered area is the City of Beatrice, Gage County, State of Nebraska.

CIVIL RIGHTS - TITLE VI SOLICITATION NOTICE

The **Troup County (Sponsor)**, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 USC § 2000d to 2000d-4) and the Regulations, hereby notifies all bidders or offerors that it will affirmatively ensure that for any contract entered into pursuant to this advertisement, disadvantaged business enterprises will be afforded full and fair opportunity to submit bids in response to this invitation and no businesses will be discriminated against on the grounds of race, color, national origin (including limited English proficiency), creed, sex (including sexual orientation and gender identity), age, or disability in consideration for an award.

FEDERAL FAIR LABOR STANDARDS ACT (FEDERAL MINIMUM WAGE)

All contracts and subcontractors that result from this solicitation incorporate by reference the provisions of 29 CFR part 201, et seq, the Federal Fair Labor Standards Act (FLSA), with the same force and effect as if given in full text. The FLSA sets minimum wage, overtime pay, recordkeeping, and child labor standards for full and part-time workers.

The Contractor has full responsibility to monitor compliance to the referenced statute or regulation. The Contractor must address any claims or disputes that arise from this requirement directly with the U.S. Department of Labor – Wage and Hour Division.

TRADE RESTRICTION CERTIFICATION

By submission of an offer, the Offeror certifies that with respect to this solicitation and any resultant contract, the Offeror –

1) is not owned or controlled by one or more citizens of a foreign country included in the list of countries that discriminate against U.S. firms as published by the Office of the United States Trade Representative (USTR);

2) has not knowingly entered into any contract or subcontract for this project with a person that is a citizen or national of a foreign country included on the list of countries that discriminate against U.S. firms as published by the USTR; and

3) has not entered into any subcontract for any product to be used on the Federal project that is produced in a foreign country included on the list of countries that discriminate against U.S. firms published by the USTR.

This certification concerns a matter within the jurisdiction of an agency of the United States of America and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18 USC § 1001.

The Offeror/Contractor must provide immediate written notice to the Owner if the Offeror/Contractor learns that its certification or that of a subcontractor was erroneous when submitted or has become erroneous by reason of changed circumstances. The Contractor must require subcontractors provide immediate written notice to the Contractor if at any time it learns that its certification was erroneous by reason of changed circumstances.

Unless the restrictions of this clause are waived by the Secretary of Transportation in accordance with 49 CFR § 30.17, no contract shall be awarded to an Offeror or subcontractor:

1) who is owned or controlled by one or more citizens or nationals of a foreign country included on the list of countries that discriminate against U.S. firms published by the USTR; or
2) whose subcontractors are owned or controlled by one or more citizens or nationals of a foreign country on such USTR list; or
3) who incorporates in the public works project any product of a foreign country on such USTR list.

Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by this provision. The knowledge and information of a contractor is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

The Offeror agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in all lower tier subcontracts. The Contractor may rely on the certification of a prospective subcontractor that it is not a firm from a foreign country included on the list of countries that discriminate against U.S. firms as published by USTR, unless the Offeror has knowledge that the certification is erroneous.

This certification is a material representation of fact upon which reliance was placed when making an award. If it is later determined that the Contractor or subcontractor knowingly rendered an erroneous certification, the Federal Aviation Administration (FAA) may direct through the Owner cancellation of the contract or subcontract for default at no cost to the Owner or the FAA.

Disadvantaged Business Enterprise

Bid Information Submitted as a matter of **responsiveness**:

The Owner's award of this contract is conditioned upon Bidder or Offeror satisfying the good faith effort requirements of 49 CFR § 26.53.

As a condition of responsiveness, the Bidder or Offeror must submit the following information with its proposal on the forms provided herein:

1) The names and addresses of Disadvantaged Business Enterprise (DBE) firms that will participate in the contract;
2) A description of the work that each DBE firm will perform;
3) The dollar amount of the participation of each DBE firm listed under (1);
4) Written statement from Bidder or Offeror that attests their commitment to use the DBE firm(s) listed under (1) to meet the Owner's project goal
5) Written confirmation from each listed DBE firm that it is participating in the contract in the kind and amount of work provided in the prime contractor's commitment; and

6) If Bidder or Offeror cannot meet the advertised project DBE goal, evidence of good faith efforts undertaken by the Bidder or Offeror as described in appendix A to 49 CFR part 26. The documentation of good faith efforts must include copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor was selected over a DBE for work on the contract.
7) lected over a DBE for work on the contract.

Bid Information submitted as a matter of **responsibility**:

The Owner's award of this contract is conditioned upon Bidder or Offeror satisfying the good faith effort requirements of 49 CFR § 26.53.

As a condition of responsibility, every Bidder or Offeror must submit the following information on the forms provided herein within five days after bid opening.

1) The names and addresses of Disadvantaged Business Enterprise (DBE) firms that will participate in the contract;
2) A description of the work that each DBE firm will perform;
3) The dollar amount of the participation of each DBE firm listed under (1);
4) Written statement from Bidder or Offeror that attests their commitment to use the DBE firm(s) listed under (1) to meet the Owner's project goal;
5) Written confirmation from each listed DBE firm that it is participating in the contract in the kind and amount of work provided in the prime contractor's commitment; and
6) If Bidder or Offeror cannot meet the advertised project DBE goal, evidence of good faith efforts undertaken by the Bidder or Offeror as described in appendix A to 49 CFR part 26. The documentation of good faith efforts must include copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor was selected over a DBE for work on the contract.
7) lected over a DBE for work on the contract.

Modifications to Project Documents

Modifications to the project documents may only be made by written addendum issued by the Owner or the Engineer. Verbal explanations, interpretations or comments made by the Owner or Owner's representative shall not be binding. Addenda will be transmitted to all known official plan holders. Each bidder shall certify at the time of bid submittal that they acknowledge receipt of all issued addenda.

Clarifications and Interpretation

A bidder requiring a clarification or interpretation of the project documents shall make a written request to the Owner or Engineer. The Owner or Engineer must receive the written request a minimum of seven (7) calendar days prior to the date of the bid opening. Requests may also be emailed to Alexander Mooney, Project Manager at AMooney@Benesch.com and/or to David Leoni, Aviation Designer II at DLeoni@Benesch.com.

Sales Tax

Bidders shall not include sales tax in their bids**. This project is sales tax exempt.** The Owner will furnish the Contractor a Sales Tax Exempt Certificate (Form 17 – Purchasing Agent Appointment And Delegation Of Authority For Sales And Use Tax) for use in purchasing materials.

Bidder Representations

By submittal of a proposal (bid), the BIDDER represents the following:

- The Bidder has read and thoroughly examined the bid documents including all authorized addenda.
- The Bidder has a complete understanding of the terms and conditions required for the satisfactory performance of project work.
- The Bidder has fully informed themselves of the project site, the project site conditions and the surrounding area.
- The Bidder has familiarized themselves of the requirements of working on an operating airport and understands the site conditions that may in any manner affect cost, progress or performance of the work.
- The Bidder has correlated their observations with that of the project documents.

- The Bidder has found no errors, conflicts, ambiguities or omissions in the project documents, except as previously submitted in writing to the owner that would affect cost, progress or performance of the work.
- The Bidder is familiar with all applicable Federal, State and local laws, rules and regulations pertaining to execution of the contract and the project work.
- The Bidder has complied with all requirements of these instructions and the associated bid documents.
- The Bidder has reviewed the liquidated damages provisions in the Notice-To-Bidders (NTB), and the Bidder acknowledges that the sums listed in General Provisions 80-08 are reasonable estimates of damages the Owner anticipates and not penal in amount.

Bid Informalities and Irregularities

Each bidder in submitting a bid acknowledges that the Airport Owner in its sole discretion will evaluate all bids and additional information and make the determination as to the lowest responsible and responsive bidder. The submission of a bid by any bidder and the opening and recording of the bid by the Airport Owner shall confer no right upon the bidder and obligation upon the Airport Owner. The submission of a bid by any bidder and the opening and recording of such bid by the Airport Owner does not result in a finding or presumption of either responsiveness or responsibility. The Airport Owner may require the submission of additional information relating to any bidder during the bid evaluation process and each bidder by submitting a bid agrees to comply with any such request. The right is reserved, as the Airport Owner may require, to reject any and all bids and to waive any or all irregularities, technicalities, informality or any information in the bids received, which in the Owner's judgment best services the Owner's interest.

Alternate Bids, Add-On Options, Bid Sections

Unless specifically stated otherwise, the Owner reserves the right to accept or reject add-on "alternate sections, which in the judgement of the Owner, best serves the Owner's interest.

Certificates of Insurance

The successful Bidder shall furnish to the Owner all required certificates of insurance as specified within the bid documents (Refer to FAA General Contract Provisions Specifications for insurance requirements).

END OF INSTRUCTIONS TO BIDDERS

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PROPOSAL FORM

DO NOT DETACH ANY OF THESE PROPOSAL PAGES

SUBMIT ENTIRE BOUND OFFICIAL PROPSAL FORM BOOKLET

TO: **Troup County**
100 Ridley Avenue
LaGrange, Georgia 30240

The undersigned, in compliance with the request for bids for construction of the following Project:

Taxiway 'A' Pavement Rehabilitation & Lighting

hereby proposes to furnish all labor, permits, material, machinery, tools, supplies and equipment to faithfully perform all work required for construction of the Project in accordance with the Contract Documents and Specifications, project drawings, and issued Addenda within the specified time of performance for the following prices on this proposal.

Sealed bids will be received by the Owner, the **Troup County, LaGrange, Georgia**, in the offices of **Offices of Purchasing Director**, at **100 Ridley Ave, Suite 3100, LaGrange, Georgia, 30240** until **10:00 a.m**. local time, on **May 15th, 2025** and then publicly opened and read aloud in the Commissioners Conference Room, for furnishing all labor, materials and equipment, and performing all work necessary for completing the **Taxiway 'A' Pavement Rehabilitation & Lighting (2024), AIP No. AP024-9052-44(285).**

The undersigned understands that it is the intent of the Owner issue a Notice To Proceed (NTP) for construction to begin in the **2025** construction season. Furthermore, the undersigned understands that, it is the intent of the Owner to award (assuming responsive and responsible bids are received) the project under a Federal Fiscal Year 2025 grant. Prior to issuance of the formal NTP, a start date will be coordinated with the Contractor, with the intent to have all work completed in calendar year **2025**.

Other wording for above paragraph is as follows if have alternates and/or FAA funding split:

The undersigned understands that it is the intention of the Owner to issue a Notice To Proceed (NTP) for construction to begin in the 2025 construction season. Furthermore, the undersigned understands that, it is the intent of the Owner to award (assuming responsive and responsible bids are received) the Base Bid and Alternates A, B, C, & D under a Federal Fiscal Year 2025 grant. However, the undersigned understands that, if full project funding is not available at the time of award, it is the intent of the Owner to award the Base Bid under a Federal Fiscal Year 2025 grant and, at a later date, award the Alternates A, B, C, & D work by Supplemental Agreement (SA) after a Federal Fiscal Year 2025 grant is awarded from the FAA. If a SA to award Alternates A, B, C, & D work is required, the current (at time of SA) Davis Bacon Wage rates for all "Alternates A, B, C, & D" work to be completed in project Phases 2 thru 4 shall also be incorporated.

SCHEDULE OF APPROXIMATE QUANTITIES								
ITEM #	**SPEC #**	**DESCRIPTION**	**EST. QUANTITY**	**UNIT**		**BID PRICE**		**AMOUNT**
BASE BID 1 - TAXIWAY 'A' PAVEMENT REHABILITATION								
1-1	C-100-1	Contractor Quality Control Program (CQCP)	1	L.S.	$		$	
1-2	C-105-1	Site Preparation and Mobilization (10% Max Bid Section 1)	1	L.S.	$		$	
1-3	P-101-1	Full Depth Pavement Removal	6,848	S.Y.	$		$	
1-4	P-151-1	Clearing and Grubbing	944	S.Y.	$		$	
1-5	P-152-1	Unclassified Excavation (cut)	250	C.Y.	$		$	

1-6	P-152-2	In-Place Embankment (fill)	3,809	C.Y.	$		$	
1-7	C-102-1	Temporary Sediment Trap	2	EA	$		$	
1-8	C102-2	Crushed Aggregate, for Stone outlet protection (St) and Rock Dam (Rd) (18" depth)	111	S.Y.	$		$	
1-9	C102-3	Construction Entrance & Staging Area	3	EA	$		$	
1-10	P-207-1	In-Place Full Depth Reclamation (FDR) Recycled Asphalt Aggregate Base Course (8" thick)	13,005	S.Y.	$		$	
1-11	P-209-1	Crushed Aggregate Base Course, 8.0" Thick	221	S.Y.	$		$	
1-12	GDOT 400-1	Asphalt Surface Course, 3.0" Thick (assume 160lbs/CF)	2,341	Ton	$		$	
1-13	P-620-1	Taxiway Marking And Striping, Yellow, Including Reflective Media And Microbicide	8,249	S.F.	$		$	
1-14	GDOT 656-1	Obliterate Pavement Markings	656	S.F.	$		$	
1-15	T-901-1	Seeding & Fertilizing	3	AC	$		$	
1-16	T-905-1	Topsoil (Furnished From Off The Site)	866	C.Y.	$		$	
1-17	T-908-1	Mulching	3	AC	$		$	
						BASE BID 1 – TOTAL: $		
BASE BID 2 - TAXIWAY 'A' ELECTRICAL								
2-1	C-105-2	Site Preparation and Mobilization (10% Max Bid Section 2)	1	L.S.	$		$	
2-2	L-125-6	Remove Base Mounted Sign, Including Foundation, Complete	4	EA	$		$	
2-3	L-125-7	Remove Existing Taxiway Sign and Reuse Foundation	28	EA	$		$	
2-4	L-125-8	Remove Base Mounted Taxiway Edge Light	70	EA	$		$	
2-5	L-125-9	Remove Stake Mounted Taxiway Edge Light	170	EA	$		$	
2-6	L-108-1	Trenching for Direct Buried Cable, 18-inch minimum depth	17,000	L.F.	$		$	
2-7	L-108-2	No. 8 AWG, 5 kV, L-824, Type C Cable, Installed in Trench, Duct Bank, or Conduit	20,801	L.F.	$		$	
2-8	L-108-3	No. 6 AWG, Solid, Bare Copper Counterpoise Wire, Installed In Trench, Above the Duct Bank Or Conduit, Including Connections/Terminations	16,295	L.F.	$		$	
2-9	L-108-4	No. 6 AWG, Insulated, Stranded "Green" Equipment Ground, Installed in Duct Bank or Conduit	17,073	L.F.	$		$	
2-10	L-109-1	Electrical Vault Work	1	EA	$		$	
2-11	L-109-2	Install New L-829 15 kW Constant Current Regulator (Taxiway)	1	EA	$		$	
2-12	L-110-1	Non-Encased, Electrical Conduit, 1-Way 2-Inch (50mm) C	500	L.F.	$		$	

2-13	L-115	Electrical Handhole, L-867 Size B, With Blank Cover	8	EA	$		$	
2-14	L-125-1	Medium Intensity, LED, Taxiway Edge Light, L-861T(L), Blue Filter, Class 1, Mode 1, Option 4, Stake Mounted	161	EA	$		$	
2-15	L-125-2	Medium Intensity, LED, Taxiway Edge Light, L-861T(L), Blue Filter, Class 2, Mode 1, Option 4, Base Mounted	69	EA	$		$	
2-16	L-125-3	1 Module Mandatory Guidance Sign, L-858R, LED, Size 2, Style 2, Mode 1, Complete	5	EA	$		$	
2-17	L-125-4	2 Module Mandatory Guidance Sign, L-858R, LED, Size 2, Style 2, Mode 1, Complete	17	EA	$		$	
2-18	L-125-5	3 Module Mandatory Guidance Sign, L-858R, LED, Size 2, Style 2, Mode 1, Complete	6	EA	$		$	
						BASE BID 2 – TOTAL:	**$**	
ALTERNATE A: BASE BID 1 - UNNAMED TAXIWAY (Full Width M/O, 35' Wide Marking)								
A-1	P-101-1	Full Depth Pavement Removal	436	S.Y.	$		$	
A-2	P-152-2	In-Place Embankment (fill)	196	C.Y.	$		$	
A-3	P-207-1	In-Place Full Depth Reclamation (FDR) Recycled Asphalt Aggregate Base Course (8" thick)	1,820	S.Y.	$		$	
A-4	GDOT 400-1	Asphalt Surface Course, 3.0" Thick (assume 160lbs/CF)	328	Ton	$		$	
A-5	GDOT 656-1	Obliterate Pavement Markings	151	S.F.	$		$	
A-6	P-620-1	Taxiway Marking And Striping, Yellow, Including Reflective Media And Microbicide	1,873	S.F.	$		$	
A-7	T-901-1	Seeding & Fertilizing	1	AC	$		$	
A-8	T-905-1	Topsoil (Furnished From Off The Site)	48	C.Y.	$		$	
A-9	T-908-1	Mulching	1	AC	$		$	
						ALTERNATE A – TOTAL:	**$**	
ALTERNATE B: BASE BID 1 - TAXIWAY 'T' (Full Width M/O, 35' Wide Marking)								
B-1	P-101-1	Full Depth Pavement Removal	2,869	S.Y.	$		$	
B-2	P-152-2	In-Place Embankment (Fill)	1,348	C.Y.	$		$	
B-3	P-207-1	In-Place Full Depth Reclamation (FDR) Recycled Asphalt Aggregate Base Course (8" Thick)	14,568	S.Y.	$		$	
B-4	P-209-1	Crushed Aggregate Base Course, 8.0" Thick	166	S.Y.	$		$	
B-5	GDOT 400-1	Asphalt Surface Couse, 3.0" Thick	2,622	TON	$		$	
B-6	P-620-1	Taxiway Marking And Striping, Yellow, Including Reflective Media And Microbicide	8,074	S.F.	$		$	

B-7	GDOT 656-1	Obliterate Pavement Markings	178	S.F.	$		$	
B-8	T-901-1	Seeding & Fertilizing	1	AC	$		$	
B-9	T-905-1	Topsoil (Furnished From Off The Site)	319	C.Y.	$		$	
B-10	T-908-1	Mulching	1	AC	$		$	
						ALTERNATE B – TOTAL:	**$**	
ALTERNATE C: BASE BID 1 - TAXILANE (Full Width M/O, 35' Wide Marking)								
C-1	P-101-6	Cold Mill (0 to 2 inches)	2,061	S.Y.	$		$	
C-2	GDOT 400-1	Asphalt Surface Course, 2.0" Thick (assume 160lbs/CF)	247	Ton	$		$	
C-3	P-603-1	Emulsified Asphalt Tack Coat (0.25gal/SY)	515	GAL	$		$	
C-4	P-620-1	Taxiway Marking And Striping, Yellow, Including Reflective Media And Microbicide	989	S.F.	$		$	
C-5	GDOT 656-1	Obliterate Pavement Markings	59	S.F.	$		$	
						ALTERNATE C – TOTAL:	**$**	
ALTERNATE D: BASE BID 1- TAXIWAY 'A' PARTIAL FDR								
D-1	P-101-1	Full Depth Pavement Removal	7,274	S.Y.	$		$	
D-2	P-152-2	In-Place Embankment	3,556	C.Y.	$		$	
D-3	GDOT 656-1	Obliterate Pavement Markings	51	S.F.	$		$	
D-4	T-901-1	Seeding & Fertilizing	2	AC	$		$	
D-5	T-905-1	Topsoil (Furnished From Off The Site)	808	C.Y.	$		$	
D-6	T-908-1	Mulching	2	AC	$		$	
						ALTERNATE D – TOTAL:	**$**	

TOTAL BID SECTION 1 + BID SECTION 2 (BASE: Items 1-1 thru 1-18, 2-1 thru 2-18)	**$**
***BASE + ALTERNATE A** (Items 1-1 thru 1-18, 2-1 thru 2-18, A-1 thru A-6)	**$**
***BASE + ALTERNATE A + ALTERNATE B** (Items 1-1 thru 1-18, 2-1 thru 2-18, A-1 thru A-6, B-1 thru B-11)	**$**
***BASE + ALTERNATE A + ALTERNATE B + ALTERNATE C** (Items 1-1 thru 1-18, 2-1 thru 2-18, A-1 thru A-6, B-1 thru B-6, C-1 thru C-5)	**$**
***BASE + ALTERNATE A + ALTERNATE B + ALTERNATE C + ALTERNATE D** (Items 1-1 thru 1-18, 2-1 thru 2-18, A-1 thru A-6, B-1 thru B-6, C-1 thru C-5, D-1 thru D-8)	**$**

***BASE = BASE BID 1 + BASE BID 2**

ACKNOWLEDGEMENTS BY BIDDER

a. By submittal of a proposal, the BIDDER acknowledges and accepts that the quantities established by the OWNER are an approximate estimate of the quantities required to fully complete the Project and that the estimated quantities are principally intended to serve as a basis for evaluation of bids. The BIDDER further acknowledges and accepts that payment under this contract will be made only for actual quantities and that quantities will vary in accordance with the General Provisions subsection entitled "Alteration of Work and Quantities".

b. The BIDDER acknowledges and accepts that the Bid Documents are comprised of the following documents:
   - Requests For Bids/Invitation For Bids (Newspaper Advertisement) (Article 1)
   - Notice-to-Bidders (Article 1)
   - Instructions-to-Bidders (Article 1)
   - This Proposal Form (including DBE and Buy American Forms (Article 1)
   - Any Authorized Addenda Issued (Article 1)
   - Form of Contract and Performance/Payment Bonds (Article 1)
   - Contract Provisions (Article 2)
   - Davis-Bacon Wage Determinations (Article 3)
   - FAA General Contract Provisions Specifications (Article 4)
   - Benesch Created Specifications (Article 5)
   - Insert Additional Articles if Included with the specification document
   - FAA Standard Specifications (Appendix 1)
   - Construction Safety and Phasing Plan (Appendix 2)
   - Sample Contractor Safety Plan Compliance Document (Appendix 3)
   - FAA AC 150/5370-2G (Operational Safety On Airports During Construction) (Appendix 4)
   - FAA Buy American Waivers Issued (Appendix 5)
   - Contractor Shop Drawing Submittal Cover Page (Appendix 6)
   - Geotechnical Report (Appendix 7)
   - Erosion Control and Sediment Control Forms (Appendix 8)
   - FAA AC 150/5345-53D Airport Lighting Equipment Certification Program (Appendix 9)
   - Plan Drawings
   - Any Other Document Incorporated In Whole Or In Part By Reference.

The BIDDER further acknowledges that each of the individual documents that comprise the Bid Documents are complementary to one another and together establish the complete terms, conditions and obligations of the successful BIDDER.

c. As evidence of good faith in submitting this proposal, the undersigned encloses a bid guaranty in the form of a certified check or bid bond in the amount of 5% of the **Total Bid**.

d. The BIDDER acknowledges and accepts the OWNER'S right to reject any or all bids and to waive any minor informality in any Bid or solicitation procedure.

e. The BIDDER acknowledges and accepts the OWNER'S right to hold all Proposals for purposes of review and evaluation and not issue a notice-of-award for a period not to exceed **one-hundred twenty (120) calendar days** from the stated date for receipt of bids.

f. The undersigned agrees that upon written notice of award of contract, he or she will execute the contract and furthermore provide executed payment and performance bonds within the timeframes specified in the instructions-to-bidders. The undersigned acknowledges and accepts that refusal or failure to accept the award and execute a contract and bonds within the terms and conditions established herein will result in forfeiture of the bid guaranty to the Owner as a liquidated damage.

g. Time of Performance: By submittal of this proposal, the undersigned acknowledges and agrees to commence work within ten (10) calendar days of the date specified in the written "Notice-to-Proceed" as issued by the OWNER. The undersigned agrees to complete work **within the contract time allowances as specified in the Notice-To-Bidders** from the commencement date specified in the Notice-To-Proceed(s).

h. The undersigned acknowledges and accepts that failure to complete each Phase or Element within the respective specified calendar day allowance, the Contractor shall pay the non-penal sum prescribed in the Notice-To-Bidders (NTB) as a liquidated damage to the Owner.

i. The BIDDER acknowledges that the OWNER has established a contract Disadvantaged Business Enterprise goal of **9.73 percent** for this project. The BIDDER acknowledges and accepts the requirement to apply and document good faith efforts, as defined in Appendix A, 49 CFR Part 26, for subcontracting a portion of the prime contract to certified Disadvantaged Business Enterprises (DBE), as defined in 49 CFR Part 26 for purposes of meeting the OWNER'S established goal. The BIDDER, in complying with this requirement, proposes participation by Disadvantaged Business Enterprises as stated on the forms, "Utilization Statement" and "Letter of Intent".

j. The BIDDER, by submission of a proposal, acknowledges that award of this contract is subject to the provisions of the Davis Bacon Act. The BIDDER accepts the requirement to pay prevailing wages for each classification and type of worker as established in the attached wage rate determination as issued by the United States Department of Labor. The BIDDER further acknowledges and accepts their requirement to incorporate the provision to pay the established prevailing wages in every subcontract agreement entered into by the Bidder under this project.

k. Compliance Reports (41 CFR Part 60-1.7): Within 30 days after award of this contract, the Contractor/Subcontractor shall file a compliance report (Standard Form 100) if s/he has not submitted a complete compliance report within 12 months preceding the date of award. This report is required if the Contractor/Subcontractor meets all of the following conditions:

    1. Contractors/Subcontractors are not exempt based on 41 CFR 60-1.5.
    2. Has 50 or more employees.
    3. Is a prime contractor or first tier subcontractor.
    4. There is a contract, subcontract, or purchase order amounting to $50,000 or more.

l. Bidder must demonstrate that they made good faith efforts to achieve participation with DBE firms. This requires that the bidder show that it took all necessary and reasonable steps to secure participation by certified DBE firms. Mere pro forma efforts will not be considered as a good faith effort.

    - Actions constituting evidence of good faith efforts are described in Appendix A of 49 CFR Part 26.

m. The bidder must specifically agree not to discriminate against any recipients of services on the basis of race, color, sex, religion, creed, age, marital status, physical or mental disability, political affiliation, national origin or ancestry and not to discriminate against any employees or applicant for employment on the basis of race, color, sex, religion, creed, age, marital status, physical or mental disability, political affiliation, national origin or ancestry.

n. The undersigned agrees to comply with all current and applicable Federal, State, and local rules and regulations governing the safety of men and materials during its operations including observing the requirements of the Occupational Safety and Health Administration (OSHA).

o. The undersigned acknowledges that the project is subject to the FAA's current Federal Provisions as provided in Article 2 "Contract Provisions". The undersigned furthermore hereby certifies that they, and their subcontractors, comply with the Federal Provisions as incorporated herein.

p. The undersigned acknowledges receipt of the following addenda:

Addendum Number: _____ Addendum Date: _____ Date Received: _____

Addendum Number: _____ Addendum Date: _____ Date Received: _____

Addendum Number: _____ Addendum Date: _____ Date Received: _____

Addendum Number: _____ Addendum Date: _____ Date Received: _____

REPRESENTATIONS BY BIDDER
By submittal of a proposal (bid), the BIDDER represents the following:

a. The BIDDER has read and thoroughly examined the bid documents including all authorized addenda.
b. The BIDDER has a complete understanding of the terms and conditions required for the satisfactory performance of project work.
c. The BIDDER has fully informed themselves of the project site, the project site conditions and the surrounding area.
d. The BIDDER has familiarized themselves of the requirements of working on an operating airport and understands the conditions that may in any manner affect cost, progress or performance of the work
e. The BIDDER has correlated their observations with that of the project documents.
f. The BIDDER has found no errors, conflicts, ambiguities or omissions in the project documents, except as previously submitted in writing to the owner that would affect cost, progress or performance of the work.
g. The BIDDER is familiar with all applicable Federal, State and local laws, rules and regulations pertaining to execution of the contract and the project work.
h. The BIDDER has complied with all requirements of these instructions and the associated project documents.

CERTIFICATIONS BY BIDDER

a. The undersigned hereby declares and certifies that the only parties interested in this proposal are named herein and that this proposal is made without collusion with any other person, firm or corporation. The undersigned further certifies that no member, officer or agent of OWNER'S has direct or indirect financial interest in this proposal.

b. **Certification of Non-Segregated Facilities:** (41 CFR Part 60-1.8)
The BIDDER, as a potential federally-assisted construction contractor, certifies that it does not maintain or provide, for its employees, any segregated facilities at any of its establishments and that it does not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The BIDDER certifies that it will not maintain or provide, for its employees, segregated facilities at any of its establishments and that it will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The Bidder agrees that a breach of this certification is a violation of the Equal Opportunity Clause, which is to be incorporated in the contract.

As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms, and washrooms, restaurants and other eating areas, timeclocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated on the basis of race, color, religion, or national origin because of habit, local custom, or any other reason. The Bidder agrees that (except where it has obtained identical certifications from proposed subcontractors for specific time periods) it will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity Clause and that it will retain such certifications in its files.

c. **Trade Restriction Certification:** (49 USC § 50104, 49 CFR Part 30)
By submission of an offer, the Offeror certifies that with respect to this solicitation and any resultant contract, the Offeror –

1) is not owned or controlled by one or more citizens of a foreign country included in the list of countries that discriminate against U.S. firms as published by the Office of the United States Trade Representative (USTR);

2) has not knowingly entered into any contract or subcontract for this project with a person that is a citizen or national of a foreign country included on the list of countries that discriminate against U.S. firms as published by the USTR; and

3) has not entered into any subcontract for any product to be used on the Federal project that is produced in a foreign country included on the list of countries that discriminate against U.S. firms published by the USTR.

This certification concerns a matter within the jurisdiction of an agency of the United States of America and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18 USC § 1001.

The Offeror/Contractor must provide immediate written notice to the Owner if the Offeror/Contractor learns that its certification or that of a subcontractor was erroneous when submitted or has become erroneous by reason of changed circumstances. The Contractor must require subcontractors provide immediate written notice to the Contractor if at any time it learns that its certification was erroneous by reason of changed circumstances.

Unless the restrictions of this clause are waived by the Secretary of Transportation in accordance with 49 CFR § 30.17, no contract shall be awarded to an Offeror or subcontractor:

1) who is owned or controlled by one or more citizens or nationals of a foreign country included on the list of countries that discriminate against U.S. firms published by the USTR; or
2) whose subcontractors are owned or controlled by one or more citizens or nationals of a foreign country on such USTR list; or
3) who incorporates in the public works project any product of a foreign country on such USTR list.

Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by this provision. The knowledge and information of a contractor is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

The Offeror agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in all lower tier subcontracts. The Contractor may rely on the certification of a prospective subcontractor that it is not a firm from a foreign country included on the list of countries that discriminate against U.S. firms as published by USTR, unless the Offeror has knowledge that the certification is erroneous.

This certification is a material representation of fact upon which reliance was placed when making an award. If it is later determined that the Contractor or subcontractor knowingly rendered an erroneous certification, the Federal Aviation Administration (FAA) may direct through the Owner cancellation of the contract or subcontract for default at no cost to the Owner or the FAA. .

d. **Certification Of Bidder Regarding Debarment:** (2 CFR Part 180 (Subpart B); 2 CFR Part 200, Appendix II(H); 2 CFR Part 1200; DOT Order 4200.5; Executive Orders 12549 and 12689)

By submitting a bid/proposal under this solicitation, the bidder or offeror certifies that neither it nor its principals are presently debarred or suspended by any Federal department or agency from participation in this transaction

e. **Certification of Lower Tier Contractors Regarding Debarment**
The Bidder or Offeror certifies by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the Bidder or Offeror, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

f. **Certification Regarding Lobbying:** (31 USC §1352 – Byrd Anti-Lobbying Amendment; 2 CFR Part 200, Appendix II(I); 49 CFR Part 20, Appendix A)

The Bidder or Offeror certifies by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the Bidder or Offeror, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

g. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure **Buy American Certification:**
(Title 49 USC § 50101; Executive Order 14005, *Ensuring the Future is Made in All of America by All of America's Workers*; Bipartisan Infrastructure Law (Pub. L. No. 117-58), Build America, Buy America (BABA))

The Contractor certifies that its bid/offer is in compliance with 49 USC § 50101, BABA and other related Made in America Laws,[1] U.S. statutes, guidance, and FAA policies, which provide that Federal funds may not be obligated unless all iron, steel and manufactured goods used in AIP funded projects are produced in the United States, unless the Federal Aviation Administration has issued a waiver for the product; the product is listed as an Excepted Article, Material Or Supply in Federal Acquisition Regulation subpart 25.108; or is included in the FAA Nationwide Buy American Waivers Issued list.

The bidder or offeror must complete and submit the certification of compliance with FAA's Buy American Preference, BABA and Made in America laws included herein with their bid or offer. The Airport Sponsor/Owner will reject as nonresponsive any bid or offer that does not include a completed certification of compliance with FAA's Buy American Preference and BABA.

The bidder or offeror certifies that all constructions materials, defined to mean an article, material, or supply other than an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives that are or consist primarily of: non-ferrous metals; plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables); glass (including optic glass); lumber; or drywall used in the project are manufactured in the U.S.

h. Additional Insurance Charge:
If there is an additional charge for the insurance for naming Troup County and the Engineer as additional insured, the amount must be shown here. The amount shown will not change the total bid. A blank or inserting a zero will mean the Bidder's insurance company does not charge an extra fee for naming the Troup County and the Engineer as an additional insured per GP 70-21.

$_____

ATTACHMENTS TO THIS BID
The following documents are attached to and made a part of this Bid:

1. Bid Guaranty;
2. Good Faith Efforts (if applicable).

1 Per Executive Order 14005 "Made in America Laws" means all statutes, regulations, rules, and Executive Orders relating to federal financial assistance awards or federal procurement, including those that refer to "Buy America" or "Buy American," that require, or provide a preference for, the purchase or acquisition of goods, products, or materials produced in the United States, including iron, steel, and manufactured products offered in the United States.

SIGNATURE OF BIDDER

IF AN INDIVIDUAL

Name: _____

By: _____

(Signature Of Individual)

Doing Business As: _____

Email Address: _____

Business Address: _____

_____

Telephone Number: _____

IF A PARTNERSHIP

Partnership Name: _____

By: _____

(Authorized Signature)

(Attach Evidence Of Authority To Sign As A Partnership)

Name And Title: _____

Email Address: _____

Business Address: _____

_____

Telephone Number: _____

IF A CORPORATION

Corporation Name: _____

By: _____

(Authorized Signature)

(Attach Evidence Of Authority To Sign)

Name And Title: _____

Email Address: _____

Business Address: _____

Telephone Number:

CORPORATE SEAL

ATTEST:

By: _____

(Authorized Signature)

Name And Title: _____

IF A JOINT VENTURE: *(Attach A Copy Of Joint Venture Agreement)*

Joint Venture Name: _____

By: _____

(Authorized Signature)

(Attach Evidence Of Authority To Sign)

Name And Title: _____

Email Address: _____

Business Address: _____

_____

Telephone Number: _____

Joint Venture Name: _____

By: _____

(Authorized Signature)

(Attach Evidence Of Authority To Sign)

Name And Title: _____

Email Address: _____

Business Address: _____

_____

Telephone Number: _____

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DBE UTILIZATION STATEMENT
Disadvantage Business Enterprise

The undersigned bidder/offeror has satisfied the requirements of the bid specification in the following manner. (*Please check the appropriate box*)

☐ **The bidder/offeror is committed to a minimum of ___% DBE utilization on this contract.**

☐ **The bidder/offeror, while unable to meet the DBE goal of ____%, hereby commits to a minimum of _____% DBE utilization on this contract and also submits documentation, as an attachment, demonstrating good faith efforts (GFE).**

The undersigned hereby further assures that the information included herein is true and correct, and that the DBE firm(s) listed herein have agreed to perform a commercially useful function in the work items noted for each firm. The undersigned further understands that no changes to this statement may be made without prior approval from the Civil Right Staff of the Federal Aviation Administration.

_____
Bidder's/Offeror's Firm Name

_____ _____
Signature Date

Note: In order to meet the minimum DBE contract goal % for all potential award options (if applicable), the Bidder should base their below DBE dollar participation on the Bidder's largest bid amount for the various award options.

DBE UTILIZATION SUMMARY

	Contract Amount		DBE Amount	Contract Percentage
DBE Prime Contractor	$_____	x 1.00 =	$_____	_____%
DBE Subcontractor	$_____	x 1.00 =	$_____	_____%
DBE Supplier	$_____	x 0.60 =	$_____	_____%
DBE Manufacturer	$_____	x 1.00 =	$_____	_____%
Total Amount DBE			$_____	_____%
DBE Goal			$_____	_____%

*If the total proposed DBE participation is less than the established DBE goal, you must provide written documentation of the good faith efforts as required by 49 CFR Part 26.

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DBE LETTER OF INTENT
Disadvantaged Business Enterprise
(This page shall be submitted for each DBE firm)

Bidder/Offer Name:_____

Address:_____

City:_____ State:_____ Zip:_____

DBE Firm: DBE Firm:_____

Address:_____

City:_____ State:_____ Zip:_____

DBE Contact Person: Name:_____ Phone: (____)_____

DBE Certification Agency: _____ Expiration Date:_____

Each DBE Firm shall submit evidence (such as a photocopy) of their certification status submitted with the Letter of Intent.

Classification: ☐ Prime Contractor ☐ Subcontractor ☐ Joint Venture
☐ Manufacturer ☐ Supplier

Work items to be performed by DBE	Description	Quantity	Total

The bidder/offeror is committed to utilizing the above-named DBE firm for the work described above. The estimated participation is as follows:

DBE contract amount:$_____Percent of total contract:_____%

Affirmation
The above-named DBE firm affirms that it will perform the portion of the contract for the estimated dollar value as stated above.

By: _____
(Signature) *(Title)*

In the event the bidder/offeror does not receive award of the prime contract, any and all representations in this Letter of Intent and Affirmation shall be null and void.

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TENTATIVE LIST OF SUBCONTRACTORS
(To Be Completed With Execution of Contract)

AIP Project: **AP024-9000-33(217)**

Project Name: **Partial Taxiway 'B1'**

Airport: **Covington Municipal Airport (CVC)**

Location: **Covington, Georgia**

The Airport Sponsor is required to submit subcontract information about DBE and non-DBE subcontractors who perform work on their federally-assisted contracts. Therefore the Airport Sponsor requires that the prime contractor submit the following information related to this project. The DBE rules described in the Information to Bidders and Contract must be followed in regards to the firms listed on the DBE Participation Statement.

Proposed Subcontractors			
	Subcontractor	**Work To Be Performed**	**Approximate Dollar Value**
1)			
2)			
3)			
4)			
5)			
6)			
7)			
8)			
9)			
10)			
11)			
12)			
13)			

Date _____ Signature _____

Company Name _____ Title _____

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Bidder's List Collection Form

The following form is to be completed at the time of bids are received.

AIP Project No.: AP024-9052-44(285)
Project Description: Taxiway 'A' Pavement Rehab & Lighting
Airport Name: LaGrange-Callaway Airport (LGC)
Airport Location: 200 Airport Pkwy LaGrange, GA 30240

The data must be collected for all firms who bid as prime contractors or subcontractors (successfully or not).

Prime Contractors and/or Subcontractors Bidding on the Project

Firm Name	Street Address	City	State	ZIP Code	DBE or Non-DBE Status	NAICS Code(s) of Scope(s) Bid	Race of Majority Owner	Gender of Majority Owner	Age of Firm	Approx. Contract Dollar Value	Annual Gross Receipts

Date _____ Signature _____

Company Name _____ Title _____

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CERTIFICATION OF COMPLIANCE WITH FAA BUY AMERICAN PREFERENCE – CONSTRUCTION PROJECTS

As a matter of bid responsiveness, the bidder or offeror must complete, sign, date, and submit this certification statement with its proposal. The bidder or offeror must indicate how it intends to comply with 49 USC § 50101, BABA and other related Made in America Laws, U.S. statutes, guidance, and FAA policies, by selecting one of the following certification statements. These statements are mutually exclusive. Bidder must select one or the other (i.e., not both) by inserting a checkmark (✓) or the letter "X".

☐ Bidder or offeror hereby certifies that it will comply with 49 USC § 50101, BABA and other related U.S. statutes, guidance, and policies of the FAA by:

a) Only installing iron, steel and manufactured products produced in the United States;
b) Only installing construction materials defined as: an article, material, or supply – other than an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives that are or consist primarily of non-ferrous metals; plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables); glass (including optic glass); lumber or drywall that have been manufactured in the United States.
c) Installing manufactured products for which the Federal Aviation Administration (FAA) has issued a waiver as indicated by inclusion on the current FAA Nationwide Buy American Waivers Issued listing; or
d) Installing products listed as an Excepted Article, Material or Supply in Federal Acquisition Regulation Subpart 25.108.

By selecting this certification statement, the bidder or offeror agrees:

a) To provide to the Airport Sponsor or the FAA evidence that documents the source and origin of the iron, steel, and/or manufactured product.
b) To faithfully comply with providing U.S. domestic products.
c) To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.
d) Certify that all construction materials used in the project are manufactured in the U.S.

☐ The bidder or offeror hereby certifies it cannot comply with the 100 percent Buy American Preferences of 49 USC § 50101(a) but may qualify for a Type 3 or Type 4 waiver under 49 USC § 50101(b). By selecting this certification statement, the apparent bidder or offeror with the apparent low bid agrees:

a) To the submit to the Airport Sponsor or FAA within 15 calendar days of being selected as the responsive bidder, a formal waiver request and required documentation that supports the type of waiver being requested.
b) That failure to submit the required documentation within the specified timeframe is cause for a non-responsive determination that may result in rejection of the proposal.
c) To faithfully comply with providing U.S. domestic products at or above the approved U.S. domestic content percentage as approved by the FAA.
d) To furnish U.S. domestic product for any waiver request that the FAA rejects.
e) To refrain from seeking a waiver request after establishment of the contract, unless extenuating circumstances emerge that the FAA determines justified.

Required Documentation

Type 2 Waiver (Nonavailability) - The iron, steel, manufactured goods or construction materials or manufactured goods are not available in sufficient quantity or quality in the United States. The required documentation for the Nonavailability waiver is

a) Completed Content Percentage Worksheet and Final Assembly Questionnaire
b) Record of thorough market research, consideration where appropriate of qualifying alternate items, products, or materials including;
c) A description of the market research activities and methods used to identify domestically manufactured items capable of satisfying the requirement, including the timing of the research and conclusions reached on the availability of sources.

Type 3 Waiver – The cost of components and subcomponents produced in the United States is more than 60 percent of the cost of all components and subcomponents of the "facility/project." The required documentation for a Type 3 waiver is:

a) Completed Content Percentage Worksheet and Final Assembly Questionnaire including;
b) Listing of all manufactured products that are not comprised of 100 percent U.S. domestic content (excludes products listed on the FAA Nationwide Buy American Waivers Issued listing and products excluded by Federal Acquisition Regulation Subpart 25.108; products of unknown origin must be considered as non-domestic products in their entirety).
c) Cost of non-domestic components and subcomponents, excluding labor costs associated with final assembly and installation at project location.
d) Percentage of non-domestic component and subcomponent cost as compared to total "facility" component and subcomponent costs, excluding labor costs associated with final assembly and installation at project location.

Type 4 Waiver (Unreasonable Costs) - Applying this provision for iron, steel, manufactured goods or construction materials would increase the cost of the overall project by more than 25 percent. The required documentation for this waiver is:

a) A completed Content Percentage Worksheet and Final Assembly Questionnaire from
b) At minimum two comparable equal bids and/or offers;
c) Receipt or record that demonstrates that supplier scouting called for in Executive Order 14005, indicates that no domestic source exists for the project and/or component;
d) Completed waiver applications for each comparable bid and/or offer.

False Statements: Per 49 USC § 47126, this certification concerns a matter within the jurisdiction of the Federal Aviation Administration and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18, United States Code.

Date	Signature
Company Name	Title

BUY AMERICAN WAIVER REQUEST
Title 49 U.S.C Section 50101 (b)

For Airfield Development Projects funded under the Airport Improvement Program

Type of Waiver Request:
The bidder may request a waiver subject to the provisions of Section 50101(b)(3) or Section 50101(b)(4). The bidder may not request a waiver under Section 50101(b)(1) or Section 50101(b)(2). Bidder is hereby advised that the Owner's approval with the bidder's waiver request is contingent upon FAA approval. The bidder must select one of the following applicable waiver provisions:

❒ Section 50101(b)(3): Bidder hereby requests a waiver to Buy America preferences based upon Section 50101(b)(3) for the equipment identified below. The bidder certifies that ____% of the cost of components and subcomponents comprising the equipment are produced in the United States and that final assembly occurs within the United States. *(Bidder must attach a copy of the component cost calculation table)*

❒ Section 50101(b)(4). Bidder hereby requests a waiver to Buy America preferences based upon Section 50101(b)(4). The bidder asserts provision of domestic material increases the cost of the overall project by more than 25%. *(Note: This type of waiver is very rare)*

Certification Signature
In accordance with Section 50101(b), we request a waiver to the Buy America provisions based on the above certification and attached documentation.

_____ _____
Bidder's Firm Name *Date*

_____
Signature

Signature **Instructions for Section 50101(b)(3) Waiver:**

1. "Equipment" in Section 50101 shall mean the following:
   a) Individual type "L" items (Airfield Lighting Equipment) as listed in FAA Advisory Circular 150/5345-53.
   b) Individual bid items as established within FAA Advisory Circular 150/5370-10. The bid item application may not be applied for the type "L" items listed in AC 150/5345-53.
   c) A waiver request may only address one specific equipment item. Submit separate requests for each equipment item for which a waiver.
   d) Items listed under the Nationwide Waiver do not require further review. Please refer to the following webpage: http://www.faa.gov/airports/aip/procurement/federal_contract_provisions/media/buy_american_waiver.xls
2. The bidder must base the U.S. percentage upon the value that results from completing a component cost calculation table similar to the attached format. Bidder shall avoid mere pro forma efforts to establish the waiver request percentage. The Bidder must submit the component cost calculation table as an attachment to the waiver request.
3. Components/subcomponents are the material and products composing the "equipment".
4. The final assembly of the AIP-funded "equipment" must be within the USA *(Section 50101(b)(3)(B)).* Final assembly is the substantial transformation of the components and subcomponents into the end product.
5. All steel used in the "Equipment" must be produced in the United States.
6. The Buy American requirements apply to all tier contractors and subcontractors. All contractors/subcontractors are required to provide appropriate documentation that indicates origin of manufacturer and percentage of domestic made product.
7. The bidder is hereby advised there is no implied or expressed guarantee that a requested waiver will be issued by the Federal Aviation Administration (FAA). Less than 60% USA component/subcomponent proposed for this facility CANNOT be waived. Products made with foreign steel are not eligible for a waiver.

Instructions for Section 50101(b)(4) Waiver:

1. The 25% cost increase waiver is rarely applicable. Consult Owner before making this request.

North America Free Trade Act (NAFTA)

The NAFTA **does not** apply to the AIP. Products and material made in Canada or Mexico must be considered as foreign made products.

FAA FORM 5100-136, BUY AMERICAN PRODUCT CONTENT PERCENTAGE WORKSHEET

FAA FORM 5100-137, BUY AMERICAN PREFERENCES – FINAL ASSEMBLY QUESTIONNAIRE

The FAA Form 5100-136, 5100-137, and/or 5100-143 may be required to be completed if a Buy American Waiver Request is desired.

These Forms may be found on the FAA's website under the *Buy American Waivers* header:
https://www.faa.gov/airports/aip/buy_american

– CONFIDENTIAL –
NOT SUBJECT TO DISCLOSURE UNDER EXEMPTION # 4 OF THE FREEDOM OF INFORMATION ACT
FAA Buy American Preference Construction Project
Content Percentage Worksheet

Airport Sponsor: Date:

Airport Worksite:

Worksite LOCID:

Project Description:

Total material cost:
U.S. Content: %
Non-U.S. Content: %

Project Material Structure List (Bill of Materials)

Line	Material Level (1 or 2)	Materials	Cost of U.S. Origin Materials	Cost of Non-U.S. Materials
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

For FAA Use Only

– CONFIDENTIAL –
NOT SUBJECT TO DISCLOSURE UNDER EXEMPTION # 4 OF THE FREEDOM OF INFORMATION ACT

Line	Material Level (1 or 2)	Materials	Cost of U.S. Origin Materials	Cost of Non-U.S. Materials
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
		SUBTOTAL		

For FAA Use Only

TOTAL MATERIAL COST:

U.S. Content: **%**

Non-U.S. Content: **%**

The undersigned certifies that this information is true and accurate to the best of their knowledge. A false certification represents a violation of 18 U.S.C § 1001 and 49 U.S.C § 47126. Signatory has the burden of proof to establish compliance.

Signature: _____

Name:

Title:

BUY AMERICAN CONFORMANCE LISTING
Title 49 U.S.C Section 50101 (b)

For Airfield Development Projects funded under the Airport Improvement Program

- *Bidder shall submit a listing of equipment it proposes to install on the project that is included on the current National Buy American conformance list* ***(Refer to Appendix 5 for list)***.

Equipment Type	Name of Manufacturer	Product Number

Certification Signature:

Bidder hereby certifies that the above listed equipment, which we propose for installation on the subject project, are on the National Buy American Conformance list included as Appendix 5.

I hereby certify the above information is accurate and complete.

_____ _____

Bidder's Firm Name *Date*

_____

Signature

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CERTIFICATE OF BIDDER REGARDING TAX DELIQUENCY AND FELONY CONVICTIONS

The Contractor must complete the following two certification statements. The Contractor must indicate its current status as it relates to tax delinquency and felony conviction by inserting a checkmark (✓) in the space following the applicable response. The Contractor agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification in all lower tier subcontracts.

Certifications

1) The Contractor represents that it is ( ) is not ( ) a corporation that has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.
2) The Contractor represents that it is ( ) is not ( ) a corporation that was convicted of a criminal violation under any Federal law within the preceding 24 months.

Note

If a Contractor responds in the affirmative to either of the above representations, the Contractor is ineligible to receive an award unless the Sponsor has received notification from the agency suspension and debarment official (SDO) that the SDO has considered suspension or debarment and determined that further action is not required to protect the Government's interests. The Contractor therefore must provide information to the owner about its tax liability or conviction to the Owner, who will then notify the FAA Airports District Office, which will then notify the agency's SDO to facilitate completion of the required considerations before award decisions are made.

Term Definitions

Felony conviction: Felony conviction means a conviction within the preceding twenty four (24) months of a felony criminal violation under any Federal law and includes conviction of an offense defined in a section of the U.S. Code that specifically classifies the offense as a felony and conviction of an offense that is classified as a felony under 18 USC § 3559.

Tax Delinquency: A tax delinquency is any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted, or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

Date	Signature
Company Name	Title

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CONTRACT AGREEMENT

TROUP COUNTY
LAGRANGE CALLAWAY AIRPORT, LAGRANGE, GEORGIA
Taxiway 'A' Pavement Rehabilitation & Lighting
AIP Project No: AP024-9052-44(285)

THIS AGREEMENT, made as of _____, 2025, is

BY AND BETWEEN

the OWNER: _____
_____
_____

And the CONTRACTOR: _____
_____
_____

WITNESSETH:

WHEREAS it is the intent of the Owner to make improvements at the **LaGrange Callaway Airport (LGC)** generally described as follow; Taxiway 'A' Pavement Rehabilitation & Lighting hereinafter referred to as the Project.

NOW THEREFORE in consideration of the mutual covenants hereinafter set forth, OWNER and CONTRACTOR agree as follows:

Article 1 - Work

It is hereby mutually agreed that for and in consideration of the payments as provided for herein to the CONTRACTOR by the OWNER, CONTRACTOR shall faithfully furnish all necessary labor, equipment, and material and shall fully perform all necessary work to complete the Project in strict accordance with this Contract Agreement and the Contract Documents.

Article 2 – Contract Documents

CONTRACTOR agrees that the Contract Documents consist of the following: this Agreement, Contract Provisions, Special Condition Specifications, FAA General Contract Provisions, FAA Standard Specifications, Plan Drawings, all issued addenda, Notice-to-Bidders, Instructions-to-Bidders, Proposal and associated attachments, Performance Bond, Payment Bond, Wage Rate Determination, Insurance certificates, documents incorporated by reference, documents incorporated by attachment, and all OWNER authorized change orders issued subsequent to the date of this agreement. All documents comprising the Contract Documents are complementary to one another and together establish the complete terms, conditions and obligations of the CONTRACTOR. All said Contract Documents are incorporated by reference into the Contract Agreement as if fully rewritten herein or attached thereto.

Article 3 – Contract Price

In consideration of the faithful performance and completion of the Work by the CONTRACTOR in accordance with the Contract Documents, OWNER shall pay the CONTRACTOR an amount equal to:

(Numerals) $ _____

(Words) $ _____

_____

for all bid items as shown in the schedule of prices bid and the attached proposal which is part of this contract.

Subject to the following;

a. Said amount is based on the schedule of prices and estimated quantities stated in CONTRACTOR'S Bid Proposal, which is attached to and made a part of this Agreement;
b. Said amount is the aggregate sum of the result of the CONTRACTOR'S stated unit prices multiplied by the associated estimated quantities;
c. CONTRACTOR and OWNER agree that said estimated quantities are not guaranteed and that the determination of actual quantities is to be made by the OWNER'S ENGINEER;
d. Said amount is subject to modification for additions and deductions as provided for within the Contract General Provisions.

Article 4 – Payment

Upon the completion of the work and its acceptance by the OWNER, all sums due the CONTRACTOR by reason of faithful performance of the work, taking into consideration additions to or deductions from the Contract price by reason of alterations or modifications of the original Contract or by reason of "Extra Work" authorized under this Contract, will be paid to the CONTRACTOR by the OWNER after said completion and acceptance.

The acceptance of final payment by the CONTRACTOR shall be considered as a release in full of all claims against the OWNER, arising out of, or by reason of, the work completed and materials furnished under this Contract.

OWNER shall make progress payments to the CONTRACTOR in accordance with the terms set forth in Section 90 of the General Provisions. Progress payments shall be based on estimates prepared by the ENGINEER for the value of work performed and materials completed in place in accordance with the Contract Drawings and Specifications.

Progress payments are subject to retainage requirements as set forth in Section 90 of the General Provisions.

Article 5 – Contract Time

The CONTRACTOR agrees to commence work within ten (10) calendar days of the date specified in the OWNER'S Notice-to-Proceed. CONTRACTOR further agrees to complete said work within the **prescribed calendar or working days (whichever pertains to this project) in Section 80 of the GENERAL PROVISIONS** of the commencement date stated within the Notice-to-Proceed.

It is expressly understood and agreed that the stated Contract Time is reasonable for the completion of the Work, taking all factors into consideration. Furthermore, extensions of the Contract Time may only be permitted by execution of a formal modification to this Contract Agreement in accordance with Section 80 of the General Provisions and as approved by the OWNER.

Article 6 – Liquidated Damages

The CONTRACTOR and OWNER understand and agree that time is of essence for completion of the Work and that the OWNER will suffer additional expense and financial loss if said Work is not completed within the authorized Contract Time or if a runway opening delay occurs. Furthermore, the CONTRACTOR and OWNER recognize and understand the difficulty, delay, and expense in establishing the exact amount of actual financial loss and additional expense. Accordingly, in place of requiring such proof, the CONTRACTOR expressly agrees to pay the OWNER as liquidated damages the non-penal sum **prescribed in Section 80 of the GENERAL PROVISIONS of these specifications** for each **calendar day or night closure** required in excess of the authorized Contract Time, or for each occurrence of a runway opening delay.

Furthermore, the CONTRACTOR understands and agrees that;

a. the OWNER has the right to deduct from any moneys due the CONTRACTOR, the amount of said liquidated damages;
b. the OWNER has the right to recover the amount of said liquidated damages from the CONTRACTOR, SURETY or both.

Article 7 – CONTRACTOR'S Representations

The CONTRACTOR understands and agrees that all representations made by the CONTRACTOR within the Proposal shall apply under this Agreement as if fully rewritten herein.

Article 8 – CONTRACTOR'S Certifications

The CONTRACTOR understands and agrees that all certifications made by the CONTRACTOR within the Proposal shall apply under this Agreement as if fully rewritten herein. The CONTRACTOR further certifies the following;

a. Certification of Eligibility (29 CFR Part 5.5)
    i. By Entering into this contract, the CONTRACTOR certifies that neither he or she nor any person or firm who has an interest in the CONTRACTOR'S firm is a person or firm ineligible to be awarded Government contracts by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1);
    ii. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of Section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1);
    iii. The penalty for making false statements is prescribed in the U.S. Criminal Code 18 U.S.C.

b. Certification of Non-Segregated Facilities (41 CFR Part 60-1.8)

    The federally-assisted construction CONTRACTOR certifies that it does not maintain or provide, for its employees, any segregated facilities at any of its establishments and that it does not permit its employees to perform their services at any location, under its control, where segregated facilities are maintained. The BIDDER certifies that it will not maintain or provide, for its employees, segregated facilities at any of its establishments and that it will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The Bidder agrees that a breach of this certification is a violation of the Equal Opportunity Clause, which is to be incorporated in the contract.

    As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms, and washrooms, restaurants and other eating areas, timeclocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees which are segregated on the basis of race, color, religion, or national origin because of habit, local custom, or any other reason. The Bidder agrees that (except where it has obtained identical certifications from proposed subcontractors for specific time periods) it will obtain identical certifications from proposed subcontractors prior to the award of subcontracts exceeding $10,000 which are not exempt from the provisions of the Equal Opportunity Clause and that it will retain such certifications in its files.

Article 9 – Miscellaneous

a. CONTRACTOR understands that it shall be solely responsible for the means, methods, techniques, sequences and procedures of construction in connection with completion of the Work and for initiating, maintaining and supervising all safety precautions and programs in connection with the work;

b. CONTRACTOR understands and agrees that it shall not accomplish any work or furnish any materials that are not covered or authorized by the Contract Documents unless authorized in writing by the OWNER or ENGINEER;

c. The rights of each party under this Agreement shall not be assigned or transferred to any other person, entity, firm or corporation without prior written consent of both parties;

d. OWNER and CONTRACTOR each bind itself, their partners, successors, assigns and legal representatives to the other party in respect to all covenants, agreements, and obligations contained in the Contract Documents.

Article 10 – OWNER'S Representative

The OWNER'S Representative, herein referred to as ENGINEER, is defined as follows:

Alfred Benesch & Company
600 Peachtree Street NE – Suite 2410
Atlanta, Georgia 30308
Telephone: 706-722-4114

Said ENGINEER will act as the OWNER'S representative and shall assume all rights and authority assigned to the ENGINEER as stated within the Contract Documents in connection with the completion of the Project Work.

IN WITNESS WHEREOF, OWNER and CONTRACTOR have executed four (4) copies of this Agreement on the day and year first noted herein.

OWNER	**CONTRACTOR**
Name:	Name:
_____	_____
Address:	Address:
_____	_____
_____	_____
_____	_____
By:	By:
_____	_____
Signature	*Signature*
_____	_____
Title of Representative	*Title of Representative*
ATTEST	**ATTEST**
By:	By:
_____	_____
Signature	*Signature*
_____	_____
Title	*Title*

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LIST OF SUBCONTRACTORS
(To Be Completed With Execution of Contract)

AIP Project: **AP024-9052-44(285)**

Project Name: **Taxiway 'A' Pavement Rehabilitation & Lighting**

Airport: **LaGrange Callaway Airport (LGC)**

Location: **LaGrange, Georgia**

The Airport Sponsor is required to submit subcontract information about DBE and non-DBE subcontractors who perform work on their federally-assisted contracts. Therefore the Airport Sponsor requires that the prime contractor submit the following information related to this project. The DBE rules described in the Information to Bidders and Special Provisions must be followed in regards to the firms listed on the DBE Participation Statement.

Proposed Subcontractors			
	Subcontractor	**Work To Be Performed**	**Approximate Dollar Value**
1)			
2)			
3)			
4)			
5)			
6)			
7)			
8)			
9)			
10)			
11)			
12)			
13)			

Signed: _____ Company: _____

By: _____ Date: _____
(Printed Name)

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PAYMENT BOND

Bond Number

PRINCIPAL *(Legal Name and Business Address)*		
SURETY *(Legal Name and Business Address)*	STATE OF INCORPORATION	
PENAL SUM OF BOND *(Expressed in words and numerals)* $ (Words)	CONTRACT NO.	CONTRACT DATE

OBLIGATION
KNOW ALL PERSONS BY THESE PRESENTS, that the above named PRINCIPAL, hereinafter referred to and called CONTRACTOR, and the above named SURETY hereby bind themselves unto **Troup County, 100 Ridley Ave, Lagrange, Georgia, 30240,** as OBLIGEE, hereinafter referred to and called OWNER, in the penal sum stated above, in lawful money of the United States of America to be paid to OWNER. For payment of the penal sum, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS,
CONTRACTOR has entered into the written contract agreement identified hereinabove with the OWNER for the following project:

Project Name: **Taxiway 'A' Pavement Rehabilitation & Lighting (2024)**

Project Location: **LaGrange Callaway Airport (LGC), LaGrange, Georgia**

which said contract and associated contract documents, including any present or future amendment thereto, is incorporated herein by reference and is hereinafter referred to as the Contract.

CONDITION

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if CONTRACTOR shall promptly make payment to all employees, persons, firms or corporations for all incurred indebtedness and just claims for labor, supplies, materials and services furnished for or used in connection with the performance of the Contract, then this obligation shall be void; otherwise it shall remain in full force and effect subject to the following additional conditions:

1. CONTRACTOR and SURETY indemnify and hold harmless the OWNER for all claims, demands, liens or suits that arise from performance of the Contract
2. SURETY, for value received, hereby stipulates and agrees that no change, extension of time, modification, omission, addition or change in or to the Contract, or the work performed thereunder or the specifications accompanying the same, shall in any way affect the SURETY'S obligation on this bond; and SURETY hereby agrees to waive notice of any and all such extensions, modifications, omissions, alterations, and additions to the terms of the Contract, work or specifications.
3. No final settlement between the OWNER and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.
4. The amount of this bond shall be reduced by and to the extent of any payments made in good faith hereunder.

5. Amounts owed by the OWNER to the CONTRACTOR under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any Performance Bond. By the CONTRACTOR furnishing and the OWNER accepting this Bond, they agree that all funds earned by the CONTRACTOR in the performance of the Contract are dedicated to satisfy obligations of the CONTRACTOR and the SURETY under this Bond, subject to the OWNER'S priority to use the funds for the completion of the project.

WITNESS

In witness whereof, this instrument is executed this the _____ day of _____, 20__.

INDIVIDUAL PRINCIPAL

Company Name: _____

Signature: _____

Name And Title: _____

CORPORATE PRINCIPAL

ATTEST

Corporate Name: _____

Signature: _____ Signature: _____

Name And Title: _____ Name And Title: _____

(Affix Corporate Seal)

SURETY:

ATTEST

Surety Name: _____

Signature: _____ Signature: _____

Name And Title: _____ Name And Title: _____

(Affix Seal) *(Attach Power Of Attorney)*

OWNER ACCEPTANCE

The OWNER approves the form of this Payment Bond

Date: _____ Signature: _____

Name And Title: _____

ATTEST:

Signature: _____

Name And Title: _____

(Affix Seal)

PERFORMANCE BOND

Bond Number

PRINCIPAL *(Legal Name and Business Address)*		
SURETY *(Legal Name and Business Address)*	STATE OF INCORPORATION	
PENAL SUM OF BOND *(Expressed in words and numerals)* $ (Words)	CONTRACT NO.	CONTRACT DATE

OBLIGATION
KNOW ALL PERSONS BY THESE PRESENTS, that the above named PRINCIPAL, hereinafter referred to and called CONTRACTOR, and the above named SURETY hereby bind themselves unto **Troup County, 100 Ridley Ave, LaGrange, Georgia, 30240,** as OBLIGEE, hereinafter referred to and called OWNER, in the penal sum stated above, in lawful money of the United States of America to be paid to OWNER. For payment of the penal sum, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS,
CONTRACTOR has entered into the written contract agreement identified hereinabove with the OWNER for the following project:

Project Name: **Taxiway 'A' Pavement Rehabilitation & Lighting (2024)**

Project Location: **LaGrange Callaway Airport, LaGrange, Georgia**

which said contract and associated contract documents, including any present or future amendment thereto, is incorporated herein by reference and is hereinafter referred to as the Contract.

CONDITION

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that, if CONTRACTOR shall promptly and faithfully perform all undertakings, covenants, terms, conditions and agreements of the Contract during the original term of the Contract and any extensions thereof that are granted by the OWNER, with or without notice to the SURETY, and during the period of any guarantee or warranties required under the Contract, and if CONTRACTOR shall perform and fulfill all undertakings, covenants, terms, conditions and agreements of any and all duly authorized modifications of the Contract that hereafter are made, then this obligation shall be void; otherwise it shall remain in full force and effect subject to the following additional conditions:

1. SURETY, for value received, hereby stipulates and agrees that no change, extension of time, modification, omission, addition or change in or to the Contract, or the work performed thereunder or the specifications accompanying the same, shall in any way affect the SURETY'S obligation on this bond; and SURETY hereby agrees to waive notice of any and all such extensions, modifications, omissions, alterations, and additions to the terms of the Contract, work or specifications.
2. Whenever CONTRACTOR shall be and declared by the OWNER to be in default under the Contract, the Surety shall promptly and at the SURETY'S expense remedy the default by implementing one or more of the following actions:
    a. Arrange for the CONTRACTOR, with consent of the OWNER, to perform and complete the Contract; or

b. Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or

c. Obtain bids or negotiated proposals from qualified contractors acceptable to the OWNER for a contract for performance and completion of the Contract; arrange for a contract to be prepared for execution by the OWNER and the contractor selected with the OWNER'S concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the Bonds issued on the Contract; and make available as work progresses (even though there should be a default or a succession of defaults under the contract or contracts of completion arranged under this paragraph) sufficient funds to pay the cost of completion less the balance of the contract price; but not exceeding, including other costs and damages for which the Surety may be liable hereunder, the penal sum of the bond. The term "balance of the contract price", as used in this paragraph, shall mean the total amount payable by OWNER to CONTRACTOR under the Contract and any amendments thereto, disbursed at the rate provided in the original contract, less the amount properly paid by OWNER to CONTRACTOR.

d. With written consent of the OWNER, SURETY may waive its right to perform and complete, arrange for completion or obtain a new contractor and with reasonable promptness, investigate and determine the amount the SURETY is liable to the OWNER and tender payment therefore to the OWNER.

3. CONTRACTOR and SURETY agree that if in connection with the enforcement of this Bond, the OWNER is required to engage the services of an attorney, that reasonable attorney fees incurred by the OWNER, with or without suit, are in addition to the balance of the contract price.

4. No right of action shall accrue on this bond to or for the use of any person or corporation other than the OWNER named herein or the successors or assigns of the OWNER.

WITNESS

In witness whereof, this instrument is executed this the _____ day of _____, 20__.

INDIVIDUAL PRINCIPAL

Company Name: _____

Signature: _____

Name And Title: _____

CORPORATE PRINCIPAL

ATTEST

Corporate Name: _____

Signature: _____ Signature: _____

Name And Title: _____ Name And Title: _____

(Affix Corporate Seal)

SURETY:

ATTEST

Surety Name: _____

Signature: _____ Signature: _____

Name And Title: _____ Name And Title: _____

(Affix Seal) *(Attach Power Of Attorney)*

OWNER ACCEPTANCE

The OWNER approves the form of this Performance Bond

Date: _____ Signature: _____

Name And Title: _____

ATTEST:

Signature: _____

Name And Title: _____

(Affix Seal)

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FINAL DBE CONFIRMATION FORM

(To Be Completed Upon Completion of Contract)

AIP PROJECT: **AP024-9052-44(285)**
Project Name: **Taxiway 'A' Pavement Rehabilitation & Lighting**
Airport: **LaGrange Callaway Airport, LaGrange, Georgia**

We hereby certify that _____
(Prime Contractor) was awarded the prime contract and that _____

_____
(DBE Contractor) participated as subcontractor for the work identified below.

Name of DBE Firm:	
DBE Firm Address:	
Total DBE Contract Amount:	
Work Performed or Materials Furnished:	

Prime Contractor

By: _____

Title: _____

Date: _____

DBE Contractor

By: _____

Title: _____

Date: _____

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ARTICLE 2

CONTRACT PROVISIONS

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CONTRACT PROVISIONS

The entirety of Article 2 Contract Provisions are taken from the FAA Airports Contract Provision Guidelines for Obligated Airport Sponsors and Airport Improvement Projects dated 1/20/2023.

ACCESS TO RECORDS AND REPORTS

The Contractor must maintain an acceptable cost accounting system. The Contractor agrees to provide the Owner, the Federal Aviation Administration and the Comptroller General of the United States or any of their duly authorized representatives access to any books, documents, papers and records of the Contractor which are directly pertinent to the specific contract for the purpose of making audit, examination, excerpts and transcriptions. The Contractor agrees to maintain all books, records and reports required under this contract for a period of not less than three years after final payment is made and all pending matters are closed.

AFFIRMATVIE ACTION

1. The Offeror's or Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth herein.

2. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

   Timetables

   Goals for minority participation for each trade: **[*31.6%*]**

   Goals for female participation in each trade: 6.9%

   These goals are applicable to all of the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and nonfederally involved construction.

   The Contractor's compliance with the Executive Order and the regulations in 41 CFR Part 60-4 shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in 41 CFR 60-4.3(a) and its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade, and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the Executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

3. The Contractor shall provide written notification to the Director of the Office of Federal Contract Compliance Programs (OFCCP) within 10 working days of award of any construction subcontract in excess of $10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the name, address, and telephone number of the subcontractor; employer identification number of the subcontractor; estimated dollar amount of the subcontract; estimated starting and completion dates of the subcontract; and the geographical area in which the subcontract is to be performed.

4. As used in this notice and in the contract resulting from this solicitation, the "covered area" is **[*Georgia, Troup County, LaGrange*]**.

BREACH OF CONTRACT TERMS

Any violation or breach of terms of this contract on the part of the Contractor or its subcontractors may result in the suspension or termination of this contract or such other action that may be necessary to enforce the rights of the parties of this agreement.

Owner will provide Contractor written notice that describes the nature of the breach and corrective actions the Contractor must undertake in order to avoid termination of the contract. Owner reserves the right to withhold payments to Contractor until such time the Contractor corrects the breach or the Owner elects to terminate the contract. The Owner's notice will identify a specific date by which the Contractor must correct the breach. Owner may proceed with termination of the contract if the Contractor fails to correct the breach by the deadline indicated in the Owner's notice.

The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder are in addition to, and not a limitation of, any duties, obligations, rights and remedies otherwise imposed or available by law.

BUY AMERICAN PREFERENCE

The Contractor certifies that its bid/offer is in compliance with 49 USC § 50101, BABA and other related Made in America Laws,[1] U.S. statutes, guidance, and FAA policies, which provide that Federal funds may not be obligated unless all iron, steel and manufactured goods used in AIP funded projects are produced in the United States, unless the Federal Aviation Administration has issued a waiver for the product; the product is listed as an Excepted Article, Material Or Supply in Federal Acquisition Regulation subpart 25.108; or is included in the FAA Nationwide Buy American Waivers Issued list.

[1] Per Executive Order 14005 "Made in America Laws" means all statutes, regulations, rules, and Executive Orders relating to federal financial assistance awards or federal procurement, including those that refer to "Buy America" or "Buy American," that require, or provide a preference for, the purchase or acquisition of goods, products, or materials produced in the United States, including iron, steel, and manufactured products offered in the United States.

The bidder or offeror must complete and submit the certification of compliance with FAA's Buy American Preference, BABA and Made in America laws included herein with their bid or offer. The Airport Sponsor/Owner will reject as nonresponsive any bid or offer that does not include a completed certification of compliance with FAA's Buy American Preference and BABA.

The bidder or offeror certifies that all constructions materials, defined to mean an article, material, or supply other than an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as stone, sand, or gravel; or aggregate binding agents or additives that are or consist primarily of: non-ferrous metals; plastic and polymer-based products (including polyvinylchloride, composite building materials, and polymers used in fiber optic cables); glass (including optic glass); lumber; or drywall used in the project are manufactured in the U.S.

The Contractor is required to complete the [Certificate of Buy American Compliance for Total Facility] ~~or [Certificate of Buy American Compliance for Manufactured Products]~~ included in the Proposal Section of this specification booklet.

CIVIL RIGHTS - GENERAL

In all its activities within the scope of its airport program, the Contractor agrees to comply with pertinent statutes, Executive Orders, and such rules as identified in Title VI List of Pertinent Nondiscrimination Acts and Authorities to ensure that no person shall, on the grounds of race, color, national origin (including limited English proficiency), creed, sex (including sexual orientation and gender identity), age, or disability be excluded from participating in any activity conducted with or benefiting from Federal assistance.

This provision is in addition to that required by Title VI of the Civil Rights Act of 1964.

The above provision binds the Contractor and subcontractors from the bid solicitation period through the completion of the contract.

CIVIL RIGHTS – TITLE VI ASSURANCE

Title VI Solicitation Notice:

The **Troup County**, in accordance with the provisions of Title VI of the Civil Rights Act of 1964 (78 Stat. 252, 42 USC §§ 2000d to 2000d-4) and the Regulations, hereby notifies all bidders or offerors that it will affirmatively ensure that for any contract entered into pursuant to this advertisement, [select businesses, ~~or disadvantaged business enterprises or airport concession disadvantaged business enterprises~~] will be afforded full and fair opportunity to submit bids in response to this invitation and no businesses will be discriminated against on the grounds of race, color, national origin (including limited English proficiency), creed, sex (including sexual orientation and gender identity), age, or disability in consideration for an award.

Title VI List of Pertinent Nondiscrimination Acts and Authorities

During the performance of this contract, the Contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "Contractor") agrees to comply with the following non-discrimination statutes and authorities; including but not limited to:

- Title VI of the Civil Rights Act of 1964 (42 USC § 2000d *et seq*., 78 stat. 252) (prohibits discrimination on the basis of race, color, national origin);
- 49 CFR part 21 (Non-discrimination in Federally-Assisted programs of the Department of Transportation—Effectuation of Title VI of the Civil Rights Act of 1964);
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 USC § 4601) (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Section 504 of the Rehabilitation Act of 1973 (29 USC § 794 *et seq*.), as amended (prohibits discrimination on the basis of disability); and 49 CFR part 27 (Nondiscrimination on the Basis of Disability in Programs or Activities Receiving Federal Financial Assistance);
- The Age Discrimination Act of 1975, as amended (42 USC § 6101 *et seq*.) (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982 (49 USC § 47123), as amended (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987 (PL 100-259) (broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, the Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms "programs or activities" to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act of 1990 (42 USC § 12101, et seq) (prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities) as implemented by U.S. Department of Transportation regulations at 49 CFR parts 37 and 38;
- The Federal Aviation Administration's Nondiscrimination statute (49 USC § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (ensures nondiscrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations);
- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs [70 Fed. Reg. 74087 (2005)];

- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 USC § 1681, et seq).

Compliance With Nondiscrimination Requirements

During the performance of this contract, the Contractor, for itself, its assignees, and successors in interest (hereinafter referred to as the "Contractor"), agrees as follows:

1. **Compliance with Regulations:** The Contractor (hereinafter includes consultants) will comply with the Title VI List of Pertinent Nondiscrimination Acts and Authorities, as they may be amended from time to time, which are herein incorporated by reference and made a part of this contract.

2. **Nondiscrimination:** The Contractor, with regard to the work performed by it during the contract, will not discriminate on the grounds of race, color, national origin (including limited English proficiency), creed, sex (including sexual orientation and gender identity), age, or disability in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The Contractor will not participate directly or indirectly in the discrimination prohibited by the Nondiscrimination Acts and Authorities, including employment practices when the contract covers any activity, project, or program set forth in Appendix B of 49 CFR part 21.

3. **Solicitations for Subcontracts, including Procurements of Materials and Equipment:** In all solicitations, either by competitive bidding or negotiation made by the Contractor for work to be performed under a subcontract, including procurements of materials, or leases of equipment, each potential subcontractor or supplier will be notified by the Contractor of the contractor's obligations under this contract and the Nondiscrimination Acts and Authorities on the grounds of race, color, or national origin.

4. **Information and Reports:** The Contractor will provide all information and reports required by the Acts, the Regulations, and directives issued pursuant thereto and will permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the Sponsor or the Federal Aviation Administration to be pertinent to ascertain compliance with such Nondiscrimination Acts and Authorities and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish the information, the Contractor will so certify to the Sponsor or the Federal Aviation Administration, as appropriate, and will set forth what efforts it has made to obtain the information.

5. **Sanctions for Noncompliance:** In the event of a Contractor's noncompliance with the non-discrimination provisions of this contract, the Sponsor will impose such contract sanctions as it or the Federal Aviation Administration may determine to be appropriate, including, but not limited to:

1) Withholding payments to the Contractor under the contract until the Contractor complies; and/or
2) Cancelling, terminating, or suspending a contract, in whole or in part.

6. **Incorporation of Provisions:** The Contractor will include the provisions of paragraphs one through six in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Acts, the Regulations, and directives issued pursuant thereto. The Contractor will take action with respect to any subcontract or procurement as the Sponsor or the Federal Aviation Administration may direct as a means of enforcing such provisions including sanctions for noncompliance. Provided, that if the Contractor becomes involved in, or is threatened with litigation by a subcontractor, or supplier because of such direction, the Contractor may request the Sponsor to enter into any litigation to protect the interests of the Sponsor. In addition, the Contractor may request the United States to enter into the litigation to protect the interests of the United States.

CLEAN AIR AND WATER POLLUTION CONTROL

Contractor agrees to comply with all applicable standards, orders, and regulations issued pursuant to the Clean Air Act (42 USC §§ 7401-7671q) and the Federal Water Pollution Control Act as amended (33 USC §§ 1251-1387). The Contractor agrees to report any violation to the Owner immediately upon discovery. The Owner assumes responsibility for notifying the Environmental Protection Agency (EPA) and the Federal Aviation Administration.

Contractor must include this requirement in all subcontracts that exceed $150,000.

CONTRACT WORKHOURS AND SAFETY STANDARDS ACT REQUIREMENTS

1. Overtime Requirements.

   No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic, including watchmen and guards, in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such work week.

2. Violation; Liability for Unpaid Wages; Liquidated Damages.
   In the event of any violation of the clause set forth in paragraph (1) of this clause, the Contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1) of this clause, in the sum of $29 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1) of this clause.

3. Withholding for Unpaid Wages and Liquidated Damages.

   The Federal Aviation Administration (FAA) or the Owner shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2) of this clause.

4. Subcontractors.

   The Contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraphs (1) through (4) and also a clause requiring the subcontractor to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1) through (4) of this clause.

COPELAND "ANTI-KICKBACK" ACT

Contractor must comply with the requirements of the Copeland "Anti-Kickback" Act (18 USC 874 and 40 USC 3145), as supplemented by Department of Labor regulation 29 CFR part 3. Contractor and subcontractors are prohibited from inducing, by any means, any person employed on the project to give up any part of the compensation to which the employee is entitled. The Contractor and each Subcontractor must submit to the Owner, a weekly statement on the wages paid to each employee performing on covered work during the prior week. Owner must report any violations of the Act to the Federal Aviation Administration.

DAVIS-BACON REQUIREMENTS

1. Minimum Wages.

i. All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by the Secretary of Labor under the Copeland Act (29 CFR Part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalent thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (1)(iv) of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR § 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: *Provided*, that the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under (1)(ii) of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can easily be seen by the workers.

ii.

A. The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:

i. The work to be performed by the classification requested is not performed by a classification in the wage determination;
ii. The classification is utilized in the area by the construction industry; and
iii. The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

B. If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

C. In the event the Contractor, the laborers, or mechanics to be employed in the classification, or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Administrator for determination. The Administrator, or an authorized representative, will issue a

determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.

D. The wage rate (including fringe benefits where appropriate) determined pursuant to subparagraphs (1)(ii) (B) or (C) of this paragraph, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

iii. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

iv. If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, *Provided,* that the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

2. Withholding. The Federal Aviation Administration or the Sponsor shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld from the Contractor under this contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the Federal Aviation Administration may, after written notice to the Contractor, Sponsor, Applicant, or Owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

3. Payrolls and Basic Records.

i. Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker; his or her correct classification; hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in 1(b)(2)(B) of the Davis-Bacon Act); daily and weekly number of hours worked; deductions made; and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the Contractor shall maintain records that show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual costs incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

ii.

A. The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Federal Aviation Administration if the agency is a party to the contract, but if the agency is not such a party, the Contractor will submit the

payrolls to the applicant, Sponsor, or Owner, as the case may be, for transmission to the Federal Aviation Administration. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR § 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (*e.g.*, the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH–347 is available for this purpose from the Wage and Hour Division Web site at *http://www.dol.gov/esa/whd/forms/wh347instr.htm* or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker and shall provide them upon request to the Federal Aviation Administration if the agency is a party to the contract, but if the agency is not such a party, the Contractor will submit them to the applicant, Sponsor, or Owner, as the case may be, for transmission to the Federal Aviation Administration, the Contractor, or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the sponsoring government agency (or the applicant, Sponsor, or Owner).

B. Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:

i. That the payroll for the payroll period contains the information required to be provided under 29 CFR § 5.5(a)(3)(ii), the appropriate information is being maintained under 29 CFR § 5.5 (a)(3)(i), and that such information is correct and complete;

ii. That each laborer and mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR Part 3;

iii. That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

C. the weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph (3)(ii)(B) of this section.

D. The falsification of any of the above certifications may subject the Contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 231 of Title 31 of the United States Code.

iii. The Contractor or subcontractor shall make the records required under paragraph (3)(i) of this section available for inspection, copying, or transcription by authorized representatives of the Sponsor, the Federal Aviation Administration, or the Department of Labor and shall permit such representatives to interview employees during working hours on the job. If the Contractor or subcontractor fails to submit the required records or to make them available, the Federal agency may, after written notice to the Contractor, Sponsor, applicant, or Owner, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR § 5.12.

4. Apprentices and Trainees.

i. Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

ii. Trainees. Except as provided in 29 CFR § 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination that provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate that is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

iii. Equal Employment Opportunity. The utilization of apprentices, trainees, and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

5. Compliance with Copeland Act Requirements.

   The Contractor shall comply with the requirements of 29 CFR Part 3, which are incorporated by reference in this contract.

6. Subcontracts.

   The Contractor or subcontractor shall insert in any subcontracts the clauses contained in 29 CFR §§ 5.5(a)(1) through (10) and such other clauses as the Federal Aviation Administration may by appropriate instructions require, and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier subcontractor with all the contract clauses in 29 CFR § 5.5.

7. Contract Termination: Debarment.

   A breach of the contract clauses in paragraph 1 through 10 of this section may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR § 5.12.

8. Compliance with Davis-Bacon and Related Act Requirements.

   All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are herein incorporated by reference in this contract.

9. Disputes Concerning Labor Standards.

   Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR Parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the Contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

10. Certification of Eligibility.

    i. By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR § 5.12(a)(1).

    ii. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR § 5.12(a)(1).

    iii. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 USC § 1001.

DEBARMENT AND SUSPENSION

Certification of Offerer/Bidder Regarding Debarment

By submitting a bid/proposal under this solicitation, the bidder or offeror certifies that neither it nor its principals are presently debarred or suspended by any Federal department or agency from participation in this transaction.

Certification of Lower Tier Contractors Regarding Debarment

The successful bidder, by administering each lower tier subcontract that exceeds $25,000 as a "covered transaction", must confirm each lower tier participant of a "covered transaction" under the project is not presently

debarred or otherwise disqualified from participation in this federally-assisted project. The successful bidder will accomplish this by:

1. Checking the System for Award Management at website: http://www.sam.gov.

2. Collecting a certification statement similar to the Certification of Offeror /Bidder Regarding Debarment, above.

3. Inserting a clause or condition in the covered transaction with the lower tier contract.

If the Federal Aviation Administration later determines that a lower tier participant failed to disclose to a higher tier participant that it was excluded or disqualified at the time it entered the covered transaction, the FAA may pursue any available remedies, including suspension and debarment of the non-compliant participant.

DISADVANTAGED BUSINESS ENTERPRISE

Information Submitted as a matter of bidder responsiveness:

The Owner's award of this contract is conditioned upon Bidder or Offeror satisfying the good faith effort requirements of 49 CFR § 26.53.

As a condition of responsiveness, the Bidder or Offeror must submit the following information with its proposal on the forms provided herein:

1) The names and addresses of Disadvantaged Business Enterprise (DBE) firms that will participate in the contract;
2) A description of the work that each DBE firm will perform;
3) The dollar amount of the participation of each DBE firm listed under (1);
4) Written statement from Bidder or Offeror that attests their commitment to use the DBE firm(s) listed under (1) to meet the Owner's project goal
5) Written confirmation from each listed DBE firm that it is participating in the contract in the kind and amount of work provided in the prime contractor's commitment; and
6) If Bidder or Offeror cannot meet the advertised project DBE goal, evidence of good faith efforts undertaken by the Bidder or Offeror as described in appendix A to 49 CFR part 26. The documentation of good faith efforts must include copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor was selected over a DBE for work on the contract.

Information submitted as a matter of bidder responsibility:

The Owner's award of this contract is conditioned upon Bidder or Offeror satisfying the good faith effort requirements of 49 CFR § 26.53.

As a condition of responsibility, every Bidder or Offeror must submit the following information on the forms provided herein within five days after bid opening.

1) The names and addresses of Disadvantaged Business Enterprise (DBE) firms that will participate in the contract;
2) A description of the work that each DBE firm will perform;
3) The dollar amount of the participation of each DBE firm listed under (1);
4) Written statement from Bidder or Offeror that attests their commitment to use the DBE firm(s) listed under (1) to meet the Owner's project goal;
5) Written confirmation from each listed DBE firm that it is participating in the contract in the kind and amount of work provided in the prime contractor's commitment; and
6) If Bidder or Offeror cannot meet the advertised project DBE goal, evidence of good faith efforts undertaken by the Bidder or Offeror as described in appendix A to 49 CFR part 26. The documentation of good faith efforts must include copies of each DBE and non-DBE subcontractor quote submitted to the bidder when a non-DBE subcontractor was selected over a DBE for work on the contract.

Solicitation Language (Race/Gender Neutral Means)

The requirements of 49 CFR part 26 apply to this contract. It is the policy of the Troup County to practice nondiscrimination based on race, color, sex, or national origin in the award or performance of this contract. The Owner encourages participation by all firms qualifying under this solicitation regardless of business size or ownership.

Contract Assurance (§ 26.13)

The Contractor, subrecipient or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR part 26 in the award and administration of DOT-assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the recipient deems appropriate, which may include, but is not limited to:

1) Withholding monthly progress payments;
2) Assessing sanctions;
3) Liquidated damages; and/or
4) Disqualifying the Contractor from future bidding as non-responsible.

Prompt Payment (49 CFR § 26.29)

The prime contractor agrees to pay each subcontractor under this prime contract for satisfactory performance of its contract no later than [30 days] days from the receipt of each payment the prime contractor receives from [Troup County]. The prime contractor agrees further to return retainage payments to each subcontractor within [30 days] days after the subcontractor's work is satisfactorily completed. Any delay or postponement of payment from the above referenced time frame may occur only for good cause following written approval of the [Troup County]. This clause applies to both DBE and non-DBE subcontractors.

Termination of DBE Subcontracts (49 CFR § 26.53(f))

The prime contractor must not terminate a DBE subcontractor listed in response to this section in its' entirety (or an approved substitute DBE firm) without prior written consent of [Troup County]. This includes, but is not limited to, instances in which the prime contractor seeks to perform work originally designated for a DBE subcontractor with its own forces or those of an affiliate, a non-DBE firm, or with another DBE firm.

The prime contractor shall utilize the specific DBEs listed to perform the work and supply the materials for which each is listed unless the contractor obtains written consent Troup County]. Unless [Troup County] consent is provided, the prime contractor shall not be entitled to any payment for work or material unless it is performed or supplied by the listed DBE.

[Troup County] may provide such written consent only if [Troup County] agrees, for reasons stated in the concurrence document, that the prime contractor has good cause to terminate the DBE firm. For purposes of this paragraph, good cause includes the circumstances listed in 49 CFR §26.53.

Before transmitting to [Troup County] its request to terminate and/or substitute a DBE subcontractor, the prime contractor must give notice in writing to the DBE subcontractor, with a copy to [Troup County], of its intent to request to terminate and/or substitute, and the reason for the request.

The prime contractor must give the DBE five days to respond to the prime contractor's notice and advise [Troup County] and the contractor of the reasons, if any, why it objects to the proposed termination of its subcontract and why [Troup County] should not approve the prime contractor's action. If required in a particular case as a matter of public necessity (e.g., safety), [Troup County] may provide a response period shorter than five days.

In addition to post-award terminations, the provisions of this section apply to preaward deletions of or substitutions for DBE firms put forward by offerors in negotiated procurements.

DISTRACTED DRIVING – TEXTING WHEN DRIVING

In accordance with Executive Order 13513, "Federal Leadership on Reducing Text Messaging While Driving", (10/1/2009) and DOT Order 3902.10, "Text Messaging While Driving", (12/30/2009), the Federal Aviation Administration encourages recipients of Federal grant funds to adopt and enforce safety policies that decrease crashes by distracted drivers, including policies to ban text messaging while driving when performing work related to a grant or subgrant.

In support of this initiative, the Owner encourages the Contractor to promote policies and initiatives for its employees and other work personnel that decrease crashes by distracted drivers, including policies that ban text messaging while driving motor vehicles while performing work activities associated with the project. The Contractor must include the substance of this clause in all sub-tier contracts exceeding $10,000 that involve driving a motor vehicle in performance of work activities associated with the project.

PROHIBITION ON CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT

Contractor and Subcontractor agree to comply with mandatory standards and policies relating to use and procurement of certain telecommunications and video surveillance services or equipment in compliance with the National Defense Authorization Act [Public Law 115-232 § 889(f)(1)].

EQUAL EMPLOYMENT OPPORTUNITY (EEO)

Equal Opportunity Clause

During the performance of this contract, the Contractor agrees as follows:

1. The Contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, sexual orientation, gender identity, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, sexual orientation, gender identify, or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff, or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided setting forth the provisions of this nondiscrimination clause.

2. The Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, sexual orientation, gender identity, or national origin.

3. The contractor will not discharge or in any other manner discriminate against any employee or applicant for employment because such employee or applicant has inquired about, discussed, or disclosed the compensation of the employee or applicant or another employee or applicant. This provision shall not apply to instances in which an employee who has access to the compensation information of other employees or applicants as a part of such employee's essential job functions discloses the compensation of such other employees or applicants to individuals who do not otherwise have access to such information, unless such disclosure is in response to a formal complaint or charge, in furtherance of an investigation, proceeding, hearing, or action, including an investigation conducted by the employer, or is consistent with the contractor's legal duty to furnish information.

4. The Contractor will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, a notice to be provided by the agency contracting officer, advising the labor union or workers' representative of the Contractor's commitments under this section 202 of Executive Order 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

5. The Contractor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

6. The Contractor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

7. In the event of the Contractor's noncompliance with the nondiscrimination clauses of this contract or with any such rules, regulations, or orders, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

8. The Contractor will include the provisions of paragraphs (1) through (8) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontract or purchase order as may be directed by the Secretary of Labor as a means of enforcing such provisions, including sanctions for noncompliance*: Provided,* however, that in the event the contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction, the Contractor may request the United States to enter into such litigation to protect the interests of the United States.

<u>Standard Federal Equal Employment Opportunity Construction Contract Specifications</u>

1. As used in these specifications:

   A. "Covered area" means the geographical area described in the solicitation from which this contract resulted;

   B. "Director" means Director, Office of Federal Contract Compliance Programs (OFCCP), U.S. Department of Labor, or any person to whom the Director delegates authority;

   C. "Employer identification number" means the Federal social security number used on the Employer's Quarterly Federal Tax Return, U.S. Treasury Department Form 941;

   D. "Minority" includes:

      1) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
      2) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race);
      3) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands); and
      4) American Indian or Alaskan native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

2. Whenever the Contractor, or any subcontractor at any tier, subcontracts a portion of the work involving any construction trade, it shall physically include in each subcontract in excess of $10,000 the provisions of these specifications and the Notice which contains the applicable goals for minority and female participation and which is set forth in the solicitations from which this contract resulted.

3. If the Contractor is participating (pursuant to 41 CFR part 60-4.5) in a Hometown Plan approved by the U.S. Department of Labor in the covered area either individually or through an association, its affirmative

action obligations on all work in the Plan area (including goals and timetables) shall be in accordance with that Plan for those trades which have unions participating in the Plan. Contractors must be able to demonstrate their participation in and compliance with the provisions of any such Hometown Plan. Each contractor or subcontractor participating in an approved plan is individually required to comply with its obligations under the EEO clause and to make a good faith effort to achieve each goal under the Plan in each trade in which it has employees. The overall good faith performance by other contractors or subcontractors toward a goal in an approved Plan does not excuse any covered contractor's or subcontractor's failure to take good faith efforts to achieve the Plan goals and timetables.

4. The Contractor shall implement the specific affirmative action standards provided in paragraphs 7a through 7p of these specifications. The goals set forth in the solicitation from which this contract resulted are expressed as percentages of the total hours of employment and training of minority and female utilization the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. Covered construction contractors performing construction work in a geographical areas where they do not have a Federal or federally assisted construction contract shall apply the minority and female goals established for the geographical area where the work is being performed. Goals are published periodically in the Federal Register in notice form, and such notices may be obtained from any Office of Federal Contract Compliance Programs office or from Federal procurement contracting officers. The Contractor is expected to make substantially uniform progress in meeting its goals in each craft during the period specified.

5. Neither the provisions of any collective bargaining agreement, nor the failure by a union with whom the Contractor has a collective bargaining agreement, to refer either minorities or women shall excuse the Contractor's obligations under these specifications, Executive Order 11246, or the regulations promulgated pursuant thereto.

6. In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, such apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

7. The Contractor shall take specific affirmative actions to ensure equal employment opportunity. The evaluation of the Contractor's compliance with these specifications shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully, and shall implement affirmative action steps at least as extensive as the following:

   A. Ensure and maintain a working environment free of harassment, intimidation, and coercion at all sites, and in all facilities at which the Contractor's employees are assigned to work. The Contractor, where possible, will assign two or more women to each construction project. The Contractor shall specifically ensure that all foremen, superintendents, and other onsite supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at such sites or in such facilities.

   B. Establish and maintain a current list of minority and female recruitment sources, provide written notification to minority and female recruitment sources and to community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

   C. Maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the-street applicant and minority or female referral from a union, a recruitment source, or community organization and of what action was taken with respect to each such individual. If such individual was sent to the union hiring hall for referral and was not referred back to the Contractor by the union or, if referred, not employed by the Contractor, this shall be documented in the file with the reason therefor, along with whatever additional actions the Contractor may have taken.

D. Provide immediate written notification to the Director when the union or unions with which the Contractor has a collective bargaining agreement has not referred to the Contractor a minority person or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

E. Develop on-the-job training opportunities and/or participate in training programs for the area which expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under 7b above.

F. Disseminate the Contractor's EEO policy by providing notice of the policy to unions and training programs and requesting their cooperation in assisting the Contractor in meeting its EEO obligations; by including it in any policy manual and collective bargaining agreement; by publicizing it in the company newspaper, annual report, etc.; by specific review of the policy with all management personnel and with all minority and female employees at least once a year; and by posting the company EEO policy on bulletin boards accessible to all employees at each location where construction work is performed.

G. Review, at least annually, the company's EEO policy and affirmative action obligations under these specifications with all employees having any responsibility for hiring, assignment, layoff, termination, or other employment decisions including specific review of these items with onsite supervisory personnel such superintendents, general foremen, etc., prior to the initiation of construction work at any job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

H. Disseminate the Contractor's EEO policy externally by including it in any advertising in the news media, specifically including minority and female news media, and providing written notification to and discussing the Contractor's EEO policy with other contractors and subcontractors with whom the Contractor does or anticipates doing business.

I. Direct its recruitment efforts, both oral and written, to minority, female, and community organizations, to schools with minority and female students and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than one month prior to the date for the acceptance of applications for apprenticeship or other training by any recruitment source, the Contractor shall send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

J. Encourage present minority and female employees to recruit other minority persons and women and, where reasonable, provide after school, summer, and vacation employment to minority and female youth both on the site and in other areas of a contractor's work force.

K. Validate all tests and other selection requirements where there is an obligation to do so under 41 CFR part 60-3.

L. Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel, for promotional opportunities and encourage these employees to seek or to prepare for, through appropriate training, etc., such opportunities.

M. Ensure that seniority practices, job classifications, work assignments, and other personnel practices do not have a discriminatory effect by continually monitoring all personnel and employment related activities to ensure that the EEO policy and the Contractor's obligations under these specifications are being carried out.

N. Ensure that all facilities and company activities are nonsegregated except that separate or single-user toilet and necessary changing facilities shall be provided to assure privacy between the sexes.

O. Document and maintain a record of all solicitations of offers for subcontracts from minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

P. Conduct a review, at least annually, of all supervisor's adherence to and performance under the Contractor's EEO policies and affirmative action obligations.

8. Contractors are encouraged to participate in voluntary associations, which assist in fulfilling one or more of their affirmative action obligations (7a through 7p). The efforts of a contractor association, joint contractor-union, contractor-community, or other similar group of which the Contractor is a member and participant may be asserted as fulfilling any one or more of its obligations under 7a through 7p of these specifications provided that the Contractor actively participates in the group, makes every effort to assure that the group has a positive impact on the employment of minorities and women in the industry, ensures that the concrete benefits of the program are reflected in the Contractor's minority and female workforce participation, makes a good faith effort to meet its individual goals and timetables, and can provide access to documentation which demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply, however, is the Contractor's and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

9. A single goal for minorities and a separate single goal for women have been established. The Contractor, however, is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and non-minority. Consequently, the Contractor may be in violation of the Executive Order if a particular group is employed in a substantially disparate manner (for example, even though the Contractor has achieved its goals for women generally, the Contractor may be in violation of the Executive Order if a specific minority group of women is underutilized).

10. The Contractor shall not use the goals and timetables or affirmative action standards to discriminate against any person because of race, color, religion, sex, sexual orientation, gender identity, or national origin.

11. The Contractor shall not enter into any subcontract with any person or firm debarred from Government contracts pursuant to Executive Order 11246.

12. The Contractor shall carry out such sanctions and penalties for violation of these specifications and of the Equal Opportunity Clause, including suspension, termination, and cancellation of existing subcontracts as may be imposed or ordered pursuant to Executive Order 11246, as amended, and its implementing regulations, by the Office of Federal Contract Compliance Programs. Any contractor who fails to carry out such sanctions and penalties shall be in violation of these specifications and Executive Order 11246, as amended.

13. The Contractor, in fulfilling its obligations under these specifications, shall implement specific affirmative action steps, at least as extensive as those standards prescribed in paragraph 7 of these specifications, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of the Executive Order, the implementing regulations, or these specifications, the Director shall proceed in accordance with 41 CFR part 60-4.8.

14. The Contractor shall designate a responsible official to monitor all employment related activity to ensure that the company EEO policy is being carried out, to submit reports relating to the provisions hereof as may be required by the Government, and to keep records. Records shall at least include for each employee, the name, address, telephone numbers, construction trade, union affiliation if any, employee identification number when assigned, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate

of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, contractors shall not be required to maintain separate records.

15. Nothing herein provided shall be construed as a limitation upon the application of other laws which establish different standards of compliance or upon the application of requirements for the hiring of local or other area residents (e.g. those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

FEDERAL FAIR LABOR STANDARDS ACT (FEDERAL MINIMUM WAGE)

All contracts and subcontracts that result from this solicitation incorporate by reference the provisions of 29 CFR part 201, et seq, the Federal Fair Labor Standards Act (FLSA), with the same force and effect as if given in full text. The FLSA sets minimum wage, overtime pay, recordkeeping, and child labor standards for full and part-time workers.

The Contractor has full responsibility to monitor compliance to the referenced statute or regulation. The Contractor must address any claims or Disputes that arise from this requirement directly with the U.S. Department of Labor – Wage and Hour Division.

LOBBYING AND INFLUENCING FEDERAL EMPLOYEES

The Bidder or Offeror certifies by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the Bidder or Offeror, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

3) The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

PROHIBITION OF SEGREGATED FACILITIES

1) The Contractor agrees that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The Contractor agrees that a breach of this clause is a violation of the Equal Employment Opportunity clause in this contract.

2) "Segregated facilities," as used in this clause, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, sex, sexual orientation, gender identity, or national origin because of written or oral policies or employee custom. The term does not include separate or single-user rest rooms or necessary dressing or sleeping areas provided to assure privacy between the sexes.

3) The Contractor shall include this clause in every subcontract and purchase order that is subject to the Equal Employment Opportunity clause of this contract.

OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970

All contracts and subcontracts that result from this solicitation incorporate by reference the requirements of 29 CFR Part 1910 with the same force and effect as if given in full text. The employer must provide a work environment that is free from recognized hazards that may cause death or serious physical harm to the employee. The employer retains full responsibility to monitor its compliance and their subcontractor's compliance with the applicable requirements of the Occupational Safety and Health Act of 1970 (29 CFR Part 1910). The employer must address any claims or disputes that pertain to a referenced requirement directly with the U.S. Department of Labor – Occupational Safety and Health Administration.

PROCUREMENT OF RECOVERED MATERIALS

Contractor and subcontractor agree to comply with Section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act, and the regulatory provisions of 40 CFR Part 247. In the performance of this contract and to the extent practicable, the Contractor and subcontractors are to use products containing the highest percentage of recovered materials for items designated by the Environmental Protection Agency (EPA) under 40 CFR Part 247 whenever:

1) The contract requires procurement of $10,000 or more of a designated item during the fiscal year; or

2) The contractor has procured $10,000 or more of a designated item using Federal funding during the previous fiscal year.

The list of EPA-designated items is available at www.epa.gov/smm/comprehensive-procurement-guidelines-construction-products.

Section 6002(c) establishes exceptions to the preference for recovery of EPA-designated products if the contractor can demonstrate the item is:

1) Not reasonably available within a timeframe providing for compliance with the contract performance schedule;

2) Fails to meet reasonable contract performance requirements; or

3) Is only available at an unreasonable price.

~~**SEISMIC SAFETY**~~

~~The Contractor agrees to ensure that all work performed under this contract, including work performed by subcontractors, conforms to a building code standard that provides a level of seismic safety substantially equivalent to standards established by the National Earthquake Hazards Reduction Program (NEHRP). Local building codes that model their code after the current version of the International Building Code (IBC) meet the NEHRP equivalency level for seismic safety.~~

TAX DELIQUENCY AND FELONY CONVICTION

The Contractor is required to complete the Certification of Offeror/Bidder Regarding Tax Delinquency and Felony Convictions included in the Proposal Section of this specification booklet.

TERMINATION OF CONTRACT

Termination For Convenience

The Owner may terminate this contract in whole or in part at any time by providing written notice to the Contractor. Such action may be without cause and without prejudice to any other right or remedy of Owner. Upon receipt of a written notice of termination, except as explicitly directed by the Owner, the Contractor shall immediately proceed with the following obligations regardless of any delay in determining or adjusting amounts due under this clause:

1. Contractor must immediately discontinue work as specified in the written notice.

2. Terminate all subcontracts to the extent they relate to the work terminated under the notice.

3. Discontinue orders for materials and services except as directed by the written notice.

4. Deliver to the Owner all fabricated and partially fabricated parts, completed and partially completed work, supplies, equipment and materials acquired prior to termination of the work, and as directed in the written notice.

5. Complete performance of the work not terminated by the notice.

6. Take action as directed by the Owner to protect and preserve property and work related to this contract that Owner will take possession.

Owner agrees to pay Contractor for:

1. Completed and acceptable work executed in accordance with the contract documents prior to the effective date of termination;

2. Documented expenses sustained prior to the effective date of termination in performing work and furnishing labor, materials, or equipment as required by the contract documents in connection with uncompleted work;

3. Reasonable and substantiated claims, costs, and damages incurred in settlement of terminated contracts with Subcontractors and Suppliers; and

4. Reasonable and substantiated expenses to the Contractor directly attributable to Owner's termination action.

Owner will not pay Contractor for loss of anticipated profits or revenue or other economic loss arising out of or resulting from the Owner's termination action.

The rights and remedies this clause provides are in addition to any other rights and remedies provided by law or under this contract.

Termination For Cause

Section 80-09 of FAA Advisory Circular 150/5370-10 establishes standard language for conditions, rights, and remedies associated with Owner termination of this contract for cause due to default of the Contractor.

TRADE RESTRICTION CERTIFICATION

By submission of an offer, the Offeror certifies that with respect to this solicitation and any resultant contract, the Offeror –

1) is not owned or controlled by one or more citizens of a foreign country included in the list of countries that discriminate against U.S. firms as published by the Office of the United States Trade Representative (USTR);

2) has not knowingly entered into any contract or subcontract for this project with a person that is a citizen or national of a foreign country included on the list of countries that discriminate against U.S. firms as published by the USTR; and

3) has not entered into any subcontract for any product to be used on the Federal project that is produced in a foreign country included on the list of countries that discriminate against U.S. firms published by the USTR.

This certification concerns a matter within the jurisdiction of an agency of the United States of America and the making of a false, fictitious, or fraudulent certification may render the maker subject to prosecution under Title 18 USC § 1001.

The Offeror/Contractor must provide immediate written notice to the Owner if the Offeror/Contractor learns that its certification or that of a subcontractor was erroneous when submitted or has become erroneous by reason of changed circumstances. The Contractor must require subcontractors provide immediate written notice to the Contractor if at any time it learns that its certification was erroneous by reason of changed circumstances.

Unless the restrictions of this clause are waived by the Secretary of Transportation in accordance with 49 CFR § 30.17, no contract shall be awarded to an Offeror or subcontractor:

1) who is owned or controlled by one or more citizens or nationals of a foreign country included on the list of countries that discriminate against U.S. firms published by the USTR; or
2) whose subcontractors are owned or controlled by one or more citizens or nationals of a foreign country on such USTR list; or

3) who incorporates in the public works project any product of a foreign country on such USTR list.

Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by this provision. The knowledge and information of a contractor is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

The Offeror agrees that, if awarded a contract resulting from this solicitation, it will incorporate this provision for certification without modification in all lower tier subcontracts. The Contractor may rely on the certification of a prospective subcontractor that it is not a firm from a foreign country included on the list of countries that discriminate against U.S. firms as published by USTR, unless the Offeror has knowledge that the certification is erroneous.

This certification is a material representation of fact upon which reliance was placed when making an award. If it is later determined that the Contractor or subcontractor knowingly rendered an erroneous certification, the Federal Aviation Administration (FAA) may direct through the Owner cancellation of the contract or subcontract for default at no cost to the Owner or the FAA.

VETERAN'S PREFERENCE

In the employment of labor (excluding executive, administrative, and supervisory positions), the Contractor and all sub-tier contractors must give preference to covered veterans as defined within Title 49 United States Code Section 47112. Covered veterans include Vietnam-era veterans, Persian Gulf veterans, Afghanistan-Iraq war

veterans, disabled veterans, and small business concerns (as defined by 15 USC § 632) owned and controlled by disabled veterans. This preference only applies when there are covered veterans readily available and qualified to perform the work to which the employment relates.

CERTIFICATION REGARDING DOMESTIC PREFERENCES FOR PROCUREMENTS

The Bidder or Offeror certifies by signing and submitting this bid or proposal that, to the greatest extent practicable, the Bidder or Offeror has provided a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States (including, but not limited to, iron, aluminum, steel, cement, and other manufactured products) in compliance with 2 CFR § 200.322.

END OF CONTRACT PROVISIONS

ARTICLE 3

DAVIS-BACON

WAGE DETERMINATIONS

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DAVIS BACON

The text below is taken from the sam.gov website. The information is shown for Highway Construction in Troup County & Georgia dated January 3, 2025.

General Decision Number: GA20250216 01/03/2025

Superseded General Decision Number: GA20240216

State: Georgia

Construction Type: Highway

Counties: Putnam, Schley, Troup and Webster Counties in Georgia.

HIGHWAY CONSTRUCTION PROJECTS

Note: Contracts subject to the Davis-Bacon Act are generally required to pay at least the applicable minimum wage rate required under Executive Order 14026 or Executive Order 13658. Please note that these Executive Orders apply to covered contracts entered into by the federal government that are subject to the Davis-Bacon Act itself, but do not apply to contracts subject only to the Davis-Bacon Related Acts, including those set forth at 29 CFR 5.1(a)(1).

If the contract is entered into on or after January 30, 2022, or the contract is renewed or extended (e.g., an option is exercised) on or after January 30, 2022:	. Executive Order 14026 generally applies to the contract. . The contractor must pay all covered workers at least $17.75 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on the contract in 2025.

If the contract was awarded on or between January 1, 2015 and January 29, 2022, and the contract is not renewed or extended on or after January 30, 2022:	. Executive Order 13658 generally applies to the contract. . The contractor must pay all covered workers at least $13.30 per hour (or the applicable wage rate listed on this wage determination, if it is higher) for all hours spent performing on that contract in 2025.

The applicable Executive Order minimum wage rate will be adjusted annually. If this contract is covered by one of the Executive Orders and a classification considered necessary for performance of work on the contract does not appear on this wage determination, the contractor must still submit a conformance request.

Additional information on contractor requirements and worker protections under the Executive Orders is available at http://www.dol.gov/whd/govcontracts.

Modification Number Publication Date
0 01/03/2025

SUGA2024-001 10/03/2016

	Rates	Fringes
CARPENTER, Excludes Form Work	$ 15.00 **	0.00
CEMENT MASON/CONCRETE FINISHER	$ 15.13 **	0.00
FENCE ERECTOR	$ 10.97 **	0.00
FORM WORKER	$ 13.04 **	0.00

HIGHWAY/PARKING LOT STRIPING:

Operator (Striping Machine).....$ 12.43 ** 1.95

INSTALLER - GUARDRAIL.....$ 15.82 ** 0.00

INSTALLER - SIGN.....$ 11.50 ** 0.00

IRONWORKER, REINFORCING.....$ 15.31 ** 0.00

IRONWORKER, STRUCTURAL.....$ 15.36 ** 0.00

LABORER: Grade Checker.....$ 11.70 ** 0.00

LABORER: Mason Tender -
Cement/Concrete.....$ 12.68 ** 0.00

LABORER: Pipelayer.....$ 13.01 ** 0.00

LABORER: Asphalt (Includes
Distributor, Raker, Screed,
Shoveler, and Spreader).....$ 11.53 ** 0.00

LABORER: Common or General,
Includes Erosion Control.....$ 10.78 ** 0.00

OPERATOR:
Backhoe/Excavator/Trackhoe.....$ 15.74 ** 0.00

OPERATOR: Broom/Sweeper.....$ 12.59 ** 0.00

OPERATOR: Bulldozer.....$ 16.16 ** 0.00

OPERATOR: Compactor.....$ 12.82 ** 2.29

OPERATOR: Crane.....$ 21.83 0.00

OPERATOR: Distributor.....$ 14.65 ** 0.00

OPERATOR: Grader/Blade.....$ 17.72 ** 0.00

OPERATOR: Hydroseeder.....$ 11.72 ** 0.00

OPERATOR: Loader.....$ 13.92 ** 0.00

OPERATOR: Mechanic.....$ 19.79 0.00

OPERATOR: Milling Machine.....$ 14.63 ** 0.00

OPERATOR: Paver (Asphalt,
Aggregate, and Concrete).....$ 15.39 ** 0.00

OPERATOR: Piledriver.....$ 20.34 2.86

OPERATOR: Roller.....$ 12.63 ** 0.00

OPERATOR: Scraper.....$ 11.30 ** 0.00

OPERATOR: Screed.....$ 13.52 ** 0.00

OPERATOR: Tractor.....$ 11.62 ** 0.00

TRAFFIC CONTROL: Flagger.....$ 11.53 ** 0.00

TRAFFIC CONTROL:
Laborer-Cones/
Barricades/Barrels -
Setter/Mover/Sweeper.....$ 12.47 ** 0.00

TRAFFIC SIGNALIZATION:
Laborer.....$ 13.72 ** 0.66

TRUCK DRIVER: Dump Truck.....$ 14.31 ** 0.00

TRUCK DRIVER: Flatbed Truck.....$ 15.15 ** 0.00

TRUCK DRIVER: Hydroseeder
Truck.....$ 11.23 ** 0.00

TRUCK DRIVER: Lowboy Truck.....$ 16.38 ** 0.00

TRUCK DRIVER: Pickup Truck.....$ 12.34 ** 2.00

TRUCK DRIVER: Water Truck.....$ 13.08 ** 0.00

TRUCK DRIVER: Semi/Trailer
Truck.....$ 16.99 ** 0.00

WELDERS - Receive rate prescribed for craft performing
operation to which welding is incidental.

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** Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 ($17.75) or 13658 ($13.30). Please see the Note at the top of the wage determination for more information. Please also note that the minimum wage requirements of Executive Order 14026 are not currently being enforced as to any contract or subcontract to which the states of Texas, Louisiana, or Mississippi, including their agencies, are a party.

Note: Executive Order (EO) 13706, Establishing Paid Sick Leave for Federal Contractors applies to all contracts subject to the Davis-Bacon Act for which the contract is awarded (and any solicitation was issued) on or after January 1, 2017. If this contract is covered by the EO, the contractor must provide employees with 1 hour of paid sick leave for every 30 hours they work, up to 56 hours of paid sick leave each year. Employees must be permitted to use paid sick leave for their own illness, injury or other health-related needs, including preventive care; to assist a family member (or person who is like family to the employee) who is ill, injured, or has other health-related needs, including preventive care; or for reasons resulting from, or to assist a family member (or person who is like family to the employee) who is a victim of, domestic violence, sexual assault, or stalking. Additional information on contractor requirements and worker protections under the EO is available at https://www.dol.gov/agencies/whd/government-contracts.

Unlisted classifications needed for work not included within the scope of the classifications listed may be added after award only as provided in the labor standards contract clauses (29CFR 5.5 (a) (1) (iii)).

The body of each wage determination lists the classifications and wage rates that have been found to be prevailing for the type(s) of construction and geographic area covered by the wage determination. The classifications are listed in alphabetical order under rate identifiers indicating whether the particular rate is a union rate (current union negotiated rate), a survey rate, a weighted union average rate, a state adopted rate, or a supplemental classification rate.

Union Rate Identifiers

A four-letter identifier beginning with characters other than ""SU"", ""UAVG"", ?SA?, or ?SC? denotes that a union rate was prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2024. PLUM is an identifier of the union whose collectively bargained rate prevailed in the survey for this classification, which in this example would be Plumbers. 0198 indicates the local union number or district council number where applicable, i.e., Plumbers Local 0198. The next number, 005 in the example, is an internal number used in processing the wage determination. The date, 07/01/2024 in the example, is the effective date of the most current negotiated rate.

Union prevailing wage rates are updated to reflect all changes over time that are reported to WHD in the rates in the collective bargaining agreement (CBA) governing the classification.

Union Average Rate Identifiers

The UAVG identifier indicates that no single rate prevailed for those classifications, but that 100% of the data reported for the classifications reflected union rates.

EXAMPLE: UAVG-OH-0010 01/01/2024. UAVG indicates that the rate is a weighted union average rate. OH indicates the State of Ohio. The next number, 0010 in the example, is an internal number used in producing the wage determination. The date, 01/01/2024 in the example, indicates the date the wage determination was updated to reflect the most current union average rate.

A UAVG rate will be updated once a year, usually in January, to reflect a weighted average of the current rates in the collective bargaining agreements on which the rate is based.

Survey Rate Identifiers

The ""SU"" identifier indicates that either a single non-union rate prevailed (as defined in 29 CFR 1.2) for this classification in the survey or that the rate was derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As a weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SUFL2022-007 6/27/2024. SU indicates the rate is a single non-union prevailing rate or a weighted average of survey data for that classification. FL indicates the State of Florida. 2022 is the year of the survey on which these classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 6/27/2024 in the example, indicates the survey completion date for the classifications and rates under that identifier.

?SU? wage rates typically remain in effect until a new survey is conducted. However, the Wage and Hour Division (WHD) has the discretion to update such rates under 29 CFR 1.6(c)(1).

State Adopted Rate Identifiers

The ""SA"" identifier indicates that the classifications and prevailing wage rates set by a state (or local) government were adopted under 29 C.F.R 1.3(g)-(h).

Example: SAME2023-007 01/03/2024. SA reflects that the rates are state adopted. ME refers to the State of Maine. 2023 is the year during which the state completed the survey on which the listed classifications and rates are based. The next number, 007 in the example, is an internal number used in producing the wage determination. The date, 01/03/2024 in the example, reflects the date on which the classifications and rates under the ?SA? identifier took effect under state law in the state from which the rates were adopted.

WAGE DETERMINATION APPEALS PROCESS

1) Has there been an initial decision in the matter? This can be:

a) a survey underlying a wage determination

b) an existing published wage determination

c) an initial WHD letter setting forth a position on a wage determination matter

d) an initial conformance (additional classification and rate) determination

On survey related matters, initial contact, including requests for summaries of surveys, should be directed to the WHD Branch of Wage Surveys. Requests can be submitted via email to davisbaconinfo@dol.gov or by mail to:

Branch of Wage Surveys
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

Regarding any other wage determination matter such as conformance decisions, requests for initial decisions should be directed to the WHD Branch of Construction Wage Determinations. Requests can be submitted via email to BCWD-Office@dol.gov or by mail to:

Branch of Construction Wage Determinations
Wage and Hour Division
U.S. Department of Labor
200 Constitution Avenue, N.W.
Washington, DC 20210

2) If an initial decision has been issued, then any interested party (those affected by the action) that disagrees with the decision can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Requests for review and reconsideration can be submitted via email to dba.reconsideration@dol.gov or by mail to:

Wage and Hour Administrator

U.S. Department of Labor

200 Constitution Avenue, N.W.

Washington, DC 20210

The request should be accompanied by a full statement of the interested party's position and any information (wage payment data, project description, area practice material, etc.) that the requestor considers relevant to the issue.

3) If the decision of the Administrator is not favorable, an interested party may appeal directly to the Administrative Review Board (formerly the Wage Appeals Board). Write to:

Administrative Review Board

U.S. Department of Labor

200 Constitution Avenue, N.W.

Washington, DC 20210.

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END OF GENERAL DECISION

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ARTICLE 4

FAA GENERAL CONTRACT PROVISIONS SPECIFICATIONS

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SECTION 10

DEFINITION OF TERMS

The entirety of the Appendix 4 FAA General Provision Specifications are taken from the FAA AC 150/5370-10H as issued on 12/21/2018 and includes Errata Sheet updates up to 8/19/2020.

When the following terms are used in these specifications, in the contract, or in any documents or other instruments pertaining to construction where these specifications govern, the intent and meaning shall be defined as follows:

Paragraph Number	Term	Definition
10-01	**AASHTO**	The American Association of State Highway and Transportation Officials.
10-02	**Access Road**	The right-of-way, the roadway and all improvements constructed thereon connecting the airport to a public roadway.
10-03	**Advertisement**	A public announcement, as required by local law, inviting bids for work to be performed and materials to be furnished.
10-04	**Airport**	Airport means an area of land or water which is used or intended to be used for the landing and takeoff of aircraft; an appurtenant area used or intended to be used for airport buildings or other airport facilities or rights of way; airport buildings and facilities located in any of these areas, and a heliport.
10-05	**Airport Improvement Program (AIP)**	A grant-in-aid program, administered by the Federal Aviation Administration (FAA).
10-06	**Air Operations Area (AOA)**	The term air operations area (AOA) shall mean any area of the airport used or intended to be used for the landing, takeoff, or surface maneuvering of aircraft. An air operation area shall include such paved or unpaved areas that are used or intended to be used for the unobstructed movement of aircraft in addition to its associated runway, taxiway, or apron.
10-07	**Apron**	Area where aircraft are parked, unloaded or loaded, fueled and/or serviced.
10-08	**ASTM International (ASTM)**	Formerly known as the American Society for Testing and Materials (ASTM).
10-09	**Award**	The Owner's notice to the successful bidder of the acceptance of the submitted bid.
10-10	**Bidder**	Any individual, partnership, firm, or corporation, acting directly or through a duly authorized representative, who submits a proposal for the work contemplated.
10-11	**Building Area**	An area on the airport to be used, considered, or intended to be used for airport buildings or other airport facilities or rights-of-way together with all airport buildings and facilities located thereon.
10-12	**Calendar Day**	Every day shown on the calendar.
10-13	**Certificate of Analysis (COA)**	The COA is the manufacturer's Certificate of Compliance (COC) including all applicable test results required by the specifications.
10-14	**Certificate of Compliance (COC)**	The manufacturer's certification stating that materials or assemblies furnished fully comply with the requirements of the contract. The certificate shall be signed by the manufacturer's authorized representative.
10-15	**Change Order**	A written order to the Contractor covering changes in the plans, specifications, or proposal quantities and establishing the basis of payment and contract time adjustment, if any, for work within the scope of the contract and necessary to complete the project.
10-16	**Contract**	A written agreement between the Owner and the Contractor that

Paragraph Number	Term	Definition
		establishes the obligations of the parties including but not limited to performance of work, furnishing of labor, equipment and materials and the basis of payment. The awarded contract includes but may not be limited to: Advertisement, Contract form, Proposal, Performance bond, payment bond, General provisions, certifications and representations, Technical Specifications, Plans, Supplemental Provisions, standards incorporated by reference and issued addenda.
10-17	**Contract Item (Pay Item)**	A specific unit of work for which a price is provided in the contract.
10-18	**Contract Time**	The number of calendar days or working days, stated in the proposal, allowed for completion of the contract, including authorized time extensions. If a calendar date of completion is stated in the proposal, in lieu of a number of calendar or working days, the contract shall be completed by that date.
10-19	**Contractor**	The individual, partnership, firm, or corporation primarily liable for the acceptable performance of the work contracted and for the payment of all legal debts pertaining to the work who acts directly or through lawful agents or employees to complete the contract work.
10-20	**Contractors Quality Control (QC) Facilities**	The Contractor's QC facilities in accordance with the Contractor Quality Control Program (CQCP).
10-21	**Contractor Quality Control Program (CQCP)**	Details the methods and procedures that will be taken to assure that all materials and completed construction required by the contract conform to contract plans, technical specifications and other requirements, whether manufactured by the Contractor, or procured from subcontractors or vendors.
10-22	**Control Strip**	A demonstration by the Contractor that the materials, equipment, and construction processes results in a product meeting the requirements of the specification.
10-23	**Construction Safety and Phasing Plan (CSPP)**	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.
10-24	**Drainage System**	The system of pipes, ditches, and structures by which surface or subsurface waters are collected and conducted from the airport area.
10-25	**Engineer**	The individual, partnership, firm, or corporation duly authorized by the Owner to be responsible for engineering, inspection, and/or observation of the contract work and acting directly or through an authorized representative.
10-26	**Equipment**	All machinery, together with the necessary supplies for upkeep and maintenance; and all tools and apparatus necessary for the proper construction and acceptable completion of the work.
10-27	**Extra Work**	An item of work not provided for in the awarded contract as previously modified by change order or supplemental agreement, but which is found by the Owner's Engineer or Resident Project Representative (RPR) to be necessary to complete the work within the intended scope of the contract as previously modified.
10-28	**FAA**	The Federal Aviation Administration. When used to designate a person, FAA shall mean the Administrator or their duly authorized

Paragraph Number	Term	Definition
		representative.
10-29	**Federal Specifications**	The federal specifications and standards, commercial item descriptions, and supplements, amendments, and indices prepared and issued by the General Services Administration.
10-30	**Force Account**	**a.** Contract Force Account - A method of payment that addresses extra work performed by the Contractor on a time and material basis. **b.** Owner Force Account - Work performed for the project by the Owner's employees.
10-31	**Intention of Terms**	Whenever, in these specifications or on the plans, the words "directed," "required," "permitted," "ordered," "designated," "prescribed," or words of like import are used, it shall be understood that the direction, requirement, permission, order, designation, or prescription of the Engineer and/or Resident Project Representative (RPR) is intended; and similarly, the words "approved," "acceptable," "satisfactory," or words of like import, shall mean approved by, or acceptable to, or satisfactory to the Engineer and/or RPR, subject in each case to the final determination of the Owner. Any reference to a specific requirement of a numbered paragraph of the contract specifications or a cited standard shall be interpreted to include all general requirements of the entire section, specification item, or cited standard that may be pertinent to such specific reference.
10-32	**Lighting**	A system of fixtures providing or controlling the light sources used on or near the airport or within the airport buildings. The field lighting includes all luminous signals, markers, floodlights, and illuminating devices used on or near the airport or to aid in the operation of aircraft landing at, taking off from, or taxiing on the airport surface.
10-33	**Major and Minor Contract Items**	A major contract item shall be any item that is listed in the proposal, the total cost of which is equal to or greater than 20% of the total amount of the award contract. All other items shall be considered minor contract items.
10-34	**Materials**	Any substance specified for use in the construction of the contract work.
10-35	**Modification of Standards (MOS)**	Any deviation from standard specifications applicable to material and construction methods in accordance with FAA Order 5300.1.
10-36	**Notice to Proceed (NTP)**	A written notice to the Contractor to begin the actual contract work on a previously agreed to date. If applicable, the Notice to Proceed shall state the date on which the contract time begins.
10-37	**Owner**	The term "Owner" shall mean the party of the first part or the contracting agency signatory to the contract. Where the term "Owner" is capitalized in this document, it shall mean airport Sponsor only. The Owner for this project is **[** Troup County **]**.
10-38	**Passenger Facility Charge (PFC)**	Per 14 Code of Federal Regulations (CFR) Part 158 and 49 United States Code (USC) § 40117, a PFC is a charge imposed by a public agency on passengers enplaned at a commercial service airport it controls.
10-39	**Pavement Structure**	The combined surface course, base course(s), and subbase course(s), if any, considered as a single unit.

Paragraph Number	Term	Definition
10-40	**Payment bond**	The approved form of security furnished by the Contractor and their own surety as a guaranty that the Contractor will pay in full all bills and accounts for materials and labor used in the construction of the work.
10-41	**Performance bond**	The approved form of security furnished by the Contractor and their own surety as a guaranty that the Contractor will complete the work in accordance with the terms of the contract.
10-42	**Plans**	The official drawings or exact reproductions which show the location, character, dimensions and details of the airport and the work to be done and which are to be considered as a part of the contract, supplementary to the specifications. Plans may also be referred to as 'contract drawings.'
10-43	**Project**	The agreed scope of work for accomplishing specific airport development with respect to a particular airport.
10-44	**Proposal**	The written offer of the bidder (when submitted on the approved proposal form) to perform the contemplated work and furnish the necessary materials in accordance with the provisions of the plans and specifications.
10-45	**Proposal guaranty**	The security furnished with a proposal to guarantee that the bidder will enter into a contract if their own proposal is accepted by the Owner.
10-46	**Quality Assurance (QA)**	Owner's responsibility to assure that construction work completed complies with specifications for payment.
10-47	**Quality Control (QC)**	Contractor's responsibility to control material(s) and construction processes to complete construction in accordance with project specifications.
10-48	**Quality Assurance (QA) Inspector**	An authorized representative of the Engineer and/or Resident Project Representative (RPR) assigned to make all necessary inspections, observations, tests, and/or observation of tests of the work performed or being performed, or of the materials furnished or being furnished by the Contractor.
10-49	**Quality Assurance (QA) Laboratory**	The official quality assurance testing laboratories of the Owner or such other laboratories as may be designated by the Engineer or RPR. May also be referred to as Engineer's, Owner's, or QA Laboratory.
10-50	**Resident Project Representative (RPR)**	The individual, partnership, firm, or corporation duly authorized by the Owner to be responsible for all necessary inspections, observations, tests, and/or observations of tests of the contract work performed or being performed, or of the materials furnished or being furnished by the Contractor, and acting directly or through an authorized representative.
10-51	**Runway**	The area on the airport prepared for the landing and takeoff of aircraft.
10-52	**Runway Safety Area (RSA)**	A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to aircraft. See the construction safety and phasing plan (CSPP) for limits of the RSA.
10-53	**Safety Plan Compliance Document (SPCD)**	Details how the Contractor will comply with the CSPP.
10-54	**Specifications**	A part of the contract containing the written directions and requirements for completing the contract work. Standards for specifying materials or testing which are cited in the contract specifications by reference shall have the same force and effect as if included in the contract physically.

Paragraph Number	Term	Definition
10-55	**Sponsor**	A Sponsor is defined in 49 USC § 47102(24) as a public agency that submits to the FAA for an AIP grant; or a private Owner of a public-use airport that submits to the FAA an application for an AIP grant for the airport.
10-56	**Structures**	Airport facilities such as bridges; culverts; catch basins, inlets, retaining walls, cribbing; storm and sanitary sewer lines; water lines; underdrains; electrical ducts, manholes, handholes, lighting fixtures and bases; transformers; navigational aids; buildings; vaults; and, other manmade features of the airport that may be encountered in the work and not otherwise classified herein.
10-57	**Subgrade**	The soil that forms the pavement foundation.
10-58	**Superintendent**	The Contractor's executive representative who is present on the work during progress, authorized to receive and fulfill instructions from the RPR, and who shall supervise and direct the construction.
10-59	**Supplemental Agreement**	A written agreement between the Contractor and the Owner that establishes the basis of payment and contract time adjustment, if any, for the work affected by the supplemental agreement. A supplemental agreement is required if: (1) in scope work would increase or decrease the total amount of the awarded contract by more than 25%: (2) in scope work would increase or decrease the total of any major contract item by more than 25%; (3) work that is not within the scope of the originally awarded contract; or (4) adding or deleting of a major contract item.
10-60	**Surety**	The corporation, partnership, or individual, other than the Contractor, executing payment or performance bonds that are furnished to the Owner by the Contractor.
10-61	**Taxilane**	A taxiway designed for low speed movement of aircraft between aircraft parking areas and terminal areas.
10-62	**Taxiway**	The portion of the air operations area of an airport that has been designated by competent airport authority for movement of aircraft to and from the airport's runways, aircraft parking areas, and terminal areas.
10-63	**Taxiway/Taxilane Safety Area (TSA)**	A defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an aircraft. See the construction safety and phasing plan (CSPP) for limits of the TSA.
10-64	**Work**	The furnishing of all labor, materials, tools, equipment, and incidentals necessary or convenient to the Contractor's performance of all duties and obligations imposed by the contract, plans, and specifications.
10-65	**Working day**	A working day shall be any day other than a legal holiday, Saturday, or Sunday on which the normal working forces of the Contractor may proceed with regular work for at least six (6) hours toward completion of the contract. When work is suspended for causes beyond the Contractor's control, it will not be counted as a working day. Saturdays, Sundays and holidays on which the Contractor's forces engage in regular work will be considered as working days.
10-66	**Owner Defined terms**	~~[*None*]~~ **Airport** - The specific airport referred to in these documents is LaGrange Callaway Airport in LaGrange, Georgia.

END OF SECTION 10

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SECTION 20

PROPOSAL REQUIREMENTS AND CONDITIONS

20-01 Advertisement (Notice to Bidders). Refer to Instructions to Bidders (ITB).

20-02 Qualification of bidders. **Refer to Instructions to Bidders (ITB).** ~~Each bidder shall submit evidence of competency and evidence of financial responsibility to perform the work to the Owner at the time of bid opening.~~

~~Evidence of competency, unless otherwise specified, shall consist of statements covering the bidder's past experience on similar work, and a list of equipment and a list of key personnel that would be available for the work.~~

~~Each bidder shall furnish the Owner satisfactory evidence of their financial responsibility. Evidence of financial responsibility, unless otherwise specified, shall consist of a confidential statement or report of the bidder's financial resources and liabilities as of the last calendar year or the bidder's last fiscal year. Such statements or reports shall be certified by a public accountant. At the time of submitting such financial statements or reports, the bidder shall further certify whether their financial responsibility is approximately the same as stated or reported by the public accountant. If the bidder's financial responsibility has changed, the bidder shall qualify the public accountant's statement or report to reflect the bidder's true financial condition at the time such qualified statement or report is submitted to the Owner.~~

~~Unless otherwise specified, a bidder may submit evidence that they are prequalified with the State Highway Division and are on the current "bidder's list" of the state in which the proposed work is located. Evidence of State Highway Division prequalification may be submitted as evidence of financial responsibility in lieu of the certified statements or reports specified above.~~

20-03 Contents of proposal forms. **Refer to Instructions to Bidders (ITB).** ~~The Owner's proposal forms state the location and description of the proposed construction; the place, date, and time of opening of the proposals; and the estimated quantities of the various items of work to be performed and materials to be furnished for which unit bid prices are asked. The proposal form states the time in which the work must be completed, and the amount of the proposal guaranty that must accompany the proposal. The Owner will accept only those Proposals properly executed on physical forms or electronic forms provided by the Owner. Bidder actions that may cause the Owner to deem a proposal irregular are given in paragraph 20-09 *Irregular proposals*.~~

~~**[** Mobilization is limited to **[** 10 **]** percent of the total project cost. **]**~~

~~**[** A prebid conference is required on this project to discuss as a minimum, the following items: material requirements; submittals; Quality Control/Quality Assurance requirements; the construction safety and phasing plan including airport access and staging areas; and unique airfield paving construction requirements. **[** Insert the time, date, and place of the meeting. **]** **]**~~

20-04 Issuance of proposal forms. **Refer to Instructions to Bidders (ITB).** ~~The Owner reserves the right to refuse to issue a proposal form to a prospective bidder if the bidder is in default for any of the following reasons:~~

~~**a.** Failure to comply with any prequalification regulations of the Owner, if such regulations are cited, or otherwise included, in the proposal as a requirement for bidding.~~

~~**b.** Failure to pay, or satisfactorily settle, all bills due for labor and materials on former contracts in force with the Owner at the time the Owner issues the proposal to a prospective bidder.~~

~~**c.** Documented record of Contractor default under previous contracts with the Owner.~~

~~**d.** Documented record of unsatisfactory work on previous contracts with the Owner.~~

20-05 Interpretation of estimated proposal quantities. **Refer to Instructions to Bidders (ITB).** ~~An estimate of quantities of work to be done and materials to be furnished under these specifications is given in the proposal. It is the result of careful calculations and is believed to be correct. It is given only as a basis for comparison of proposals and the award of the contract. The Owner does not expressly, or by implication, agree that the actual quantities involved will~~

correspond exactly therewith; nor shall the bidder plead misunderstanding or deception because of such estimates of quantities, or of the character, location, or other conditions pertaining to the work. Payment to the Contractor will be made only for the actual quantities of work performed or materials furnished in accordance with the plans and specifications. It is understood that the quantities may be increased or decreased as provided in the Section 40, paragraph 40-02, Alteration of Work and Quantities, without in any way invalidating the unit bid prices.

20-06 Examination of plans, specifications, and site. **Refer to Instructions to Bidders (ITB).** The bidder is expected to carefully examine the site of the proposed work, the proposal, plans, specifications, and contract forms. Bidders shall satisfy themselves to the character, quality, and quantities of work to be performed, materials to be furnished, and to the requirements of the proposed contract. The submission of a proposal shall be prima facie evidence that the bidder has made such examination and is satisfied to the conditions to be encountered in performing the work and the requirements of the proposed contract, plans, and specifications.

[Boring logs and other records of subsurface investigations and tests are available for inspection of bidders. It is understood and agreed that such subsurface information, whether included in the plans, specifications, or otherwise made available to the bidder, was obtained and is intended for the Owner's design and estimating purposes only. Such information has been made available for the convenience of all bidders. It is further understood and agreed that each bidder is solely responsible for all assumptions, deductions, or conclusions which the bidder may make or obtain from their own examination of the boring logs and other records of subsurface investigations and tests that are furnished by the Owner. **]**

20-07 Preparation of proposal. **Refer to Instructions to Bidders (ITB).** The bidder shall submit their proposal on the forms furnished by the Owner. All blank spaces in the proposal forms, unless explicitly stated otherwise, must be correctly filled in where indicated for each and every item for which a quantity is given. The bidder shall state the price (written in ink or typed) both in words and numerals which they propose for each pay item furnished in the proposal. In case of conflict between words and numerals, the words, unless obviously incorrect, shall govern.

The bidder shall correctly sign the proposal in ink. If the proposal is made by an individual, their name and post office address must be shown. If made by a partnership, the name and post office address of each member of the partnership must be shown. If made by a corporation, the person signing the proposal shall give the name of the state where the corporation was chartered and the name, titles, and business address of the president, secretary, and the treasurer. Anyone signing a proposal as an agent shall file evidence of their authority to do so and that the signature is binding upon the firm or corporation.

20-08 Responsive and responsible bidder. Refer to Instructions to Bidders (ITB). A responsive bid conforms to all significant terms and conditions contained in the Owner's invitation for bid. It is the Owner's responsibility to decide if the exceptions taken by a bidder to the solicitation are material or not and the extent of deviation it is willing to accept.

A responsible bidder has the ability to perform successfully under the terms and conditions of a proposed procurement, as defined in 2 CFR § 200.318(h). This includes such matters as Contractor integrity, compliance with public policy, record of past performance, and financial and technical resources.

20-09 Irregular proposals. **Refer to Instructions to Bidders (ITB).** Proposals shall be considered irregular for the following reasons:

a. If the proposal is on a form other than that furnished by the Owner, or if the Owner's form is altered, or if any part of the proposal form is detached.

b. If there are unauthorized additions, conditional or alternate pay items, or irregularities of any kind that make the proposal incomplete, indefinite, or otherwise ambiguous.

c. If the proposal does not contain a unit price for each pay item listed in the proposal, except in the case of authorized alternate pay items, for which the bidder is not required to furnish a unit price.

d. If the proposal contains unit prices that are obviously unbalanced.

e. If the proposal is not accompanied by the proposal guaranty specified by the Owner.

f. If the applicable Disadvantaged Business Enterprise information is incomplete.

The Owner reserves the right to reject any irregular proposal and the right to waive technicalities if such waiver is in the best interest of the Owner and conforms to local laws and ordinances pertaining to the letting of construction contracts.

20-10 Bid guarantee. **Refer to Instructions to Bidders (ITB).** Each separate proposal shall be accompanied by a bid bond, certified check, or other specified acceptable collateral, in the amount specified in the proposal form. Such bond, check, or collateral, shall be made payable to the Owner.

20-11 Delivery of proposal. Refer to Instructions to Bidders (ITB). **[** Each proposal submitted shall be placed in a sealed envelope plainly marked with the project number, location of airport, and name and business address of the bidder on the outside. When sent by mail, preferably registered, the sealed proposal, marked as indicated above, should be enclosed in an additional envelope. No proposal will be considered unless received at the place specified in the advertisement or as modified by Addendum before the time specified for opening all bids. Proposals received after the bid opening time shall be returned to the bidder unopened. **]**

20-12 Withdrawal or revision of proposals. **Refer to Instructions to Bidders (ITB).** A bidder may withdraw or revise (by withdrawal of one proposal and submission of another) a proposal provided that the bidder's request for withdrawal is received by the Owner **[** in writing **] [** by fax **][** by email **]** before the time specified for opening bids. Revised proposals must be received at the place specified in the advertisement before the time specified for opening all bids.

20-13 Public opening of proposals. **Refer to Instructions to Bidders (ITB).** Proposals shall be opened, and read, publicly at the time and place specified in the advertisement. Bidders, their authorized agents, and other interested persons are invited to attend. Proposals that have been withdrawn (by written or telegraphic request) or received after the time specified for opening bids shall be returned to the bidder unopened.

20-14 Disqualification of bidders. **Refer to Instructions to Bidders (ITB).** A bidder shall be considered disqualified for any of the following reasons:

a. Submitting more than one proposal from the same partnership, firm, or corporation under the same or different name.

b. Evidence of collusion among bidders. Bidders participating in such collusion shall be disqualified as bidders for any future work of the Owner until any such participating bidder has been reinstated by the Owner as a qualified bidder.

c. If the bidder is considered to be in "default" for any reason specified in paragraph 20-04, *Issuance of Proposal Forms*, of this section.

20-15 Discrepancies and Omissions. Refer to Instructions to Bidders (ITB). A Bidder who discovers discrepancies or omissions with the project bid documents shall immediately notify the Owner's Engineer of the matter. A bidder that has doubt as to the true meaning of a project requirement may submit to the Owner's Engineer a written request for interpretation no later than **[seven (7)]** days prior to bid opening.

Any interpretation of the project bid documents by the Owner's Engineer will be by written addendum issued by the Owner. The Owner will not consider any instructions, clarifications or interpretations of the bidding documents in any manner other than written addendum.

END OF SECTION 20

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SECTION 30

AWARD AND EXECUTION OF CONTRACT

30-01 Consideration of proposals. **Refer to Instructions to Bidders (ITB).** After the proposals are publicly opened and read, they will be compared on the basis of the summation of the products obtained by multiplying the estimated quantities shown in the proposal by the unit bid prices. If a bidder's proposal contains a discrepancy between unit bid prices written in words and unit bid prices written in numbers, the unit bid price written in words shall govern.

Until the award of a contract is made, the Owner reserves the right to reject a bidder's proposal for any of the following reasons:

a. If the proposal is irregular as specified in Section 20, paragraph 20-09, *Irregular Proposals*.

b. If the bidder is disqualified for any of the reasons specified Section 20, paragraph 20-14, *Disqualification of Bidders*.

In addition, until the award of a contract is made, the Owner reserves the right to reject any or all proposals, waive technicalities, if such waiver is in the best interest of the Owner and is in conformance with applicable state and local laws or regulations pertaining to the letting of construction contracts; advertise for new proposals; or proceed with the work otherwise. All such actions shall promote the Owner's best interests.

30-02 Award of contract. **Refer to Instructions to Bidders (ITB).** The award of a contract, if it is to be awarded, shall be made within **[thirty (30)]** calendar days of the date specified for publicly opening proposals, unless otherwise specified herein.

If the Owner elects to proceed with an award of contract, the Owner will make award to the responsible bidder whose bid, conforming with all the material terms and conditions of the bid documents, is the lowest in price.

30-03 Cancellation of award. **Refer to Instructions to Bidders (ITB).** The Owner reserves the right to cancel the award without liability to the bidder, except return of proposal guaranty, at any time before a contract has been fully executed by all parties and is approved by the Owner in accordance with paragraph 30-07 *Approval of Contract*.

30-04 Return of proposal guaranty. **Refer to Instructions to Bidders (ITB).** All proposal guaranties, except those of the two lowest bidders, will be returned immediately after the Owner has made a comparison of bids as specified in the paragraph 30-01, *Consideration of Proposals*. Proposal guaranties of the two lowest bidders will be retained by the Owner until such time as an award is made, at which time, the unsuccessful bidder's proposal guaranty will be returned. The successful bidder's proposal guaranty will be returned as soon as the Owner receives the contract bonds as specified in paragraph 30-05, *Requirements of Contract Bonds*.

30-05 Requirements of contract bonds. **Refer to Instructions to Bidders (ITB).** At the time of the execution of the contract, the successful bidder shall furnish the Owner a surety bond or bonds that have been fully executed by the bidder and the surety guaranteeing the performance of the work and the payment of all legal debts that may be incurred by reason of the Contractor's performance of the work. The surety and the form of the bond or bonds shall be acceptable to the Owner. Unless otherwise specified in this subsection, the surety bond or bonds shall be in a sum equal to the full amount of the contract.

30-06 Execution of contract. **Refer to Instructions to Bidders (ITB).** The successful bidder shall sign (execute) the necessary agreements for entering into the contract and return the signed contract to the Owner, along with the fully executed surety bond or bonds specified in paragraph 30-05, *Requirements of Contract Bonds*, of this section, within **[** fifteen (15) **]** calendar days from the date mailed or otherwise delivered to the successful bidder.

30-07 Approval of contract. **Refer to Instructions to Bidders (ITB).** Upon receipt of the contract and contract bond or bonds that have been executed by the successful bidder, the Owner shall complete the execution of the contract in accordance with local laws or ordinances, and return the fully executed contract to the Contractor. Delivery of the fully executed contract to the Contractor shall constitute the Owner's approval to be bound by the

~~successful bidder's proposal and the terms of the contract.~~

30-08 Failure to execute contract. **Refer to Instructions to Bidders (ITB).** ~~Failure of the successful bidder to execute the contract and furnish an acceptable surety bond or bonds within the period specified in paragraph 30-06, *Execution of Contract*, of this section shall be just cause for cancellation of the award and forfeiture of the proposal guaranty, not as a penalty, but as liquidated damages to the Owner.~~

END OF SECTION 30

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SECTION 40

SCOPE OF WORK

40-01 Intent of contract. The intent of the contract is to provide for construction and completion, in every detail, of the work described. It is further intended that the Contractor shall furnish all labor, materials, equipment, tools, transportation, and supplies required to complete the work in accordance with the plans, specifications, and terms of the contract.

40-02 Alteration of work and quantities. The Owner reserves the right to make such changes in quantities and work as may be necessary or desirable to complete, in a satisfactory manner, the original intended work. Unless otherwise specified in the Contract, the Owner's Engineer or RPR shall be and is hereby authorized to make, in writing, such in-scope alterations in the work and variation of quantities as may be necessary to complete the work, provided such action does not represent a significant change in the character of the work.

For purpose of this section, a significant change in character of work means: any change that is outside the current contract scope of work; any change (increase or decrease) in the total contract cost by more than 25%; or any change in the total cost of a major contract item by more than 25%.

Work alterations and quantity variances that do not meet the definition of significant change in character of work shall not invalidate the contract nor release the surety. Contractor agrees to accept payment for such work alterations and quantity variances in accordance with Section 90, paragraph 90-03, *Compensation for Altered Quantities*.

Should the value of altered work or quantity variance meet the criteria for significant change in character of work, such altered work and quantity variance shall be covered by a supplemental agreement. Supplemental agreements shall also require consent of the Contractor's surety and separate performance and payment bonds. If the Owner and the Contractor are unable to agree on a unit adjustment for any contract item that requires a supplemental agreement, the Owner reserves the right to terminate the contract with respect to the item and make other arrangements for its completion.

40-03 Omitted items. The Owner, the Owner's Engineer or the RPR may provide written notice to the Contractor to omit from the work any contract item that does not meet the definition of major contract item. Major contract items may be omitted by a supplemental agreement. Such omission of contract items shall not invalidate any other contract provision or requirement.

Should a contract item be omitted or otherwise ordered to be non-performed, the Contractor shall be paid for all work performed toward completion of such item prior to the date of the order to omit such item. Payment for work performed shall be in accordance with Section 90, paragraph 90-04, *Payment for Omitted Items*.

40-04 Extra work. Should acceptable completion of the contract require the Contractor to perform an item of work not provided for in the awarded contract as previously modified by change order or supplemental agreement, Owner may issue a Change Order to cover the necessary extra work. Change orders for extra work shall contain agreed unit prices for performing the change order work in accordance with the requirements specified in the order, and shall contain any adjustment to the contract time that, in the RPR's opinion, is necessary for completion of the extra work.

When determined by the RPR to be in the Owner's best interest, the RPR may order the Contractor to proceed with extra work as provided in Section 90, paragraph 90-05, *Payment for Extra Work*. Extra work that is necessary for acceptable completion of the project, but is not within the general scope of the work covered by the original contract shall be covered by a supplemental agreement as defined in Section 10, paragraph 10-59, *Supplemental Agreement*.

If extra work is essential to maintaining the project critical path, RPR may order the Contractor to commence the extra work under a Time and Material contract method. Once sufficient detail is available to establish the level of effort necessary for the extra work, the Owner shall initiate a change order or supplemental agreement to cover the extra work.

Any claim for payment of extra work that is not covered by written agreement (change order or supplemental agreement) shall be rejected by the Owner.

~~When the change order or supplemental agreement authorizing the extra work requires that it be done by force account, such force account shall be measured and paid for based on expended labor, equipment, and materials plus a negotiated and agreed upon allowance for overhead and profit.~~

~~**a. Miscellaneous**. No additional allowance will be made for general superintendence, the use of small tools, or other costs for which no specific allowance is herein provided.~~

~~**b. Comparison of Record**. The Contractor and the Engineer shall compare records of the cost of force account work at the end of each day. Agreement shall be indicated by signature of the Contractor and the Engineer or their duly authorized representatives.~~

~~**c. Statement**. No payment will be made for work performed on a force account basis until the Contractor has furnished the Engineer with duplicate itemized statements of the cost of such force account work detailed as follows:~~

~~**(1)** Name, classification, date, daily hours, total hours, rate and extension for each laborer and foreman.~~

~~**(2)** Designation, dates, daily hours, total hours, rental rate, and extension for each unit of machinery and equipment.~~

~~**(3)** Quantities of materials, prices, and extensions.~~

~~**(4)** Transportation of materials.~~

~~**(5)** Cost of property damage, liability and workman's compensation insurance premiums, unemployment insurance contributions, and social security tax.~~

~~Statements shall be accompanied and supported by a receipted invoice for all materials used and transportation charges. However, if materials used on the force account work are not specifically purchased for such work but are taken from the Contractor's stock, then in lieu of the invoices the Contractor shall furnish an affidavit certifying that such materials were taken from his/her stock, that the quantity claimed was actually used, and that the price and transportation claimed represent the actual cost to the Contractor.~~

40-05 Maintenance of traffic. It is the explicit intention of the contract that the safety of aircraft, as well as the Contractor's equipment and personnel, is the most important consideration. The Contractor shall maintain traffic in the manner detailed in the Construction Safety and Phasing Plan (CSPP).

a. It is understood and agreed that the Contractor shall provide for the free and unobstructed movement of aircraft in the air operations areas (AOAs) of the airport with respect to their own operations and the operations of all subcontractors as specified in Section 80, paragraph 80-04, *Limitation of Operations*. It is further understood and agreed that the Contractor shall provide for the uninterrupted operation of visual and electronic signals (including power supplies thereto) used in the guidance of aircraft while operating to, from, and upon the airport as specified in Section 70, paragraph 70-15, *Contractor's Responsibility for Utility Service and Facilities of Others*.

b. With respect to their own operations and the operations of all subcontractors, the Contractor shall provide marking, lighting, and other acceptable means of identifying personnel, equipment, vehicles, storage areas, and any work area or condition that may be hazardous to the operation of aircraft, fire-rescue equipment, or maintenance vehicles at the airport in accordance with the construction safety and phasing plan (CSPP) and the safety plan compliance document (SPCD).

c. When the contract requires the maintenance of an existing road, street, or highway during the Contractor's performance of work that is otherwise provided for in the contract, plans, and specifications, the Contractor shall keep the road, street, or highway open to all traffic and shall provide maintenance as may be required to accommodate traffic. The Contractor, at their expense, shall be responsible for the repair to equal or better than preconstruction conditions of any damage caused by the Contractor's equipment and personnel. The Contractor shall furnish, erect, and maintain barricades, warning signs, flag person, and other traffic control devices in reasonable conformity with the Manual on Uniform Traffic Control Devices (MUTCD) (http://mutcd.fhwa.dot.gov/), unless otherwise specified. The Contractor shall also construct and maintain in a safe condition any temporary connections necessary for ingress to and egress from abutting property or intersecting roads, streets or highways. **[** ~~Unless otherwise specified herein, the Contractor will not be required to furnish snow removal for such existing road, street, or highway.~~ **]**

40-06 Removal of existing structures. All existing structures encountered within the established lines, grades, or grading sections shall be removed by the Contractor, unless such existing structures are otherwise specified to be relocated, adjusted up or down, salvaged, abandoned in place, reused in the work or to remain in place. The cost of removing such existing structures shall not be measured or paid for directly, but shall be included in the various contract items.

Should the Contractor encounter an existing structure (above or below ground) in the work for which the disposition is not indicated on the plans, the Resident Project Representative (RPR) shall be notified prior to disturbing such structure. The disposition of existing structures so encountered shall be immediately determined by the RPR in accordance with the provisions of the contract.

Except as provided in Section 40, paragraph 40-07, *Rights in and Use of Materials Found in the Work*, it is intended that all existing materials or structures that may be encountered (within the lines, grades, or grading sections established for completion of the work) shall be used in the work as otherwise provided for in the contract and shall remain the property of the Owner when so used in the work.

40-07 Rights in and use of materials found in the work. Should the Contractor encounter any material such as (but not restricted to) sand, stone, gravel, slag, or concrete slabs within the established lines, grades, or grading sections, the use of which is intended by the terms of the contract to be embankment, the Contractor may at their own option either:

a. Use such material in another contract item, providing such use is approved by the RPR and is in conformance with the contract specifications applicable to such use; or,

b. Remove such material from the site, upon written approval of the RPR; or

c. Use such material for the Contractor's own temporary construction on site; or,

d. Use such material as intended by the terms of the contract.

Should the Contractor wish to exercise option a., b., or c., the Contractor shall request the RPR's approval in advance of such use.

Should the RPR approve the Contractor's request to exercise option a., b., or c., the Contractor shall be paid for the excavation or removal of such material at the applicable contract price. The Contractor shall replace, at their expense, such removed or excavated material with an agreed equal volume of material that is acceptable for use in constructing embankment, backfills, or otherwise to the extent that such replacement material is needed to complete the contract work. The Contractor shall not be charged for use of such material used in the work or removed from the site.

Should the RPR approve the Contractor's exercise of option a., the Contractor shall be paid, at the applicable contract price, for furnishing and installing such material in accordance with requirements of the contract item in which the material is used.

It is understood and agreed that the Contractor shall make no claim for delays by reason of their own exercise of

option a., b., or c.

The Contractor shall not excavate, remove, or otherwise disturb any material, structure, or part of a structure which is located outside the lines, grades, or grading sections established for the work, except where such excavation or removal is provided for in the contract, plans, or specifications.

40-08 Final cleanup. Upon completion of the work and before acceptance and final payment will be made, the Contractor shall remove from the site all machinery, equipment, surplus and discarded materials, rubbish, temporary structures, and stumps or portions of trees. The Contractor shall cut all brush and woods within the limits indicated and shall leave the site in a neat and presentable condition. Material cleared from the site and deposited on adjacent property will not be considered as having been disposed of satisfactorily, unless the Contractor has obtained the written permission of the property Owner.

END OF SECTION 40

SECTION 50

CONTROL OF WORK

50-01 Authority of the Resident Project Representative (RPR). The RPR has final authority regarding the interpretation of project specification requirements. The RPR shall determine acceptability of the quality of materials furnished, method of performance of work performed, and the manner and rate of performance of the work. The RPR does not have the authority to accept work that does not conform to specification requirements.

50-02 Conformity with plans and specifications. All work and all materials furnished shall be in reasonably close conformity with the lines, grades, grading sections, cross-sections, dimensions, material requirements, and testing requirements that are specified (including specified tolerances) in the contract, plans, or specifications.

If the RPR finds the materials furnished, work performed, or the finished product not within reasonably close conformity with the plans and specifications, but that the portion of the work affected will, in their opinion, result in a finished product having a level of safety, economy, durability, and workmanship acceptable to the Owner, the RPR will advise the Owner of their determination that the affected work be accepted and remain in place. The RPR will document the determination and recommend to the Owner a basis of acceptance that will provide for an adjustment in the contract price for the affected portion of the work. Changes in the contract price must be covered by contract change order or supplemental agreement as applicable.

If the RPR finds the materials furnished, work performed, or the finished product are not in reasonably close conformity with the plans and specifications and have resulted in an unacceptable finished product, the affected work or materials shall be removed and replaced or otherwise corrected by and at the expense of the Contractor in accordance with the RPR's written orders.

The term "reasonably close conformity" shall not be construed as waiving the Contractor's responsibility to complete the work in accordance with the contract, plans, and specifications. The term shall not be construed as waiving the RPR's responsibility to insist on strict compliance with the requirements of the contract, plans, and specifications during the Contractor's execution of the work, when, in the RPR's opinion, such compliance is essential to provide an acceptable finished portion of the work.

The term "reasonably close conformity" is also intended to provide the RPR with the authority, after consultation with the Sponsor and FAA, to use sound engineering judgment in their determinations to accept work that is not in strict conformity, but will provide a finished product equal to or better than that required by the requirements of the contract, plans and specifications.

The RPR will not be responsible for the Contractor's means, methods, techniques, sequences, or procedures of construction or the safety precautions incident thereto.

50-03 Coordination of contract, plans, and specifications. The contract, plans, specifications, and all referenced standards cited are essential parts of the contract requirements. If electronic files are provided and used on the project and there is a conflict between the electronic files and hard copy plans, the hard copy plans shall govern. A requirement occurring in one is as binding as though occurring in all. They are intended to be complementary and to describe and provide for a complete work. In case of discrepancy, calculated dimensions will govern over scaled dimensions; contract technical specifications shall govern over contract general provisions, plans, cited standards for materials or testing, and cited advisory circulars (ACs); contract general provisions shall govern over plans, cited standards for materials or testing, and cited ACs; plans shall govern over cited standards for materials or testing and cited ACs. If any paragraphs contained in the Special Provisions conflict with General Provisions or Technical Specifications, the Special Provisions shall govern.

From time to time, discrepancies within cited testing standards occur due to the timing of the change, edits, and/or replacement of the standards. If the Contractor discovers any apparent discrepancy within standard test methods, the Contractor shall immediately ask the RPR for an interpretation and decision, and such decision shall be final.

The Contractor shall not take advantage of any apparent error or omission on the plans or specifications. In the event the

Contractor discovers any apparent error or discrepancy, Contractor shall immediately notify the Owner or the designated representative in writing requesting their written interpretation and decision.

50-04 List of Special Provisions. [Special provisions and changes are indicated throughout the document with strikethroughs and gray highlight.]

50-05 Cooperation of Contractor. The Contractor shall be supplied with ~~[*five*] hard copies or~~ an electronic PDF of the plans and specifications. The Contractor shall have available on the construction site at all times one hardcopy each of the plans and specifications. Additional hard copies of plans and specifications may be obtained by the Contractor for the cost of reproduction.

The Contractor shall give constant attention to the work to facilitate the progress thereof, and shall cooperate with the RPR and their inspectors and with other Contractors in every way possible. The Contractor shall have a competent superintendent on the work at all times who is fully authorized as their agent on the work. The superintendent shall be capable of reading and thoroughly understanding the plans and specifications and shall receive and fulfill instructions from the RPR or their authorized representative.

50-06 Cooperation between Contractors. The Owner reserves the right to contract for and perform other or additional work on or near the work covered by this contract.

When separate contracts are let within the limits of any one project, each Contractor shall conduct the work not to interfere with or hinder the progress of completion of the work being performed by other Contractors. Contractors working on the same project shall cooperate with each other as directed.

Each Contractor involved shall assume all liability, financial or otherwise, in connection with their own contract and shall protect and hold harmless the Owner from any and all damages or claims that may arise because of inconvenience, delays, or loss experienced because of the presence and operations of other Contractors working within the limits of the same project.

The Contractor shall arrange their work and shall place and dispose of the materials being used to not interfere with the operations of the other Contractors within the limits of the same project. The Contractor shall join their work with that of the others in an acceptable manner and shall perform it in proper sequence to that of the others.

50-07 Construction layout and stakes. The Engineer/RPR shall establish necessary horizontal and vertical control. The establishment of Survey Control and/or reestablishment of survey control shall be by a State Licensed Land Surveyor. Contractor is responsible for preserving integrity of horizontal and vertical controls established by Engineer/RPR. In case of negligence on the part of the Contractor or their employees, resulting in the destruction of any horizontal and vertical control, the resulting costs will be deducted as a liquidated damage against the Contractor.

Prior to the start of construction, the Contractor will check all control points for horizontal and vertical accuracy and certify in writing to the RPR that the Contractor concurs with survey control established for the project. All lines, grades and measurements from control points necessary for the proper execution and control of the work on this project will be provided to the RPR. The Contractor is responsible to establish all layout required for the construction of the project.

Copies of survey notes will be provided to the RPR for each area of construction and for each placement of material as specified to allow the RPR to make periodic checks for conformance with plan grades, alignments and grade tolerances required by the applicable material specifications. Surveys will be provided to the RPR prior to commencing work items that cover or disturb the survey staking. Survey(s) and notes shall be provided in the following format(s): **[** should be one or a combination of AutoCAD (latest version), one (1) hard copy, pdf copy, etc. **]**.)

Laser, GPS, String line, or other automatic control shall be checked with temporary control as necessary. In the case of error, on the part of the Contractor, their surveyor, employees or subcontractors, resulting in established grades, alignment or grade tolerances that do not concur with those specified or shown on the plans, the Contractor is solely responsible for correction, removal, replacement and all associated costs at no additional cost to the Owner.

No direct payment will be made, unless otherwise specified in contract documents, for this labor, materials, or other expenses. The cost shall be included in the price of the bid for the various items of the Contract.

50-08 Authority and duties of Quality Assurance (QA) inspectors. QA inspectors shall be authorized to inspect all work done and all material furnished. Such QA inspection may extend to all or any part of the work and to the preparation, fabrication, or manufacture of the materials to be used. QA inspectors are not authorized to revoke, alter, or waive any provision of the contract. QA inspectors are not authorized to issue instructions contrary to the plans and specifications or to act as foreman for the Contractor.

QA Inspectors are authorized to notify the Contractor or their representatives of any failure of the work or materials to conform to the requirements of the contract, plans, or specifications and to reject such nonconforming materials in question until such issues can be referred to the RPR for a decision.

50-09 Inspection of the work. All materials and each part or detail of the work shall be subject to inspection. The RPR shall be allowed access to all parts of the work and shall be furnished with such information and assistance by the Contractor as is required to make a complete and detailed inspection.

If the RPR requests it, the Contractor, at any time before acceptance of the work, shall remove or uncover such portions of the finished work as may be directed. After examination, the Contractor shall restore said portions of the work to the standard required by the specifications. Should the work thus exposed or examined prove acceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be paid for as extra work; but should the work so exposed or examined prove unacceptable, the uncovering, or removing, and the replacing of the covering or making good of the parts removed will be at the Contractor's expense.

Provide advance written notice to the RPR of work the Contractor plans to perform each week and each day. Any work done or materials used without written notice and allowing opportunity for inspection by the RPR may be ordered removed and replaced at the Contractor's expense.

Should the contract work include relocation, adjustment, or any other modification to existing facilities, not the property of the (contract) Owner, authorized representatives of the Owners of such facilities shall have the right to inspect such work. Such inspection shall in no sense make any facility owner a party to the contract, and shall in no way interfere with the rights of the parties to this contract.

50-10 Removal of unacceptable and unauthorized work. All work that does not conform to the requirements of the contract, plans, and specifications will be considered unacceptable, unless otherwise determined acceptable by the RPR as provided in paragraph 50-02, *Conformity with Plans and Specifications*.

Unacceptable work, whether the result of poor workmanship, use of defective materials, damage through carelessness, or any other cause found to exist prior to the final acceptance of the work, shall be removed immediately and replaced in an acceptable manner in accordance with the provisions of Section 70, paragraph 70-14, *Contractor's Responsibility for Work.*

No removal work made under provision of this paragraph shall be done without lines and grades having been established by the RPR. Work done contrary to the instructions of the RPR, work done beyond the lines shown on the plans or as established by the RPR, except as herein specified, or any extra work done without authority, will be considered as unauthorized and will not be paid for under the provisions of the contract. Work so done may be ordered removed or replaced at the Contractor's expense.

Upon failure on the part of the Contractor to comply with any order of the RPR made under the provisions of this subsection, the RPR will have authority to cause unacceptable work to be remedied or removed and replaced; and unauthorized work to be removed and recover the resulting costs as a liquidated damage against the Contractor.

50-11 Load restrictions. The Contractor shall comply with all legal load restrictions in the hauling of materials on public roads beyond the limits of the work. A special permit will not relieve the Contractor of liability for damage that may result from the moving of material or equipment.

The operation of equipment of such weight or so loaded as to cause damage to structures or to any other type of construction will not be permitted. Hauling of materials over the base course or surface course under construction shall be limited as directed. No loads will be permitted on a concrete pavement, base, or structure before the expiration of the curing period. The Contractor, at their own expense, shall be responsible for the repair to equal or better than preconstruction conditions of any damage caused by the Contractor's equipment and personnel.

50-12 Maintenance during construction. The Contractor shall maintain the work during construction and until the work is accepted. Maintenance shall constitute continuous and effective work prosecuted day by day, with adequate equipment and forces so that the work is maintained in satisfactory condition at all times.

In the case of a contract for the placing of a course upon a course or subgrade previously constructed, the Contractor shall maintain the previous course or subgrade during all construction operations.

All costs of maintenance work during construction and before the project is accepted shall be included in the unit prices bid on the various contract items, and the Contractor will not be paid an additional amount for such work.

50-13 Failure to maintain the work. Should the Contractor at any time fail to maintain the work as provided in paragraph 50-12, *Maintenance during Construction*, the RPR shall immediately notify the Contractor of such noncompliance. Such notification shall specify a reasonable time within which the Contractor shall be required to remedy such unsatisfactory maintenance condition. The time specified will give due consideration to the exigency that exists.

Should the Contractor fail to respond to the RPR's notification, the Owner may suspend any work necessary for the Owner to correct such unsatisfactory maintenance condition, depending on the exigency that exists. Any maintenance cost incurred by the Owner, shall be recovered as a liquidated damage against the Contractor.

50-14 Partial acceptance. If at any time during the execution of the project the Contractor substantially completes a usable unit or portion of the work, the occupancy of which will benefit the Owner, the Contractor may request the RPR to make final inspection of that unit. If the RPR finds upon inspection that the unit has been satisfactorily completed in compliance with the contract, the RPR may accept it as being complete, and the Contractor may be relieved of further responsibility for that unit. Such partial acceptance and beneficial occupancy by the Owner shall not void or alter any provision of the contract.

50-15 Final acceptance. Upon due notice from the Contractor of presumptive completion of the entire project, the RPR and Owner will make an inspection. If all construction provided for and contemplated by the contract is found to be complete in accordance with the contract, plans, and specifications, such inspection shall constitute the final inspection. The RPR shall notify the Contractor in writing of final acceptance as of the date of the final inspection.

If, however, the inspection discloses any work, in whole or in part, as being unsatisfactory, the RPR will notify the Contractor and the Contractor shall correct the unsatisfactory work. Upon correction of the work, another inspection will be made which shall constitute the final inspection, provided the work has been satisfactorily completed. In such event, the RPR will make the final acceptance and notify the Contractor in writing of this acceptance as of the date of final inspection.

50-16 Claims for adjustment and disputes. If for any reason the Contractor deems that additional compensation is due for work or materials not clearly provided for in the contract, plans, or specifications or previously authorized as extra work, the Contractor shall notify the RPR in writing of their intention to claim such additional compensation before the Contractor begins the work on which the Contractor bases the claim. If such notification is not given or the RPR is not afforded proper opportunity by the Contractor for keeping strict account of actual cost as required, then the Contractor hereby agrees to waive any claim for such additional compensation. Such notice by the Contractor and the fact that the RPR has kept account of the cost of the work shall not in any way be construed as proving or substantiating the validity of the claim. When the work on which the claim for additional compensation is based has been completed, the Contractor shall, within 10 calendar days, submit a written claim to the RPR who will present it to the Owner for consideration in accordance with local laws or ordinances.

Nothing in this subsection shall be construed as a waiver of the Contractor's right to dispute final payment based on

differences in measurements or computations.

50-17 Value Engineering Cost Proposal. Not used.

~~The provisions of this paragraph will apply only to contracts awarded to the lowest bidder pursuant to competitive bidding.~~

~~On projects with original contract amounts in excess of $100,000, the Contractor may submit to the RPR, in writing, proposals for modifying the plans, specifications or other requirements of the contract for the sole purpose of reducing the cost of construction. The value engineering cost proposal shall not impair, in any manner, the essential functions or characteristics of the project, including but not limited to service life, economy of operation, ease of maintenance, desired appearance, design and safety standards. This provision shall not apply unless the proposal submitted is specifically identified by the Contractor as being presented for consideration as a value engineering proposal.~~

~~Not eligible for value engineering cost proposals are changes in the basic design of a pavement type, runway and taxiway lighting, visual aids, hydraulic capacity of drainage facilities, or changes in grade or alignment that reduce the geometric standards of the project.~~

~~As a minimum, the following information shall be submitted by the Contractor with each proposal:~~

~~a. A description of both existing contract requirements for performing the work and the proposed changes, with a discussion of the comparative advantages and disadvantages of each.~~

~~b. An itemization of the contract requirements that must be changed if the proposal is adopted.~~

~~c. A detailed estimate of the cost of performing the work under the existing contract and under the proposed changes.~~

~~d. A statement of the time by which a change order adopting the proposal must be issued.~~

~~e. A statement of the effect adoption of the proposal will have on the time for completion of the contract.~~

~~f. The contract items of work affected by the proposed changes, including any quantity variation attributable to them.~~

~~The Contractor may withdraw, in whole or in part, any value engineering cost proposal not accepted by the RPR, within the period specified in the proposal. The provisions of this subsection shall not be construed to require the RPR to consider any value engineering cost proposal that may be submitted.~~

~~The Contractor shall continue to perform the work in accordance with the requirements of the contract until a change order incorporating the value engineering cost proposal has been issued. If a change order has not been issued by the date upon which the Contractor's value engineering cost proposal specifies that a decision should be made, or such other date as the Contractor may subsequently have requested in writing, such value engineering cost proposal shall be deemed rejected.~~

~~The RPR shall be the sole judge of the acceptability of a value engineering cost proposal and of the estimated net savings from the adoption of all or any part of such proposal. In determining the estimated net savings, the RPR may disregard the contract bid prices if, in the RPR's judgment such prices do not represent a fair measure of the value of the work to be performed or deleted.~~

~~The Owner may require the Contractor to share in the Owner's costs of investigating a value engineering cost proposal submitted by the Contractor as a condition of considering such proposal. Where such a condition is imposed, the Contractor shall acknowledge acceptance of it in writing. Such acceptance shall constitute full authority for the Owner to deduct the cost of investigating a value engineering cost proposal from amounts payable to the Contractor under the contract.~~

~~If the Contractor's value engineering cost proposal is accepted in whole or in part, such acceptance will be by a contract~~

~~change order that shall specifically state that it is executed pursuant to this paragraph. Such change order shall incorporate the changes in the plans and specifications which are necessary to permit the value engineering cost proposal or such part of it as has been accepted and shall include any conditions upon which the RPR's approval is based. The change order shall also set forth the estimated net savings attributable to the value engineering cost proposal. The net savings shall be determined as the difference in costs between the original contract costs for the involved work items and the costs occurring as a result of the proposed change. The change order shall also establish the net savings agreed upon and shall provide for adjustment in the contract price that will divide the net savings equally between the Contractor and the Owner.~~

~~The Contractor's 50% share of the net savings shall constitute full compensation to the Contractor for the value engineering cost proposal and the performance of the work.~~

~~Acceptance of the value engineering cost proposal and performance of the work shall not extend the time of completion of the contract unless specifically provided for in the contract change order.]~~

END OF SECTION 50

SECTION 60

CONTROL OF MATERIALS

60-01 Source of supply and quality requirements. The materials used in the work shall conform to the requirements of the contract, plans, and specifications. Unless otherwise specified, such materials that are manufactured or processed shall be new (as compared to used or reprocessed).

In order to expedite the inspection and testing of materials, the Contractor shall furnish documentation to the RPR as to the origin, composition, and manufacture of all materials to be used in the work. Documentation shall be furnished promptly after execution of the contract but, in all cases, prior to delivery of such materials.

At the RPR's option, materials may be approved at the source of supply before delivery. If it is found after trial that sources of supply for previously approved materials do not produce specified products, the Contractor shall furnish materials from other sources.

The Contractor shall furnish airport lighting equipment that meets the requirements of the specifications; and is listed in AC 150/5345-53, *Airport Lighting Equipment Certification Program* and *Addendum*, that is in effect on the date of advertisement.

60-02 Samples, tests, and cited specifications. All materials used in the work shall be inspected, tested, and approved by the RPR before incorporation in the work unless otherwise designated. Any work in which untested materials are used without approval or written permission of the RPR shall be performed at the Contractor's risk. Materials found to be unacceptable and unauthorized will not be paid for and, if directed by the RPR, shall be removed at the Contractor's expense.

Unless otherwise designated, quality assurance tests will be made by and at the expense of the Owner in accordance with the cited standard methods of ASTM, American Association of State Highway and Transportation Officials (AASHTO), federal specifications, Commercial Item Descriptions, and all other cited methods, which are current on the date of advertisement for bids.

The testing organizations performing on-site quality assurance field tests shall have copies of all referenced standards on the construction site for use by all technicians and other personnel. Unless otherwise designated, samples for quality assurance will be taken by a qualified representative of the RPR. All materials being used are subject to inspection, test, or rejection at any time prior to or during incorporation into the work. Copies of all tests will be furnished to the Contractor's representative at their request after review and approval of the RPR.

A copy of all Contractor QC test data shall be provided to the RPR daily, along with printed reports, in an approved format, on a weekly basis. After completion of the project, and prior to final payment, the Contractor shall submit a final report to the RPR showing all test data reports, plus an analysis of all results showing ranges, averages, and corrective action taken on all failing tests.

[The Contractor shall employ a Quality Control (QC) testing organization to perform all Contractor required QC tests in accordance with Item C-100 Contractor Quality Control Program (CQCP). **]**

60-03 Certification of compliance/analysis (COC/COA). The RPR may permit the use, prior to sampling and testing, of certain materials or assemblies when accompanied by manufacturer's COC stating that such materials or assemblies fully comply with the requirements of the contract. The certificate shall be signed by the manufacturer. Each lot of such materials or assemblies delivered to the work must be accompanied by a certificate of compliance in which the lot is clearly identified. The COA is the manufacturer's COC and includes all applicable test results.

Materials or assemblies used on the basis of certificates of compliance may be sampled and tested at any time and if found not to be in conformity with contract requirements will be subject to rejection whether in place or not.

The form and distribution of certificates of compliance shall be as approved by the RPR.

When a material or assembly is specified by "brand name or equal" and the Contractor elects to furnish the specified "or equal," the Contractor shall be required to furnish the manufacturer's certificate of compliance for each lot of such material or assembly delivered to the work. Such certificate of compliance shall clearly identify each lot delivered and shall certify as to:

a. Conformance to the specified performance, testing, quality or dimensional requirements; and,

b. Suitability of the material or assembly for the use intended in the contract work.

The RPR shall be the sole judge as to whether the proposed "or equal" is suitable for use in the work.

The RPR reserves the right to refuse permission for use of materials or assemblies on the basis of certificates of compliance.

60-04 Plant inspection. The RPR or their authorized representative may inspect, at its source, any specified material or assembly to be used in the work. Manufacturing plants may be inspected from time to time for the purpose of determining compliance with specified manufacturing methods or materials to be used in the work and to obtain samples required for acceptance of the material or assembly.

Should the RPR conduct plant inspections, the following conditions shall exist:

a. The RPR shall have the cooperation and assistance of the Contractor and the producer with whom the Contractor has contracted for materials.

b. The RPR shall have full entry at all reasonable times to such parts of the plant that concern the manufacture or production of the materials being furnished.

c. If required by the RPR, the Contractor shall arrange for adequate office or working space that may be reasonably needed for conducting plant inspections. Place office or working space in a convenient location with respect to the plant.

It is understood and agreed that the Owner shall have the right to retest any material that has been tested and approved at the source of supply after it has been delivered to the site. The RPR shall have the right to reject only material which, when retested, does not meet the requirements of the contract, plans, or specifications.

60-05 Engineer/ Resident Project Representative (RPR) field office. **[** ~~The Contractor shall provide dedicated space for the use of the engineer, RPR, and inspectors, as a field office for the duration of the project. This space shall be located conveniently near the construction and shall be separate from any space used by the Contractor. The Contractor shall furnish water, sanitary facilities, heat, air conditioning, and electricity~~. **] [** An Engineer/RPR field office is not required. **]**

60-06 Storage of materials. Materials shall be stored to assure the preservation of their quality and fitness for the work. Stored materials, even though approved before storage, may again be inspected prior to their use in the work. Stored materials shall be located to facilitate their prompt inspection. The Contractor shall coordinate the storage of all materials with the RPR. Materials to be stored on airport property shall not create an obstruction to air navigation nor shall they interfere with the free and unobstructed movement of aircraft. Unless otherwise shown on the plans and/or CSPP, the storage of materials and the location of the Contractor's plant and parked equipment or vehicles shall be as directed by the RPR. Private property shall not be used for storage purposes without written permission of the Owner or lessee of such property. The Contractor shall make all arrangements and bear all expenses for the storage of materials on private property. Upon request, the Contractor shall furnish the RPR a copy of the property Owner's permission.

All storage sites on private or airport property shall be restored to their original condition by the Contractor at their expense, except as otherwise agreed to (in writing) by the Owner or lessee of the property.

60-07 Unacceptable materials. Any material or assembly that does not conform to the requirements of the contract, plans, or specifications shall be considered unacceptable and shall be rejected. The Contractor shall remove any rejected material or assembly from the site of the work, unless otherwise instructed by the RPR.

Rejected material or assembly, the defects of which have been corrected by the Contractor, shall not be returned to the

site of the work until such time as the RPR has approved its use in the work.

60-08 Owner furnished materials. The Contractor shall furnish all materials required to complete the work, except those specified, if any, to be furnished by the Owner. Owner-furnished materials shall be made available to the Contractor at the location specified.

All costs of handling, transportation from the specified location to the site of work, storage, and installing Owner-furnished materials shall be included in the unit price bid for the contract item in which such Owner-furnished material is used.

After any Owner-furnished material has been delivered to the location specified, the Contractor shall be responsible for any demurrage, damage, loss, or other deficiencies that may occur during the Contractor's handling, storage, or use of such Owner-furnished material. The Owner will deduct from any monies due or to become due the Contractor any cost incurred by the Owner in making good such loss due to the Contractor's handling, storage, or use of Owner-furnished materials.

END OF SECTION 60

SECTION 70

LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC

70-01 Laws to be observed. The Contractor shall keep fully informed of all federal and state laws, all local laws, ordinances, and regulations and all orders and decrees of bodies or tribunals having any jurisdiction or authority, which in any manner affect those engaged or employed on the work, or which in any way affect the conduct of the work. The Contractor shall at all times observe and comply with all such laws, ordinances, regulations, orders, and decrees; and shall protect and indemnify the Owner and all their officers, agents, or servants against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order, or decree, whether by the Contractor or the Contractor's employees.

70-02 Permits, licenses, and taxes. The Contractor shall procure all permits and licenses, pay all charges, fees, and taxes, and give all notices necessary and incidental to the due and lawful execution of the work.

70-03 Patented devices, materials, and processes. If the Contractor is required or desires to use any design, device, material, or process covered by letters of patent or copyright, the Contractor shall provide for such use by suitable legal agreement with the Patentee or Owner. The Contractor and the surety shall indemnify and hold harmless the Owner, any third party, or political subdivision from any and all claims for infringement by reason of the use of any such patented design, device, material or process, or any trademark or copyright, and shall indemnify the Owner for any costs, expenses, and damages which it may be obliged to pay by reason of an infringement, at any time during the execution or after the completion of the work.

70-04 Restoration of surfaces disturbed by others. The Owner reserves the right to authorize the construction, reconstruction, or maintenance of any public or private utility service, FAA or National Oceanic and Atmospheric Administration (NOAA) facility, or a utility service of another government agency at any time during the progress of the work. To the extent that such construction, reconstruction, or maintenance has been coordinated with the Owner, such authorized work (by others) must be shown on the plans and is indicated ~~as follows:~~ **[** ~~on the plans~~ **]**.

Except as listed above, the Contractor shall not permit any individual, firm, or corporation to excavate or otherwise disturb such utility services or facilities located within the limits of the work without the written permission of the RPR.

Should the Owner of public or private utility service, FAA, or NOAA facility, or a utility service of another government agency be authorized to construct, reconstruct, or maintain such utility service or facility during the progress of the work, the Contractor shall cooperate with such Owners by arranging and performing the work in this contract to facilitate such construction, reconstruction or maintenance by others whether or not such work by others is listed above. When ordered as extra work by the RPR, the Contractor shall make all necessary repairs to the work which are due to such authorized work by others, unless otherwise provided for in the contract, plans, or specifications. It is understood and agreed that the Contractor shall not be entitled to make any claim for damages due to such authorized work by others or for any delay to the work resulting from such authorized work.

70-05 Federal Participation. The United States Government has agreed to reimburse the Owner for some portion of the contract costs. The contract work is subject to the inspection and approval of duly authorized representatives of the FAA Administrator. No requirement of this contract shall be construed as making the United States a party to the contract nor will any such requirement interfere, in any way, with the rights of either party to the contract.

70-06 Sanitary, health, and safety provisions. The Contractor's worksite and facilities shall comply with applicable federal, state, and local requirements for health, safety and sanitary provisions.

70-07 Public convenience and safety. The Contractor shall control their operations and those of their subcontractors and all suppliers, to assure the least inconvenience to the traveling public. Under all circumstances, safety shall be the most important consideration.

The Contractor shall maintain the free and unobstructed movement of aircraft and vehicular traffic with respect to their own operations and those of their own subcontractors and all suppliers in accordance with Section 40, paragraph 40-05,

Maintenance of Traffic, and shall limit such operations for the convenience and safety of the traveling public as specified in Section 80, paragraph 80-04, *Limitation of Operations*.

The Contractor shall remove or control debris and rubbish resulting from its work operations at frequent intervals, and upon the order of the RPR. If the RPR determines the existence of Contractor debris in the work site represents a hazard to airport operations and the Contractor is unable to respond in a prompt and reasonable manner, the RPR reserves the right to assign the task of debris removal to a third party and recover the resulting costs as a liquidated damage against the Contractor.

70-08 Construction Safety and Phasing Plan (CSPP). The Contractor shall complete the work in accordance with the approved Construction Safety and Phasing Plan (CSPP) developed in accordance with AC 150/5370-2, Operational Safety on Airports During Construction. The CSPP is found on the Project Plan Set and included on sheet(s) **[** CSPP 1 - CSPP 14 **]** of the project plans and included in this specification booklet, Appendix 2.

70-09 Use of explosives. **[** The use of explosives is not permitted on this project. **] [** ~~When the use of explosives is necessary for the execution of the work, the Contractor shall exercise the utmost care not to endanger life or property, including new work. The Contractor shall be responsible for all damage resulting from the use of explosives.~~

~~All explosives shall be stored in a secure manner in compliance with all laws and ordinances, and all such storage places shall be clearly marked. Where no local laws or ordinances apply, storage shall be provided satisfactory to the RPR and, in general, not closer than 1,000 feet (300 m) from the work or from any building, road, or other place of human occupancy.~~

~~The Contractor shall notify each property Owner and public utility company having structures or facilities in proximity to the site of the work of their intention to use explosives. Such notice shall be given sufficiently in advance to enable them to take such steps as they may deem necessary to protect their property from injury.~~

~~The use of electrical blasting caps shall not be permitted on or within 1,000 feet (300 m) of the airport property.~~ **]**

70-10 Protection and restoration of property and landscape. The Contractor shall be responsible for the preservation of all public and private property, and shall protect carefully from disturbance or damage all land monuments and property markers until the Engineer/RPR has witnessed or otherwise referenced their location and shall not move them until directed.

The Contractor shall be responsible for all damage or injury to property of any character, during the execution of the work, resulting from any act, omission, neglect, or misconduct in manner or method of executing the work, or at any time due to defective work or materials, and said responsibility shall not be released until the project has been completed and accepted.

When or where any direct or indirect damage or injury is done to public or private property by or on account of any act, omission, neglect, or misconduct in the execution of the work, or in consequence of the non-execution thereof by the Contractor, the Contractor shall restore, at their expense, such property to a condition similar or equal to that existing before such damage or injury was done, by repairing, or otherwise restoring as may be directed, or the Contractor shall make good such damage or injury in an acceptable manner.

70-11 Responsibility for damage claims. The Contractor shall indemnify and hold harmless the Engineer/RPR and the Owner and their officers, agents, and employees from all suits, actions, or claims, of any character, brought because of any injuries or damage received or sustained by any person, persons, or property on account of the operations of the Contractor; or on account of or in consequence of any neglect in safeguarding the work; or through use of unacceptable materials in constructing the work; or because of any act or omission, neglect, or misconduct of said Contractor; or because of any claims or amounts recovered from any infringements of patent, trademark, or copyright; or from any claims or amounts arising or recovered under the "Workmen's Compensation Act," or any other law, ordinance, order, or decree. Money due the Contractor under and by virtue of their own contract considered necessary by the Owner for such purpose may be retained for the use of the Owner or, in case no money is due, their own surety may be held until such suits, actions, or claims for injuries or damages shall have been settled and suitable evidence to that effect furnished to the Owner, except that money due the Contractor will not be withheld when the Contractor produces satisfactory

evidence that he or she is adequately protected by public liability and property damage insurance.

70-12 Third party beneficiary clause. It is specifically agreed between the parties executing the contract that it is not intended by any of the provisions of any part of the contract to create for the public or any member thereof, a third-party beneficiary or to authorize anyone not a party to the contract to maintain a suit for personal injuries or property damage pursuant to the terms or provisions of the contract.

70-13 Opening sections of the work to traffic. If it is necessary for the Contractor to complete portions of the contract work for the beneficial occupancy of the Owner prior to completion of the entire contract, such "phasing" of the work must be specified below and indicated on the approved Construction Safety and Phasing Plan (CSPP) and the project plans. When so specified, the Contractor shall complete such portions of the work on or before the date specified or as otherwise specified.

Refer to Construction Safety and Phasing (CSPP) plan sheets and specification booklet Appendix 2 for all "phasing" requirements.

Upon completion of any portion of work listed above, such portion shall be accepted by the Owner in accordance with Section 50, paragraph 50-14, *Partial Acceptance*.

No portion of the work may be opened by the Contractor until directed by the Owner in writing. Should it become necessary to open a portion of the work to traffic on a temporary or intermittent basis, such openings shall be made when, in the opinion of the RPR, such portion of the work is in an acceptable condition to support the intended traffic. Temporary or intermittent openings are considered to be inherent in the work and shall not constitute either acceptance of the portion of the work so opened or a waiver of any provision of the contract. Any damage to the portion of the work so opened that is not attributable to traffic which is permitted by the Owner shall be repaired by the Contractor at their expense.

The Contractor shall make their own estimate of the inherent difficulties involved in completing the work under the conditions herein described and shall not claim any added compensation by reason of delay or increased cost due to opening a portion of the contract work.

The Contractor must conform to safety standards contained AC 150/5370-2 and the approved CSPP.

Contractor shall refer to the plans, specifications, and the approved CSPP to identify barricade requirements, temporary and/or permanent markings, airfield lighting, guidance signs and other safety requirements prior to opening up sections of work to traffic.

70-14 Contractor's responsibility for work. Until the RPR's final written acceptance of the entire completed work, excepting only those portions of the work accepted in accordance with Section 50, paragraph 50-14, *Partial Acceptance*, the Contractor shall have the charge and care thereof and shall take every precaution against injury or damage to any part due to the action of the elements or from any other cause, whether arising from the execution or from the non-execution of the work. The Contractor shall rebuild, repair, restore, and make good all injuries or damages to any portion of the work occasioned by any of the above causes before final acceptance and shall bear the expense thereof except damage to the work due to unforeseeable causes beyond the control of and without the fault or negligence of the Contractor, including but not restricted to acts of God such as earthquake, tidal wave, tornado, hurricane or other cataclysmic phenomenon of nature, or acts of the public enemy or of government authorities.

If the work is suspended for any cause whatever, the Contractor shall be responsible for the work and shall take such precautions necessary to prevent damage to the work. The Contractor shall provide for normal drainage and shall erect necessary temporary structures, signs, or other facilities at their own expense. During such period of suspension of work, the Contractor shall properly and continuously maintain in an acceptable growing condition all living material in newly established planting, seeding, and sodding furnished under the contract, and shall take adequate precautions to protect new tree growth and other important vegetative growth against injury.

70-15 Contractor's responsibility for utility service and facilities of others. As provided in paragraph 70-04, *Restoration of Surfaces Disturbed by Others*, the Contractor shall cooperate with the owner of any public or private

utility service, FAA or NOAA, or a utility service of another government agency that may be authorized by the Owner to construct, reconstruct or maintain such utility services or facilities during the progress of the work. In addition, the Contractor shall control their operations to prevent the unscheduled interruption of such utility services and facilities.

To the extent that such public or private utility services, FAA, or NOAA facilities, or utility services of another governmental agency are known to exist within the limits of the contract work, the approximate locations have been indicated on the plans and/or in the contract documents.

Refer to project plan sheets and specification booklet Appendix 2.

It is understood and agreed that the Owner does not guarantee the accuracy or the completeness of the location information relating to existing utility services, facilities, or structures that may be shown on the plans or encountered in the work. Any inaccuracy or omission in such information shall not relieve the Contractor of the responsibility to protect such existing features from damage or unscheduled interruption of service.

It is further understood and agreed that the Contractor shall, upon execution of the contract, notify the Owners of all utility services or other facilities of their plan of operations. Such notification shall be in writing addressed to "The Person to Contact" as provided in this paragraph and paragraph 70-04, *Restoration of Surfaces Disturbed By Others*. A copy of each notification shall be given to the RPR.

In addition to the general written notification provided, it shall be the responsibility of the Contractor to keep such individual Owners advised of changes in their plan of operations that would affect such Owners.

Prior to beginning the work in the general vicinity of an existing utility service or facility, the Contractor shall again notify each such Owner of their plan of operation. If, in the Contractor's opinion, the Owner's assistance is needed to locate the utility service or facility or the presence of a representative of the Owner is desirable to observe the work, such advice should be included in the notification. Such notification shall be given by the most expeditious means to reach the utility owner's "Person to Contact" no later than two normal business days prior to the Contractor's commencement of operations in such general vicinity. The Contractor shall furnish a written summary of the notification to the RPR.

The Contractor's failure to give the two days' notice shall be cause for the Owner to suspend the Contractor's operations in the general vicinity of a utility service or facility.

Where the outside limits of an underground utility service have been located and staked on the ground, the Contractor shall be required to use hand excavation methods within 3 feet (1 m) of such outside limits at such points as may be required to ensure protection from damage due to the Contractor's operations.

Should the Contractor damage or interrupt the operation of a utility service or facility by accident or otherwise, the Contractor shall immediately notify the proper authority and the RPR and shall take all reasonable measures to prevent further damage or interruption of service. The Contractor, in such events, shall cooperate with the utility service or facility owner and the RPR continuously until such damage has been repaired and service restored to the satisfaction of the utility or facility owner.

The Contractor shall bear all costs of damage and restoration of service to any utility service or facility due to their operations whether due to negligence or accident. The Owner reserves the right to deduct such costs from any monies due or which may become due the Contractor, or their own surety.

[70-15.1 FAA facilities and cable runs. The Contractor is hereby advised that the construction limits of the project include existing facilities and buried cable runs that are owned, operated and maintained by the FAA. The Contractor, during the execution of the project work, shall comply with the following:

a. The Contractor shall permit FAA maintenance personnel the right of access to the project work site for purposes of inspecting and maintaining all existing FAA owned facilities.

b. The Contractor shall provide notice to the FAA Air Traffic Organization (ATO)/Technical Operations/System Support Center (SSC) Point-of-Contact through the airport **[** ~~Owner~~ **] [** ~~operator~~ **] [** manager **] [___]** a minimum of

seven (7) calendar days prior to commencement of construction activities in order to permit sufficient time to locate and mark existing buried cables and to schedule any required facility outages.

c. If execution of the project work requires a facility outage, the Contractor shall contact the FAA Point-of-Contact a minimum of 72 hours prior to the time of the required outage.

d. Any damage to FAA cables, access roads, or FAA facilities during construction caused by the Contractor's equipment or personnel whether by negligence or accident will require the Contractor to repair or replace the damaged cables, access road, or FAA facilities to FAA requirements. The Contractor shall not bear the cost to repair damage to underground facilities or utilities improperly located by the FAA.

e. If the project work requires the cutting or splicing of FAA owned cables, the FAA Point-of-Contact shall be contacted a minimum of 72 hours prior to the time the cable work commences. The FAA reserves the right to have a FAA representative on site to observe the splicing of the cables as a condition of acceptance. All cable splices are to be accomplished in accordance with FAA specifications and require approval by the FAA Point-of-Contact as a condition of acceptance by the Owner. The Contractor is hereby advised that FAA restricts the location of where splices may be installed. If a cable splice is required in a location that is not permitted by FAA, the Contractor shall furnish and install a sufficient length of new cable that eliminates the need for any splice. **]**

70-16 Furnishing rights-of-way. The Owner will be responsible for furnishing all rights-of-way upon which the work is to be constructed in advance of the Contractor's operations.

70-17 Personal liability of public officials. In carrying out any of the contract provisions or in exercising any power or authority granted by this contract, there shall be no liability upon the Engineer, RPR, their authorized representatives, or any officials of the Owner either personally or as an official of the Owner. It is understood that in such matters they act solely as agents and representatives of the Owner.

70-18 No waiver of legal rights. Upon completion of the work, the Owner will expeditiously make final inspection and notify the Contractor of final acceptance. Such final acceptance, however, shall not preclude or stop the Owner from correcting any measurement, estimate, or certificate made before or after completion of the work, nor shall the Owner be precluded or stopped from recovering from the Contractor or their surety, or both, such overpayment as may be sustained, or by failure on the part of the Contractor to fulfill their obligations under the contract. A waiver on the part of the Owner of any breach of any part of the contract shall not be held to be a waiver of any other or subsequent breach.

The Contractor, without prejudice to the terms of the contract, shall be liable to the Owner for latent defects, fraud, or such gross mistakes as may amount to fraud, or as regards the Owner's rights under any warranty or guaranty.

70-19 Environmental protection. The Contractor shall comply with all federal, state, and local laws and regulations controlling pollution of the environment. The Contractor shall take necessary precautions to prevent pollution of streams, lakes, ponds, and reservoirs with fuels, oils, asphalts, chemicals, or other harmful materials and to prevent pollution of the atmosphere from particulate and gaseous matter.

70-20 Archaeological and historical findings. Unless otherwise specified in this subsection, the Contractor is advised that the site of the work is not within any property, district, or site, and does not contain any building, structure, or object listed in the current National Register of Historic Places published by the United States Department of Interior.

Should the Contractor encounter, during their operations, any building, part of a building, structure, or object that is incongruous with its surroundings, the Contractor shall immediately cease operations in that location and notify the RPR. The RPR will immediately investigate the Contractor's finding and the Owner will direct the Contractor to either resume operations or to suspend operations as directed.

Should the Owner order suspension of the Contractor's operations in order to protect an archaeological or historical finding, or order the Contractor to perform extra work, such shall be covered by an appropriate contract change order or supplemental agreement as provided in Section 40, paragraph 40-04, *Extra Work*, and Section 90, paragraph 90-05, *Payment for Extra Work*. If appropriate, the contract change order or supplemental agreement shall include an extension

of contract time in accordance with Section 80, paragraph 80-07, *Determination and Extension of Contract Time*.

70-21 Insurance Requirements.

70-21.1 Adds the following to Section 70-02 Permits, licenses, and taxes:

Effective July 1, 2008: All General Contractors must have a current valid license from the State Licensing Board for Residential and General Contractors, unless specifically exempted from holding such license pursuant to Georgia law, O.C.G.A. Section 43-41-17.

70-21.2 Adds the following to Section 70-11 Responsibility for damage claims:

A. INSURANCE: Contractor shall purchase and maintain such comprehensive general liability, comprehensive automobile liability and other insurance as is appropriate for the Work being performed and furnished and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance and furnishing of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed or furnished by Contractor, by any Subcontractor, by anyone directly or indirectly employed by any of them to perform or furnish any of the Work, or by anyone for whose acts any of them may be liable:

(1) Claims under workers' or workmen's compensation, disability benefits and other similar employee benefit acts;

(2) Claims for damages because of bodily injury, occupational sickness or disease or death of Contractor's employees;

(3) Claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;

(4) Claims for damages insured by personal injury liability coverage which are sustained (a) by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or (b) by any other person for any other reason;

(5) Claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use of resulting therefrom;

(6) Claims arising out of operation of Laws or Regulations for damages because of bodily injury or death of any person or for damage to property; and

(7) Claims for damages because of bodily injury or death of any person or property damage arising out of the Ownership, maintenance or use of any motor vehicle.

The insurance required shall include the specific coverages and be written for no less than the limits of liability and coverages specified or required by law, whichever is greater. The comprehensive general liability insurance shall include completed operations insurance. All of the policies of insurance so required to be purchased and maintained (or the certificates or other evidence thereof) shall contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least thirty days prior written notice has been given to Owner and Engineer by certified mail. All such insurance shall remain in effect until final payment and at all times thereafter when Contractor may be correcting, removing or replacing defective Work in accordance with subsection 50-18. In addition, Contractor shall maintain such completed operations insurance for at least two years after final payment and furnish Owner with evidence of continuation of such insurance at final payment and one year thereafter, with the exception of Owner's Protective Liability coverage.

B. INDEMNIFICATION: In any and all claims against Owner or Engineer or any of their consultants, agents or employees by any employee of Contractor, any Subcontractor, any person or organization directly or indirectly employed by any of them to perform or furnish any of the Work or anyone for whose acts any of them may be liable, the

indemnification obligation under paragraph 70-11 above shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for Contractor or any such Subcontractor or other person or organization under workers' or workmen's compensation acts, disability benefit acts or other employee benefit acts.

C. COVERAGES: The limits of liability for the insurance required by Paragraph 70-11 shall provide coverage for not less than the following amounts or greater where required by law:

(1) Workers' Compensation, etc.:

(a)	State:	Statutory
(b)	Applicable Federal (e.g. Longshoreman's)	Statutory
(c)	Employer's Liability	$500,000

(2) Comprehensive General Liability:

(a) Bodily Injury and Property Damage: Combined Single Limit $5,000,000 Per Occurrence

(b) The Contractor's General Liability insurance shall provide coverage for the following: (1) Premises - Operations, (2) Independent Contractors, (3) Products/Completed Operations Hazard, (5) Underground Hazard, (6) Broad Form Property Damage, (7) Where applicable, Explosion and Collapse Hazard, and (8) Personal Injury.

(3) Comprehensive Automobile Liability:

(a) Bodily Injury and Property Damage: Combined Single Limit $1,000,000(Per Occurrence)

(b) The Contractor's Comprehensive Automobile Liability Insurance shall provide coverage for Bodily Injury and Property Damage Per Occurrence for owned, hired and non-owned vehicles.

D. Contractor will provide such additional information in respect of insurance provided by him as the Owner may reasonably request. Failure by Owner to give any such notice of objection within the time provided shall constitute an acceptance of such insurance purchased by Contractor as complying with the Contract Documents.

E. Certificates in triplicate from the insurance carrier stating the limits of liability and expiration date shall be filed with Owner before operations are begun. Certificates shall not merely name the types of policy provided but shall specifically refer to this Contract and shall contain a separate express statement of compliance with each of the requirements as set forth in this subsection. The certificates shall, in addition to the information relative to the insurance required, contain the following:

(1) Inception and expiration dates of insurance policy.
(2) Limits of liability provided (Public Liability and Property Damage).
(3) Coverage provided, including special hazards if required.
(4) Name of insurance company.
(5) Policy Number.
(6) Additional interests covered.
(7) Statement that the Explosion, Collapse, and Underground exclusions do not apply.
(8) Certificate shall reflect self-insured retention applicable to any contract of insurance.
(9) Excess liability certified contracts must state underlying insurance requirements.
(10) Project number and nature of work.

No certificate will be accepted which exculpates the issuer or reduces any rights conferred on the Owner by the above certificates, nor will they be accepted unless the certificates bear a live signature of a direct representative of a company authorized to do business in the state where the work is located.

No certificate will be accepted unless the person signing the certificate certifies, in a separate letter, his exact relationship with the insurance carrier or carriers indicated in the certificate.

The Owner may, at his discretion, modify or waive any of the foregoing requirements.

No contract of insurance containing a "claims made" insuring agreement will be acceptable unless the Contractor offering such insurance to fulfill the requirements of this Contract agrees that each such contract of insurance shall be renewed for the entire existence of the Contractor, their successors or assigns; and that on termination of such coverage which is not replaced by a similar contract with the required limits of liability, a "tail policy" will be purchased with limits not less than those required by this Contract."

70-21.3 Distracted Driving:

In accordance with Executive Order 1351, "Federal Leadership on Reducing Text Messaging While Driving" (10/1/2009) and DOT Order 3902.10, "Text Messaging While Driving" (12/30/2009), the FAA encourages recipients of Federal grant funds to adopt and enforce policies that decrease crashes by distracted drivers, including policies to ban text messaging while driving when performing work related to a grant or a sub-grant.

In support of this initiative, the Owner encourages the Contractor to promote policies and initiatives for its employees and other work personnel that decrease crashes by distracted drivers, including policies that ban text messaging while driving motor vehicles while performing work activities associated with the project. The Contractor must include the substance of this clause in all sub-tier contracts exceeding $3,500 and involve a driving motor vehicle in performance of work activities associated with the project.

END OF SECTION 70

SECTION 80

PROSECUTION AND PROGRESS

80-01 Subletting of contract. The Owner will not recognize any subcontractor on the work. The Contractor shall at all times when work is in progress be represented either in person, by a qualified superintendent, or by other designated, qualified representative who is duly authorized to receive and execute orders of the Resident Project Representative (RPR).

The Contractor shall perform, with his organization, an amount of work equal to at least **[** 30 **]** percent of the total contract cost.

Should the Contractor elect to assign their contract, said assignment shall be concurred in by the surety, shall be presented for the consideration and approval of the Owner, and shall be consummated only on the written approval of the Owner.

The Contractor shall provide copies of all subcontracts to the RPR [fourteen (14**)] days prior to being utilized on the project. As a minimum, the information shall include the following:**

- Subcontractor's legal company name.
- Subcontractor's legal company address, including County name.
- Principal contact person's name, telephone and fax number.
- Complete narrative description, and dollar value of the work to be performed by the subcontractor.
- Copies of required insurance certificates in accordance with the specifications.
- Minority/ non-minority status.

80-02 Notice to proceed (NTP). The Owners notice to proceed will state the date on which contract time commences. The Contractor is expected to commence project operations within **[** 3 **]** days of the NTP date. The Contractor shall notify the RPR at least **[** 24 hours **]** in advance of the time contract operations begins. The Contractor shall not commence any actual operations prior to the date on which the notice to proceed is issued by the Owner.

80-03 Execution and progress. Unless otherwise specified, the Contractor shall submit their coordinated construction schedule showing all work activities for the RPR's review and acceptance at least **[** 10 days **]** prior to the start of work. The Contractor's progress schedule, once accepted by the RPR, will represent the Contractor's baseline plan to accomplish the project in accordance with the terms and conditions of the Contract. The RPR will compare actual Contractor progress against the baseline schedule to determine that status of the Contractor's performance. The Contractor shall provide sufficient materials, equipment, and labor to guarantee the completion of the project in accordance with the plans and specifications within the time set forth in the proposal.

If the Contractor falls significantly behind the submitted schedule, the Contractor shall, upon the RPR's request, submit a revised schedule for completion of the work within the contract time and modify their operations to provide such additional materials, equipment, and labor necessary to meet the revised schedule. Should the execution of the work be discontinued for any reason, the Contractor shall notify the RPR at least **[** 24 hours **]** in advance of resuming operations.

The Contractor shall not commence any actual construction prior to the date on which the NTP is issued by the Owner.

[The project schedule shall be prepared as a network diagram in Critical Path Method (CPM), Program Evaluation and Review Technique (PERT), or other format, or as otherwise specified. It shall include information on the sequence of work activities, milestone dates, and activity duration. The schedule shall show all work items identified in the project proposal for each work area and shall include the project start date and end date. **]**

The Contractor shall maintain the work schedule and provide an update and analysis of the progress schedule on a **[** twice weekly **]** basis, or as otherwise specified in the contract. Submission of the work schedule shall not relieve the Contractor of overall responsibility for scheduling, sequencing, and coordinating all work to comply with the requirements of the contract.

80-04 Limitation of operations. The Contractor shall control their operations and the operations of their subcontractors and all suppliers to provide for the free and unobstructed movement of aircraft in the air operations areas (AOA) of the airport.

When the work requires the Contractor to conduct their operations within an AOA of the airport, the work shall be coordinated with airport operations (through the RPR) at least **[** 72 hours **]** prior to commencement of such work. The Contractor shall not close an AOA until so authorized by the RPR and until the necessary temporary marking, signage and associated lighting is in place as provided in Section 70, paragraph 70-08, *Construction Safety and Phasing Plan (CSPP)*.

When the contract work requires the Contractor to work within an AOA of the airport on an intermittent basis (intermittent opening and closing of the AOA), the Contractor shall maintain constant communications as specified; immediately obey all instructions to vacate the AOA; and immediately obey all instructions to resume work in such AOA. Failure to maintain the specified communications or to obey instructions shall be cause for suspension of the Contractor's operations in the AOA until satisfactory conditions are provided. The areas of the AOA identified in the Construction Safety Phasing Plan (CSPP) and as listed below, cannot be closed to operating aircraft to permit the Contractor's operations on a continuous basis and will therefore be closed to aircraft operations intermittently as follows: **[**Refer to plans for required closures associated with the Construction Safety and Phasing Plans (CSPP).**]**

The Contractor shall be required to conform to safety standards contained in AC 150/5370-2, Operational Safety on Airports During Construction and the approved CSPP.

80-04.1 Operational safety on airport during construction. All Contractors' operations shall be conducted in accordance with the approved project Construction Safety and Phasing Plan (CSPP) and the Safety Plan Compliance Document (SPCD) and the provisions set forth within the current version of AC 150/5370-2, Operational Safety on Airports During Construction. The CSPP included within the contract documents conveys minimum requirements for operational safety on the airport during construction activities. The Contractor shall prepare and submit a SPCD that details how it proposes to comply with the requirements presented within the CSPP.

The Contractor shall implement all necessary safety plan measures prior to commencement of any work activity. The Contractor shall conduct routine checks to assure compliance with the safety plan measures.

The Contractor is responsible to the Owner for the conduct of all subcontractors it employs on the project. The Contractor shall assure that all subcontractors are made aware of the requirements of the CSPP and SPCD and that they implement and maintain all necessary measures.

No deviation or modifications may be made to the approved CSPP and SPCD unless approved in writing by the Owner. The necessary coordination actions to review Contractor proposed modifications to an approved CSPP or approved SPCD can require a significant amount of time.

80-05 Character of workers, methods, and equipment. The Contractor shall, at all times, employ sufficient labor and equipment for prosecuting the work to full completion in the manner and time required by the contract, plans, and specifications.

All workers shall have sufficient skill and experience to perform properly the work assigned to them. Workers engaged in special work or skilled work shall have sufficient experience in such work and in the operation of the equipment required to perform the work satisfactorily.

Any person employed by the Contractor or by any subcontractor who violates any operational regulations or operational safety requirements and, in the opinion of the RPR, does not perform his work in a proper and skillful manner or is intemperate or disorderly shall, at the written request of the RPR, be removed immediately by the Contractor or subcontractor employing such person, and shall not be employed again in any portion of the work without approval of

the RPR.

Should the Contractor fail to remove such person or persons, or fail to furnish suitable and sufficient personnel for the proper execution of the work, the RPR may suspend the work by written notice until compliance with such orders.

All equipment that is proposed to be used on the work shall be of sufficient size and in such mechanical condition as to meet requirements of the work and to produce a satisfactory quality of work. Equipment used on any portion of the work shall not cause injury to previously completed work, adjacent property, or existing airport facilities due to its use.

When the methods and equipment to be used by the Contractor in accomplishing the work are not prescribed in the contract, the Contractor is free to use any methods or equipment that will accomplish the work in conformity with the requirements of the contract, plans, and specifications.

When the contract specifies the use of certain methods and equipment, such methods and equipment shall be used unless otherwise authorized by the RPR. If the Contractor desires to use a method or type of equipment other than specified in the contract, the Contractor may request authority from the RPR to do so. The request shall be in writing and shall include a full description of the methods and equipment proposed and of the reasons for desiring to make the change. If approval is given, it will be on the condition that the Contractor will be fully responsible for producing work in conformity with contract requirements. If, after trial use of the substituted methods or equipment, the RPR determines that the work produced does not meet contract requirements, the Contractor shall discontinue the use of the substitute method or equipment and shall complete the remaining work with the specified methods and equipment. The Contractor shall remove any deficient work and replace it with work of specified quality, or take such other corrective action as the RPR may direct. No change will be made in basis of payment for the contract items involved nor in contract time as a result of authorizing a change in methods or equipment under this paragraph.

80-06 Temporary suspension of the work. The Owner shall have the authority to suspend the work wholly, or in part, for such period or periods the Owner may deem necessary, due to unsuitable weather, or other conditions considered unfavorable for the execution of the work, or for such time necessary due to the failure on the part of the Contractor to carry out orders given or perform any or all provisions of the contract.

In the event that the Contractor is ordered by the Owner, in writing, to suspend work for some unforeseen cause not otherwise provided for in the contract and over which the Contractor has no control, the Contractor may be reimbursed for actual money expended on the work during the period of shutdown. No allowance will be made for anticipated profits. The period of shutdown shall be computed from the effective date of the written order to suspend work to the effective date of the written order to resume the work. Claims for such compensation shall be filed with the RPR within the time period stated in the RPR's order to resume work. The Contractor shall submit with their own claim information substantiating the amount shown on the claim. The RPR will forward the Contractor's claim to the Owner for consideration in accordance with local laws or ordinances. No provision of this article shall be construed as entitling the Contractor to compensation for delays due to inclement weather or for any other delay provided for in the contract, plans, or specifications.

If it becomes necessary to suspend work for an indefinite period, the Contractor shall store all materials in such manner that they will not become an obstruction nor become damaged in any way. The Contractor shall take every precaution to prevent damage or deterioration of the work performed and provide for normal drainage of the work. The Contractor shall erect temporary structures where necessary to provide for traffic on, to, or from the airport.

80-07 Determination and extension of contract time. The **[** number of calendar days **] [** ~~the number of working days~~ **] [** ~~completion date~~ **]** shall be stated in the proposal and contract and shall be known as the Contract Time.

[Contract time based on calendar days. Contract Time based on calendar days shall consist of the number of calendar days stated in the contract counting from the effective date of the Notice to Proceed and including all Saturdays, Sundays, holidays, and non-work days. All calendar days elapsing between the effective dates of the Owner's orders to suspend and resume all work, due to causes not the fault of the Contractor, shall be excluded.

At the time of final payment, the contract time shall be increased in the same proportion as the cost of the actually completed quantities bears to the cost of the originally estimated quantities in the proposal. Such increase in the contract

time shall not consider either cost of work or the extension of contract time that has been covered by a change order or supplemental agreement. Charges against the contract time will cease as of the date of final acceptance. **]**

80-08 Failure to complete on time. For each calendar day or working day, as specified in the contract, that any work remains uncompleted after the contract time (including all extensions and adjustments as provided in paragraph 80-07, *Determination and Extension of Contract Time*) the sum specified in the contract and proposal as liquidated damages (LD) will be deducted from any money due or to become due the Contractor or their own surety. Such deducted sums shall not be deducted as a penalty but shall be considered as liquidation of a reasonable portion of damages including but not limited to additional engineering services that will be incurred by the Owner should the Contractor fail to complete the work in the time provided in their contract.

Schedule	Liquidated Damages Cost	Allowed Construction Time
1A	$500	60 Calendar Days
1B	$2,500	30 Calendar Days
2A	$500	60 Calendar Days
2B	$2,500	30 Calendar Days
3A	$500	60 Calendar Days
3B	$2,500	30 Calendar Days
TOTAL	---------	180 Calendar Days

*Phases A & B will occur concurrently for each numbered phase

The maximum construction time allowed for Schedules **[** Phases 1A, 2A, and 3A **]** will be the sum of the time allowed for individual schedules but not more than **[** 180 **]** days. Permitting the Contractor to continue and finish the work or any part of it after the time fixed for its completion, or after the date to which the time for completion may have been extended, will in no way operate as a wavier on the part of the Owner of any of its rights under the contract. For more information on the Phasing requirements, construction time allowances and liquidated damages for this project, reference the CSPP sheets in the plan set.

80-09 Default and termination of contract. The Contractor shall be considered in default of their contract and such default will be considered as cause for the Owner to terminate the contract for any of the following reasons, if the Contractor:

a. Fails to begin the work under the contract within the time specified in the Notice to Proceed, or

b. Fails to perform the work or fails to provide sufficient workers, equipment and/or materials to assure completion of work in accordance with the terms of the contract, or

c. Performs the work unsuitably or neglects or refuses to remove materials or to perform anew such work as may be rejected as unacceptable and unsuitable, or

d. Discontinues the execution of the work, or

e. Fails to resume work which has been discontinued within a reasonable time after notice to do so, or

f. Becomes insolvent or is declared bankrupt, or commits any act of bankruptcy or insolvency, or

g. Allows any final judgment to stand against the Contractor unsatisfied for a period of 10 days, or

h. Makes an assignment for the benefit of creditors, or

i. For any other cause whatsoever, fails to carry on the work in an acceptable manner.

Should the Owner consider the Contractor in default of the contract for any reason above, the Owner shall immediately

give written notice to the Contractor and the Contractor's surety as to the reasons for considering the Contractor in default and the Owner's intentions to terminate the contract.

If the Contractor or surety, within a period of 10 days after such notice, does not proceed in accordance therewith, then the Owner will, upon written notification from the RPR of the facts of such delay, neglect, or default and the Contractor's failure to comply with such notice, have full power and authority without violating the contract, to take the execution of the work out of the hands of the Contractor. The Owner may appropriate or use any or all materials and equipment that have been mobilized for use in the work and are acceptable and may enter into an agreement for the completion of said contract according to the terms and provisions thereof, or use such other methods as in the opinion of the RPR will be required for the completion of said contract in an acceptable manner.

All costs and charges incurred by the Owner, together with the cost of completing the work under contract, will be deducted from any monies due or which may become due the Contractor. If such expense exceeds the sum which would have been payable under the contract, then the Contractor and the surety shall be liable and shall pay to the Owner the amount of such excess.

80-10 Termination for national emergencies. The Owner shall terminate the contract or portion thereof by written notice when the Contractor is prevented from proceeding with the construction contract as a direct result of an Executive Order of the President with respect to the execution of war or in the interest of national defense.

When the contract, or any portion thereof, is terminated before completion of all items of work in the contract, payment will be made for the actual number of units or items of work completed at the contract price or as mutually agreed for items of work partially completed or not started. No claims or loss of anticipated profits shall be considered.

Reimbursement for organization of the work, and other overhead expenses, (when not otherwise included in the contract) and moving equipment and materials to and from the job will be considered, the intent being that an equitable settlement will be made with the Contractor.

Acceptable materials, obtained or ordered by the Contractor for the work and that are not incorporated in the work shall, at the option of the Contractor, be purchased from the Contractor at actual cost as shown by receipted bills and actual cost records at such points of delivery as may be designated by the RPR.

Termination of the contract or a portion thereof shall neither relieve the Contractor of their responsibilities for the completed work nor shall it relieve their surety of its obligation for and concerning any just claim arising out of the work performed.

80-11 Work area, storage area and sequence of operations. The Contractor shall obtain approval from the RPR prior to beginning any work in all areas of the airport. No operating runway, taxiway, or air operations area (AOA) shall be crossed, entered, or obstructed while it is operational. The Contractor shall plan and coordinate work in accordance with the approved CSPP and SPCD.

END OF SECTION 80

SECTION 90

MEASUREMENT AND PAYMENT

90-01 Measurement of quantities. All work completed under the contract will be measured by the RPR, or their authorized representatives, using **[** United States Customary Units of Measurement **] [** ~~the International System of Units~~ **]**.

The method of measurement and computations to be used in determination of quantities of material furnished and of work performed under the contract will be those methods generally recognized as conforming to good engineering practice.

Unless otherwise specified, longitudinal measurements for area computations will be made horizontally, and no deductions will be made for individual fixtures (or leave-outs) having an area of 9 square feet (0.8 square meters) or less. Unless otherwise specified, transverse measurements for area computations will be the neat dimensions shown on the plans or ordered in writing by the RPR.

Unless otherwise specified, all contract items which are measured by the linear foot such as electrical ducts, conduits, pipe culverts, underdrains, and similar items shall be measured parallel to the base or foundation upon which such items are placed.

The term "lump sum" when used as an item of payment will mean complete payment for the work described in the contract. When a complete structure or structural unit (in effect, "lump sum" work) is specified as the unit of measurement, the unit will be construed to include all necessary fittings and accessories.

When requested by the Contractor and approved by the RPR in writing, material specified to be measured by the cubic yard (cubic meter) may be weighed, and such weights will be converted to cubic yards (cubic meters) for payment purposes. Factors for conversion from weight measurement to volume measurement will be determined by the RPR and shall be agreed to by the Contractor before such method of measurement of pay quantities is used.

Measurement and Payment Terms

Term	Description
Excavation and Embankment Volume	In computing volumes of excavation, the average end area method will be used unless otherwise specified.
Measurement and Proportion by Weight	The term "ton" will mean the short ton consisting of 2,000 pounds (907 km) avoirdupois. All materials that are measured or proportioned by weights shall be weighed on accurate, independently certified scales by competent, qualified personnel at locations designated by the RPR. If material is shipped by rail, the car weight may be accepted provided that only the actual weight of material is paid for. However, car weights will not be acceptable for material to be passed through mixing plants. Trucks used to haul material being paid for by weight shall be weighed empty daily at such times as the RPR directs, and each truck shall bear a plainly legible identification mark.
Measurement by Volume	Materials to be measured by volume in the hauling vehicle shall be hauled in approved vehicles and measured therein at the point of delivery. Vehicles for this purpose may be of any size or type acceptable for the materials hauled, provided that the body is of such shape that the actual contents may be readily and accurately determined. All vehicles shall be loaded to at least their water level capacity, and all loads shall be leveled when the vehicles arrive at the point of delivery.
Asphalt Material	Asphalt materials will be measured by the gallon (liter) or ton (kg). When measured by volume, such volumes will be measured at 60°F (16°C) or will be corrected to the volume at 60°F (16°C) using ASTM D1250 for asphalts. Net certified scale weights or weights based on certified volumes in the case of rail shipments will be used as a basis of measurement, subject to correction when asphalt material has been lost from the car or the distributor, wasted, or otherwise not incorporated in the work. When asphalt materials are shipped by

Term	Description
	truck or transport, net certified weights by volume, subject to correction for loss or foaming, will be used for computing quantities.
Cement	Cement will be measured by the ton (kg) or hundredweight (km).
Structure	Structures will be measured according to neat lines shown on the plans or as altered to fit field conditions.
Timber	Timber will be measured by the thousand feet board measure (MFBM) actually incorporated in the structure. Measurement will be based on nominal widths and thicknesses and the extreme length of each piece.
Plates and Sheets	The thickness of plates and galvanized sheet used in the manufacture of corrugated metal pipe, metal plate pipe culverts and arches, and metal cribbing will be specified and measured in decimal fraction of inch.
Miscellaneous Items	When standard manufactured items are specified such as fence, wire, plates, rolled shapes, pipe conduit, etc., and these items are identified by gauge, unit weight, section dimensions, etc., such identification will be considered to be nominal weights or dimensions. Unless more stringently controlled by tolerances in cited specifications, manufacturing tolerances established by the industries involved will be accepted.
Scales	Scales must be tested for accuracy and serviced before use. Scales for weighing materials which are required to be proportioned or measured and paid for by weight shall be furnished, erected, and maintained by the Contractor, or be certified permanently installed commercial scales. Platform scales shall be installed and maintained with the platform level and rigid bulkheads at each end. Scales shall be accurate within 0.5% of the correct weight throughout the range of use. The Contractor shall have the scales checked under the observation of the RPR before beginning work and at such other times as requested. The intervals shall be uniform in spacing throughout the graduated or marked length of the beam or dial and shall not exceed 0.1% of the nominal rated capacity of the scale, but not less than one pound (454 grams). The use of spring balances will not be permitted. In the event inspection reveals the scales have been "overweighing" (indicating more than correct weight) they will be immediately adjusted. All materials received subsequent to the last previous correct weighting-accuracy test will be reduced by the percentage of error in excess of 0.5%. In the event inspection reveals the scales have been under-weighing (indicating less than correct weight), they shall be immediately adjusted. No additional payment to the Contractor will be allowed for materials previously weighed and recorded. Beams, dials, platforms, and other scale equipment shall be so arranged that the operator and the RPR can safely and conveniently view them. Scale installations shall have available ten standard 50-pound (2.3 km) weights for testing the weighing equipment or suitable weights and devices for other approved equipment. All costs in connection with furnishing, installing, certifying, testing, and maintaining scales; for furnishing check weights and scale house; and for all other items specified in this subsection, for the weighing of materials for proportioning or payment, shall be included in the unit contract prices for the various items of the project.
Rental Equipment	Rental of equipment will be measured by time in hours of actual working time and necessary traveling time of the equipment within the limits of the work. Special equipment ordered in connection with extra work will be measured as agreed in the change order or supplemental agreement authorizing such work as provided in paragraph 90-05 *Payment for Extra Work*.
Pay Quantities	When the estimated quantities for a specific portion of the work are designated as the pay quantities in the contract, they shall be the final quantities for which payment for such specific portion of the work will be made, unless the dimensions of said portions of the work shown on the plans are revised by the RPR. If revised dimensions result in an increase or decrease in the quantities of such work, the final quantities for payment will be revised in the amount represented by the authorized changes in the dimensions.

90-02 Scope of payment. The Contractor shall receive and accept compensation provided for in the contract as full

payment for furnishing all materials, for performing all work under the contract in a complete and acceptable manner, and for all risk, loss, damage, or expense of whatever character arising out of the nature of the work or the execution thereof, subject to the provisions of Section 70, paragraph 70-18, *No Waiver of Legal Rights*.

When the "basis of payment" subsection of a technical specification requires that the contract price (price bid) include compensation for certain work or material essential to the item, this same work or material will not also be measured for payment under any other contract item which may appear elsewhere in the contract, plans, or specifications.

90-03 Compensation for altered quantities. When the accepted quantities of work vary from the quantities in the proposal, the Contractor shall accept as payment in full, so far as contract items are concerned, payment at the original contract price for the accepted quantities of work actually completed and accepted. No allowance, except as provided for in Section 40, paragraph 40-02, *Alteration of Work and Quantities*, will be made for any increased expense, loss of expected reimbursement, or loss of anticipated profits suffered or claimed by the Contractor which results directly from such alterations or indirectly from their own unbalanced allocation of overhead and profit among the contract items, or from any other cause.

90-04 Payment for omitted items. As specified in Section 40, paragraph 40-03, *Omitted Items*, the RPR shall have the right to omit from the work (order nonperformance) any contract item, except major contract items, in the best interest of the Owner.

Should the RPR omit or order nonperformance of a contract item or portion of such item from the work, the Contractor shall accept payment in full at the contract prices for any work actually completed and acceptable prior to the RPR's order to omit or non-perform such contract item.

Acceptable materials ordered by the Contractor or delivered on the work prior to the date of the RPR's order will be paid for at the actual cost to the Contractor and shall thereupon become the property of the Owner.

In addition to the reimbursement hereinbefore provided, the Contractor shall be reimbursed for all actual costs incurred for the purpose of performing the omitted contract item prior to the date of the RPR's order. Such additional costs incurred by the Contractor must be directly related to the deleted contract item and shall be supported by certified statements by the Contractor as to the nature the amount of such costs.

90-05 Payment for extra work. Extra work, performed in accordance with Section 40, paragraph 40-04, *Extra Work*, will be paid for at the contract prices or agreed prices specified in the change order or supplemental agreement authorizing the extra work.

~~**90-06 Partial payments**. Partial payments will be made to the Contractor at least once each month as the work progresses. Said payments will be based upon estimates, prepared by the RPR, of the value of the work performed and materials complete and in place, in accordance with the contract, plans, and specifications. Such partial payments may also include the delivered actual cost of those materials stockpiled and stored in accordance with paragraph 90-07, *Payment for Materials on Hand*. No partial payment will be made when the amount due to the Contractor since the last estimate amounts to less than five hundred dollars.~~
~~**[Insert retainage option here.]**~~

~~***Option 3:*** **The Owner may hold retainage from prime Contractors and provide for prompt and regular incremental acceptances of portions of the prime contract, pay retainage to prime Contractors based on these acceptances, and require a contract clause obligating the prime Contractor to pay all retainage owed to the subcontractor for satisfactory completion of the accepted work within 30 days after the Owner's payment to the prime Contractor. If Option 3 is selected, the percent withheld may range from 0% to 10% but in no case may it exceed 10%. When establishing a suitable retainage value that protects the Owner's interests, give consideration that the performance and payment bonds also provide similar protection of Owner interests. Owner may elect to incrementally release retainage if owner is satisfied its interest with completion of the project are protected in an adequate manner. If Option 3 is selected, insert the following clause and specify a suitable value where indicated:~~

a. From the total of the amount determined to be payable on a partial payment, [10%] percent of such total amount will be deducted and retained by the Owner for protection of the Owner's interests. Unless otherwise instructed by the Owner, the amount retained by the Owner will be in effect until the final payment is made except as follows:

(1) Contractor may request release of retainage on work that has been partially accepted by the Owner in accordance with Section 50-14. Contractor must provide a certified invoice to the RPR that supports the value of retainage held by the Owner for partially accepted work.

(2) In lieu of retainage, the Contractor may exercise at its option the establishment of an escrow account per paragraph 90-08.

b. The Contractor is required to pay all subcontractors for satisfactory performance of their contracts no later than 30 days after the Contractor has received a partial payment. Contractor must provide the Owner evidence of prompt and full payment of retainage held by the prime Contractor to the subcontractor within 30 days after the subcontractor's work is satisfactorily completed. A subcontractor's work is satisfactorily completed when all the tasks called for in the subcontract have been accomplished and documented as required by the Owner. When the Owner has made an incremental acceptance of a portion of a prime contract, the work of a subcontractor covered by that acceptance is deemed to be satisfactorily completed.

c. When at least 95% of the work has been completed to the satisfaction of the RPR, the RPR shall, at the Owner's discretion and with the consent of the surety, prepare estimates of both the contract value and the cost of the remaining work to be done. The Owner may retain an amount not less than twice the contract value or estimated cost, whichever is greater, of the work remaining to be done. The remainder, less all previous payments and deductions, will then be certified for payment to the Contractor.

It is understood and agreed that the Contractor shall not be entitled to demand or receive partial payment based on quantities of work in excess of those provided in the proposal or covered by approved change orders or supplemental agreements, except when such excess quantities have been determined by the RPR to be a part of the final quantity for the item of work in question.

No partial payment shall bind the Owner to the acceptance of any materials or work in place as to quality or quantity. All partial payments are subject to correction at the time of final payment as provided in paragraph 90-09, *Acceptance and Final Payment*.

The Contractor shall deliver to the Owner a complete release of all claims for labor and material arising out of this contract before the final payment is made. If any subcontractor or supplier fails to furnish such a release in full, the Contractor may furnish a bond or other collateral satisfactory to the Owner to indemnify the Owner against any potential lien or other such claim. The bond or collateral shall include all costs, expenses, and attorney fees the Owner may be compelled to pay in discharging any such lien or claim.

90-07 Payment for materials on hand. Partial payments may be made to the extent of the delivered cost of materials to be incorporated in the work, provided that such materials meet the requirements of the contract, plans, and specifications and are delivered to acceptable sites on the airport property or at other sites in the vicinity that are acceptable to the Owner. Such delivered costs of stored or stockpiled materials may be included in the next partial payment after the following conditions are met:

a. The material has been stored or stockpiled in a manner acceptable to the RPR at or on an approved site.

b. The Contractor has furnished the RPR with acceptable evidence of the quantity and quality of such stored or stockpiled materials.

~~**c.** The Contractor has furnished the RPR with satisfactory evidence that the material and transportation costs have been paid.~~

~~**d.** The Contractor has furnished the Owner legal title (free of liens or encumbrances of any kind) to the material stored or stockpiled.~~

~~**e.** **T**he Contractor has furnished the Owner evidence that the material stored or stockpiled is insured against loss by damage to or disappearance of such materials at any time prior to use in the work.~~

~~It is understood and agreed that the transfer of title and the Owner's payment for such stored or stockpiled materials shall in no way relieve the Contractor of their responsibility for furnishing and placing such materials in accordance with the requirements of the contract, plans, and specifications.~~

~~In no case will the amount of partial payments for materials on hand exceed the contract price for such materials or the contract price for the contract item in which the material is intended to be used.~~

~~No partial payment will be made for stored or stockpiled living or perishable plant materials.~~
~~The Contractor shall bear all costs associated with the partial payment of stored or stockpiled materials in accordance with the provisions of this paragraph.~~

90-08 Payment of withheld funds. At the Contractor's option, if an Owner withholds retainage in accordance with the methods described in paragraph 90-06 *Partial Payments,* the Contractor may request that the Owner deposit the retainage into an escrow account. The Owner's deposit of retainage into an escrow account is subject to the following conditions:

a. The Contractor shall bear all expenses of establishing and maintaining an escrow account and escrow agreement acceptable to the Owner.

~~**b.** The Contractor shall deposit to and maintain in such escrow only those securities or bank certificates of deposit as are acceptable to the Owner and having a value not less than the retainage that would otherwise be withheld from partial payment.~~

c. The Contractor shall enter into an escrow agreement satisfactory to the Owner.

d. The Contractor shall obtain the written consent of the surety to such agreement.

90-09 Acceptance and final payment. When the contract work has been accepted in accordance with the requirements of Section 50, paragraph 50-15, *Final Acceptance*, the RPR will prepare the final estimate of the items of work actually performed. The Contractor shall approve the RPR's final estimate or advise the RPR of the Contractor's objections to the final estimate which are based on disputes in measurements or computations of the final quantities to be paid under the contract as amended by change order or supplemental agreement. The Contractor and the RPR shall resolve all disputes (if any) in the measurement and computation of final quantities to be paid within 30 calendar days of the Contractor's receipt of the RPR's final estimate. If, after such 30-day period, a dispute still exists, the Contractor may approve the RPR's estimate under protest of the quantities in dispute, and such disputed quantities shall be considered by the Owner as a claim in accordance with Section 50, paragraph 50-16, *Claims for Adjustment and Disputes*.

After the Contractor has approved, or approved under protest, the RPR's final estimate, and after the RPR's receipt of the project closeout documentation required in paragraph 90-11, *Contractor Final Project Documentation,* final payment will be processed based on the entire sum, or the undisputed sum in case of approval under protest, determined to be due the Contractor less all previous payments and all amounts to be deducted under the provisions of the contract. All prior partial estimates and payments shall be subject to correction in the final estimate and payment.

If the Contractor has filed a claim for additional compensation under the provisions of Section 50, paragraph 50-16, *Claims for Adjustments and Disputes,* or under the provisions of this paragraph, such claims will be considered by the Owner in accordance with local laws or ordinances. Upon final adjudication of such claims, any additional payment determined to be due the Contractor will be paid pursuant to a supplemental final estimate.

90-10 Construction warranty.

a. In addition to any other warranties in this contract, the Contractor warrants that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, workmanship, or design furnished, or performed by the Contractor or any subcontractor or supplier at any tier.

b. This warranty shall continue for a period of one year from the date of final acceptance of the work, except as noted. If the Owner takes possession of any part of the work before final acceptance, this warranty shall continue for a period of one year from the date the Owner takes possession. **[** However, this will not relieve the Contractor from corrective items required by the final acceptance of the project work. Light Emitting Diode emitting diode (LED) light fixtures with the exception of obstruction lighting, must be warranted by the manufacturer for a minimum of four (4) years after date of installation inclusive of all electronics. **] [___]**

c. The Contractor shall remedy at the Contractor's expense any failure to conform, or any defect. In addition, the Contractor shall remedy at the Contractor's expense any damage to Owner real or personal property, when that damage is the result of the Contractor's failure to conform to contract requirements; or any defect of equipment, material, workmanship, or design furnished by the Contractor.

d. The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to work repaired or replaced will run for one year from the date of repair or replacement.

e. The Owner will notify the Contractor, in writing, within **[** seven (7) **]** days after the discovery of any failure, defect, or damage.

f. If the Contractor fails to remedy any failure, defect, or damage within **[fourteen (**14) **]** days after receipt of notice, the Owner shall have the right to replace, repair, or otherwise remedy the failure, defect, or damage at the Contractor's expense.

g. With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall: (1) Obtain all warranties that would be given in normal commercial practice; (2) Require all warranties to be executed, in writing, for the benefit of the Owner, as directed by the Owner, and (3) Enforce all warranties for the benefit of the Owner.

h. This warranty shall not limit the Owner's rights with respect to latent defects, gross mistakes, or fraud.

90-11 Contractor Final Project Documentation. Approval of final payment to the Contractor is contingent upon completion and submittal of the items listed below. The final payment will not be approved until the RPR approves the Contractor's final submittal. The Contractor shall:

a. Provide two (2) copies of all manufacturers warranties specified for materials, equipment, and installations.
b. Provide weekly payroll records (not previously received) from the general Contractor and all subcontractors.
c. Complete final cleanup in accordance with Section 40, paragraph 40-08, *Final Cleanup*.
d. Complete all punch list items identified during the Final Inspection.
e. Provide complete release of all claims for labor and material arising out of the Contract.
f. Provide a certified statement signed by the subcontractors, indicating actual amounts paid to the Disadvantaged Business Enterprise (DBE) subcontractors and/or suppliers associated with the project.
g. When applicable per state requirements, return copies of sales tax completion forms.
h. Manufacturer's certifications for all items incorporated in the work.
i. All required record drawings, as-built drawings or as-constructed drawings.
j. Project Operation and Maintenance (O&M) Manual(s).
k. Security for Construction Warranty.
l. Equipment commissioning documentation submitted, if required.

END OF SECTION 90

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ARTICLE 5

BENESCH GENERATED SPECIFICATIONS

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NO SEPARATE MEASUREMENT OF PAYMENT FOR REFERENCE ONLY

Item B-101 Airport Safety Measures

DESCRIPTION

101-1.1 This item shall consist of airport safety measures to be provided by the Contractor to meet requirements shown on the Construction Safety and Phasing Plans (CSPP) and this specification.

101-2.1 Airport Safety Measures include the following and any other minor incidentals related to the items:

- Furnish, place, maintain, move, and remove Type I airport barricades (warning markers) and all other barricades as required by the CSPP.
- Furnish, place, maintain, move, and remove Type II airport barricades (low-profile) and all other barricades as required by the CSPP.
- Furnish, place, maintain, relocate (when required), and remove **contractor-furnished** fabric and/or lighted runway closure X's as required by the CSPP. Contractor is required to provide, place, maintain and remove aviation yellow weigh down measures as required by the CSPP for the Owner-furnished runway closure X's.
- Furnish, place, maintain, relocate (when required), and remove **contractor-furnished** taxiway closure fabric X's and aviation yellow weigh down measures as required by the CSPP.
- Temporary wiring/connections of airfield circuits (if any) per phase, as required by the CSPP.
- Covering of elevated edge lights per phase, as required by the CSPP.
- Furnish, place, maintain, and remove construction lath and construction staking/fence as required by the CSPP.

CONSTRUCTION METHODS

101-3.1 Airport Safety Measures. Airport safety measures shall include the implementation and completion of the items listed above in Section 101-2.1. The Owner/Engineer will resolve any questions or conflicts resulting in the placement or location of airport safety measures.

METHOD OF MEASUREMENT.

101-4.1 Construction Staking. Airport Safety Measures shall be considered incidental, and no separate measurement shall be made.

BASIS OF PAYMENT.

101-5.1 Airport Safety Measures. No separate measurement or payment for "Airport Safety Measures". Cost to be included in the line item for FAA specification C-105 "Mobilization".

(i) With placement of airport safety measures; **50%**
(ii) With removal of airport safety measures; **50%**

Payment will be under:

C-105-1 Site Preparation and Mobilization

END OF ITEM B-101

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NO SEPARATE MEASUREMENT OF PAYMENT FOR REFERENCE ONLY

Item B-109 CONSTRUCTION STAKING & SURVEYING

DESCRIPTION

109-1 This item shall consist of the Contractor's construction staking/surveying requirements for the layout and completion of the contract work.

CONSTRUCTION METHODS

109-2.1 Construction Staking & Surveying. The Contractor shall provide construction staking & survey as specified in Article 1 'FAA General Contract Provisions' Section 50-07 and on the Construction Plans. The Contractor shall provide a copy of all construction staking notes along with the survey information to the Owner's Representative in a timely manner.

The Contractor shall perform field surveys as required in this contract, in the specifications, and on the plans and submit survey data to the Owner's Representative

For areas to be field surveyed by the Contractor, the Contractor shall walk the site with the RPR prior to the survey to ensure all areas and points are surveyed for complete information, including tie-in and verification.

109-2.2 Owner Provided Construction Staking. The Owner/Owner's Representative will provide only control monuments shown on the plans.

If the Contractor removes any control points during construction, the Contractor shall be responsible for providing new control points. This work shall be incidental to this item and will NOT be paid for directly.

109-2.3 Lift Thickness Testing and Grade Verification. Lift thickness testing and verification of grades/elevations during construction operations shall be performed via Contractor survey.

To accurately assess thickness and grades by survey, the Contractor shall provide electronic surveys to the RPR before construction begins, during construction for both the underlying surface and all layers of the base course as the pavement section(s) are constructed, including the final surface of the base course prior to paving operations, and for the final top of pavement. Survey shots for all surveys shall be on the same grid to allow for accurate determinations of thicknesses and be in accordance with General Provisions 50-07 Construction Layout and Stakes. Electronic survey shall be in a format approved by the RPR.

METHOD OF MEASUREMENT

109-3.1 Construction Staking. Construction Staking &Surveying shall be considered incidental, and no separate measurement shall be made.

BASIS OF PAYMENT

109-4.1 Construction Staking. "Construction Staking" shall be paid for as a **lump sum** item as listed in the Proposal Form. This work shall include all materials, labor, equipment, and incidentals to complete the work. Payment will be made based on a percentage of the item completed as determined by the Owner's Representative. See Article 1 Section 90 for Measurement and Payment general provisions.

Payment Will Be Made Under:

Item B-109-1 Construction Staking & Surveying – per lump sum

109-4.1 Construction Staking. No separate measurement or payment for "Construction Staking & Surveying". Cost to be included in the line item for FAA specification C-105 "Mobilization".

END OF ITEM B-109

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ARTICLE 6

GDOT SPECIFICATIONS

NOTE: ALL MATERIALS USED SHALL BE IN ACCORDANCE WITH GEORGIA DEPARTMENT OF TRANSPORTATION, STATE OF GEORGIA, STANDARD SPECIFICATIONS CONSTRUCTION OF TRANSPORTATION SYSTEMS, 2021 SPECIAL PROVISION 2024 EDITION UNLESS MODIFIED BY SPECIAL PROVISION, EXCEPT FOR ELECTRICAL ITEMS OF WORK WHICH SHALL BE IN ACCORDANCE WITH APPLICABLE FAA SPECIFICATIONS

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Item 171 Silt Fence

This specification is taken from the GDOT Standard Specifications Construction of Transportation Systems as issued on 1/21/2021.

171.1 GENERAL DESCRIPTION

This work includes furnishing, installing, and removing a water permeable filter fabric fence to remove suspended particles from drainage water.

171.1.01 Definitions

General Provisions 101 through 150.

171.1.02 Related References

A. Standard Specifications

Section 163—Miscellaneous Erosion Control Items
Section 700—Grassing
Section 862—Wood Posts and Bracing
Section 881—Fabrics
Section 894—Fencing

B. Referenced Documents

ASTM D 3786
ASTM D 4355
ASTM D 4632
ASTM D 4751
GDT 87
QPL 36

171.1.03 Submittals

General Provisions 101 through 150.

171.2 MATERIALS

Materials shall meet the requirements of the following Specifications:

Material	Section
Fabrics	881
Fencing	894
Wood Posts and Bracing	862

Conditions during Project construction will affect the quantity of the silt fence to be installed.

The Engineer may increase, decrease, or eliminate the quantity at his or her direction. Variations in quantity are not changes in details of construction or in the character of the work.

For Type A, B, and C fences, use fabric as specified in Subsection 881.2.07, *Silt Fence Filter Fabric*.

171.2.01 Delivery, Storage, and Handling

During shipment and storage, wrap the fabric in a heavy-duty covering protecting the cloth from sunlight, mud, dust, dirt, and debris. Do not expose the fabric to temperatures greater than 140 °F (60 °C).

When installed, the Engineer will reject the fabric if it has defects, rips, holes, flaws, deterioration, or damage incurred during manufacture, transportation, or storage.

171.3 CONSTRUCTION REQUIREMENTS

171.3.01 Personnel

General Provisions 101 through 150.

171.3.02 Equipment

General Provisions 101 through 150.

171.3.03 Preparation

General Provisions 101 through 150.

171.3.04 Fabrication

General Provisions 101 through 150.

171.3.05 Construction

Install the silt fence according to this Specification, as shown on the plans, or as directed by the Engineer

A. Install Silt Fence

1. Install silt fence by either of the following methods:
    a. Excavated Trench Method
    Excavate a trench 4 to 6 in. (100 to 150 mm) deep using equipment such as a trenching machine or motor grader. If equipment cannot be operated on the site, excavate the trench by hand.

    b. Soil Slicing Method
    Create a mechanical slice in the soil 8 to 12 in. (200 to 300 mm) deep to receive the silt fence. Ensure the width of the slice is not more than 3 in. (75 mm). Mechanically insert the silt fence fabric into the slice in a simultaneous operation with the slicing ensuring consistent depth and placement.

2. Install the first post at the center of the low point (if applicable). Space the remaining posts a maximum of 6 ft. (1.8 m) apart for Types A and B fence and 4 ft. (1.2 m) apart for Type C fence.

3. Bury the posts at least 18 in. (450 mm) into the ground. If this depth cannot be attained, secure the posts enough to prevent the fence from overturning from sediment loading.

4. Attach the filter fabric to the post using wire, cord, staples, nails, pockets, or other acceptable means.

    a. Staples and Nails (Wood Posts): Evenly space staples or nails with at least five per post for Type A fence and four per post for Type B fence.

    b. Pockets: If using pockets and they are not closed at the top, attach the fabric to a wood post using at least one additional staple or nail, or to a steel post using wire. Ensure the additional attachment is within the top 6 in. (150 mm) of the fabric.

    c. Install the filter fabric so 6 to 8 in. (150 to 200 mm) of fabric is left at the bottom to be buried. Provide a minimum overlap of 18 in. (450 mm) at all splice joints.

    d. For Type C fence:
        1) Woven Wire Supported
            - Steel Post: Use wire to attach the fabric to the top of the woven wire support fence at the midpoint between posts. Also, use wire to attach the fabric to the post.
        2) Polypropylene Mesh Supported
            - Wood Post: Use at least six staples per post. Use two staples in a crisscross or parallel pattern to secure the top portion of the fence. Evenly space the remaining staples down the post.

- Steel Post: Use wire to attach the fabric and polypropylene mesh to the post.

5. Install the fabric in the trench so 4 to 6 in. (100 to 150 mm) of fabric is against the side of the trench with 2 to 4 in. (50 to 100 mm) of fabric across the bottom in the upstream direction.

6. Backfill and compact the trench to ensure flow cannot pass under the barrier. When the slice method is used, compact the soil disturbed by the slice on the upstream side of the silt fence first, and then compact the downstream side.

7. When installing a silt fence across a waterway producing significant runoff, place a settling basin in front of the fence to handle the sediment load, if required. Construct a suitable sump hole or storage area according to Section 163.

B. Remove the Silt Fence

1. Keep all silt fence in place unless or until the Engineer directs it to be removed. A removed silt fence may be used at other locations if the Engineer approves of its condition.

2. After removing the silt fence, dress the area to natural ground, grass and mulch the area according to Section 700.

3. The silt fence shall remain until the Project is accepted or until the fence is removed. Also, remove and dispose of the silt accumulations at the silt fence.

4. Remove and replace any deteriorated filter fabric reducing the effectiveness of the silt fence.

171.3.06 Quality Acceptance

Approved silt fence is listed in QPL 36. Approved fabrics must consistently exceed the minimum requirements of this Specification as verified by the Office of Materials and Research. The Office of Materials and Research will remove fabric failing to meet the minimum requirements of this specification from the QPL until the products' acceptability has been reestablished to the Department's satisfaction.

At the time of installation, the Engineer will reject the fabric if it has defects, rips, holes, flaws, deterioration, or damage incurred during manufacture, transportation, or storage.

171.4 MEASUREMENT

The quantity of silt fence ~~to be paid for is the actual number of linear feet (meters) of silt fence, measured in place from end post to end post of each separate installation. The silt fence must be complete and accepted~~. Will not be measured or paid for per the unit. Cost to be included in "Airport Safety Measures".

171.4.01 Limits

General Provisions 101 through 150.

171.5 PAYMENT

Silt fence Type ~~A, B, or~~ C will not be measured as defined in Subsection 171.4, Measurement, for payment, but shall be considered incidental to "airport Safety Measures".

Payment is full compensation for the following:

- Furnishing materials
- Erecting the fence
- Dressing and grassing, when required
- Removing the fence, when required

~~Payment for this Item is made as follows:~~

- ~~Seventy-five percent of the Contract Price bid per linear foot (meter) is paid when each fence is complete in place.~~
- ~~Twenty-five percent is paid at removal or acceptance.~~

If the silt fence must be repaired or removed, as the result of neglect or damage, perform the work at no additional cost to the Owner.

Payment will be considered incidental under:

"Airport Safety Measures"

171.5.01 Adjustments
General Provisions 101 through 150.

END OF ITEM 171

Item 400—Hot Mix Asphaltic Concrete Construction

This specification is taken from the GDOT Standard Specifications Construction of Transportation Systems as issued on 1/21/2021.

400.1 General Description

This work includes constructing one or more courses of bituminous plant mixture on the prepared foundation or existing roadway surface. Ensure the mixture conforms with lines, grades, thicknesses, and typical cross sections shown on the plans or established by the Engineer.

This section includes the requirements for all bituminous plant mixtures regardless of the gradation of the aggregates, type and amount of bituminous material, or pavement use.

Acceptance of work is on a lot-to-lot basis according to the requirements of this Section and Section 106.

400.1.01 Definitions

Segregated Mixture: Mixture lacking homogeneity in HMA constituents of such magnitude there is a reasonable expectation of accelerated pavement distress or performance problems. May be quantified by measurable changes in temperature, gradation, asphalt content, air voids, or surface texture.

Wearing Course: The upper course of asphaltic concrete placed on a roadway, airport or other asphalt pavement.

Surface Course: The upper course of asphaltic concrete placed on a roadway, airport or other asphalt pavement and also includes the dense-graded asphaltic concrete mixture beneath Open Graded Friction Course (OGFC) or Porous European Mixture (PEM).

Intermediate (Binder) Course: The lift(s) of asphaltic concrete above the base course and below the wearing course.

Asphaltic Concrete Base Course: The lower lift(s) of asphaltic concrete generally placed on graded aggregate base (GAB), soil cement or other stabilized base material.

New Construction: A roadway section more than 0.5 mile (800 m) long that is not longitudinally adjacent to the existing roadway. If one or more lanes are added longitudinally adjacent to the existing lane, the lane(s) shall be tested under the criteria for a resurfacing project. If work is performed on the existing roadway including leveling, grade changes, widening and/or resurfacing then that lane shall be tested under the criteria for a resurfacing project.

Trench Widening: Widening no more than 4 ft. (1.2 m) in width.

Comparison Sample: Opposite quarters of material sampled by the Contractor.

Independent Sample (Quality Assurance Sample): A sample taken by the Department to verify an acceptance decision without regard to any other sample that may also have been taken to represent the material in question.

Referee sample: A sample of the material retained during the quartering process which is used for evaluation if a comparison of Contractor and Departmental split sample test results is outside allowable tolerances.

400.1.02 Related References

A. Standard Specifications

Section 106—Control of Materials

Section 109—Measurement and Payment

Section 152—Field Laboratory Building

Section 413—Bituminous Tack Coat

Section 424—Bituminous Surface Treatment

Section 802—Aggregate for Asphaltic Concrete

Section 828—Hot Mix Asphaltic Concrete Mixtures

B. Referenced Documents

AASHTO T 324

AASHTO T 315

AASHTO T 209

AASHTO T 202

AASHTO T 49

Department of Transportation Standard Operating Procedure (SOP) 15

Department of Transportation Standard Operating Procedure (SOP) 27

Department of Transportation Standard Operating Procedure (SOP) 40

Department of Transportation Standard Operating Procedure (SOP) 46

GDT 38

GDT 39

GDT 42

GDT 59

GDT 73

GDT 78

GDT 83

GDT 119

GDT 125

GDT 126

GDT 134

GSP 15

GSP 21

QPL 1

QPL 2

QPL 7

QPL 26

QPL 30

QPL 39

QPL 41

QPL 45

QPL 65

QPL 67

QPL 70

QPL 77

QPL 88

QPL 91

QPL 92 (A, B, C)

QPL 97

400.1.03 Submittals

A. Invoices

Furnish formal written invoices from a supplier for all materials used in production of HMA when requested by the Department. Show the following on the Bill of Lading:

- Date shipped
- Quantity in tons (megagrams)
- Included with or without additives (for asphalt cement)

Purchase asphaltic cement directly from a supplier listed on Qualified Products List 7 and provide copies of Bill of Lading at the Department's request.

B. Paving Plan

Before starting asphaltic concrete construction, submit a written paving plan to the Engineer for approval. Include the following on the paving plan:

- Proposed starting date
- Location of plant(s)
- Rate of production
- Average haul distance(s)
- Number of haul trucks
- Paver speed feet (meter)/minute for each placement operation
- Mat width for each placement operation
- Number and type of rollers for each placement operation
- Sketch of the typical section showing the paving sequence for each placement operation
- Electronic controls used for each placement operation
- Temporary pavement marking plan

If staged construction is designated in the plans or contract, provide a paving plan for each construction stage.

If segregation is detected, submit a written plan of measures and actions to prevent segregation. Work will not continue until the plan is submitted to and approved by the Department.

C. Job Mix Formula

Submit to the Engineer a written job mix formula proposed for each mixture type to be used based on an approved mix design. Furnish the following information for each mix:

- Specific project for which the mixture will be used
- Source and description of the materials to be used
- Mixture I.D. Number
- Proportions of the raw materials to be combined in the paving mixture
- Single percentage of the combined mineral aggregates passing each specified sieve
- Single percentage of asphalt by weight of the total mix to be incorporated in the completed mixture
- Single temperature at which to discharge the mixture from the plant
- Theoretical specific gravity of the mixture at the designated asphalt content
- Name of the person or agency responsible for quality control of the mixture during production

Do the following to have the Job Mix Formulas approved in accordance with SOP 40 *Approval of Contractor Job Mix Formulas* and to ensure their quality:

1. Submit proposed job Mix Formulas for review at least two weeks before beginning the mixing operations.
2. Do not start hot mix asphaltic concrete work until the Engineer has approved a job mix formula for the mixture to be used. No mixture will be accepted until the Engineer has given approval.
3. Provide mix designs for all SMA, Superpave and 4.75 mm mixes to be used. The Department will provide mix design results for other mixes to be used.
4. After a job mix formula has been approved, assume responsibility for the quality control of the mixtures supplied to the Department according to Subsection 106.01, *Source of Supply and Quantity of Materials*.

D. Quality Control Program

Submit a Quality Control Plan to the Office of Materials and Testing for approval. The Quality Control Program will be included as part of the certification in the annual plant inspection report.

400.2 Materials

Ensure materials comply with the specifications listed in Table 1.

TABLE 1—MATERIALS SPECIFICATIONS

Material	Subsection
Asphalt Cement, Grade Specified	820.2
Coarse Aggregates for Asphaltic Concrete	802.2.02
Fine Aggregates for Asphaltic Concrete	802.2.01
Mineral Filler	883.1
Heat Stable Anti-Stripping Additive	831.2.04
Hydrated Lime	882.2.03
Silicone Fluid (When approved by the Office of Materials and Testing)	831.2.05
Bituminous Tack Coat: PG 58-22, PG 64-22, PG 67-22	820.2
Hot Mix Asphaltic Concrete Mixtures	828
Fiber Stabilizing Additives	819

When approved by the Office of Materials and Testing and required in the Contract, provide Uintaite material, hereafter referred to by the common trade name Gilsonite, as a reinforcing agent for bituminous mixtures. Supply a manufacturer's certification that the Gilsonite is a granular solid which meets the following requirements:

Softening Point (AASHTO: T-53)	300-350 °F (150-175 °C)
Specific Gravity, 77 °F (25 °C) (AASHTO: T-228)	1.04 ± 0.02
Flash Point, COC (AASHTO: T-48)	550 °F (290 °C) Min.
Ash Content (AASHTO: T-111)	1.0% Max.
Penetration, 77 °F (25 °C), 100 gm., 5 sec. (AASHTO: T-49)	0

400.2.01 Delivery, Storage, and Handling

Storage of material is allowed in a properly sealed and insulated system for up to 24 hours. Ensure Stone Matrix Asphalt (SMA), Open-Graded Friction Course (OGFC), or Porous European Mix (PEM) mixtures are not stored more than 12 hours. Mixtures other than SMA, OGFC, or PEM may be stored up to 72 hours in a sealed and insulated system, equipped with an auxiliary inert gas system, with the Engineer's approval. Segregation, lumpiness, drain-down, or stiffness of stored mixture is cause for rejection of the mixture. The Engineer will not approve using a storage or surge bin if the mixture segregates, loses excessive heat, or oxidizes during storage.

The Engineer may obtain mixture samples or recover asphalt cement according to GDT 119 or AASHTO T 324. AASHTO T 315, AASHTO T 202, or AASHTO T 49 will be used to perform viscosity and penetration tests to determine how much asphalt hardening has occurred. AASHTO T-324 will be used to perform Hamburg Wheel Tracking Device testing to determine rutting and moisture damage susceptibility.

A. Vehicles for Transporting and Delivering Mixtures

Ensure trucks used for hauling bituminous mixtures have tight, clean, smooth beds.

Follow these guidelines when preparing vehicles to transport bituminous mixtures:

1. Use an approved releasing agent from QPL 39 in the transporting vehicle beds, if necessary, to prevent the mixture from sticking to the bed. Ensure the releasing agent is not detrimental to the mixture. When applying the agent, drain the excess agent from the bed before loading. Remove from the project any transporting vehicles determined to contain unapproved releasing agents.
2. Protect the mixture with a waterproof cover large enough to extend over the sides and ends of the bed. Securely fasten the waterproof cover before the vehicle begins moving.
3. Insulate the front end and sides of each bed with an insulating material with the following specifications:
    - Consists of builders insulating board or equivalent;
    - Has a minimum "R" value of 4.0; and
    - Can withstand approximately 400 °F (200 °C) temperatures

    Install the insulating material so it is protected from loss and contamination. A "Heat Dump Body" may be used in lieu of insulation of the bed. "Heat Dump Body" refers to any approved transport vehicle capable of diverting engine exhaust and transmitting heat evenly throughout the dump body to keep asphalt at required temperature. Mark the "Heat Dump Body" clearly with "OPEN" and "CLOSE" position at the exhaust diverter. Install a padlock and lock it in the "OPEN" position when the "Heat Dump Body" is used to transport bituminous mixtures.
4. Mark each transporting vehicle with a clearly visible identification number.
5. Create a hole in each side of the bed so the temperature of the loaded mixture can be checked. Ensure the placement of these holes are located to assure the thermometer is being placed in the hot mix asphaltic concrete mixtures.

    Ensure the mixture is delivered to the roadway at a temperature within ± 20 °F (± 11 °C) of the temperature on the job mix formula.

    If the Engineer determines a truck may be hazardous to the project or adversely affect the quality of the work, remove the truck from the project.

B. Containers for Transporting, Conveying, and Storing Bituminous Material

To transport, convey, and store bituminous material, use containers free of foreign material and equipped with sample valves. Bituminous material will not be accepted from conveying vehicles if material has leaked or spilled from the containers.

400.3 Construction Requirements

400.3. 01 Personnel

General Provisions 101 through 150.

400.3.02 Equipment

Hot mix asphaltic concrete plants producing mix for Department use are governed by Quality Assurance for Hot Mix Asphaltic Concrete Plants in Georgia, Laboratory Standard Operating Procedure No. 27.

The Engineer will approve the equipment used to transport and construct hot mix asphaltic concrete. Ensure the equipment is in satisfactory mechanical condition and can function properly during production and placement operations. Place the following equipment at the plant or project site:

A. Field Laboratory

Provide a field laboratory according to Section 152.

B. Plant Equipment

1. Scales

Provide scales as follows:

a. Furnish (at the Contractor's expense) scales to weigh bituminous plant mixtures, regardless of the measurement method for payment.

b. Ensure the weight measuring devices provide documentation complying with Subsection 109.01, *Measurement and Quantities*.

c. Provide weight devices recording the mixture net weights delivered to the truck when not using platform scales. A net weight system will include, but is not limited to:

- Hopper or batcher-type weight systems delivering asphaltic mixture directly to the truck
- Fully automatic batching equipment with a digital recording device

d. Use a net weight printing system only with automatic batching and mixing systems approved by the Engineer.

e. Ensure the net weight scale mechanism or device manufacturer, installation, performance, and operation meets the requirements in Subsection 109.01, *Measurement and Quantities*

f. Provide information on the Project tickets according to Department of Transportation SOP-15.

2. Time-Locking Devices

Furnish batch type asphalt plants with automatic time-locking devices controlling the mixing time automatically. Construct these devices to ensure the operator cannot shorten or eliminate any portion of the mixing cycle.

3. Surge- and Storage-Systems

Provide surge and storage bins as follows:

a. Ensure bins for mixture storage are insulated and have a working seal, top and bottom, to prevent outside air infiltration and to maintain an inert atmosphere during storage. Bins not intended as storage bins may be used as surge bins to hold hot mixtures for part of the working day. However, empty these surge bins completely at the end of the working day.

b. Ensure surge and storage bins can retain a predetermined minimum level of mixture in the bin when the trucks are loaded.

c. Ensure surge and storage systems do not contribute to mix segregation, lumpiness, drain-down, or stiffness.

d. Ensure the scale mechanism or device manufacture, installation, performance, and operation meets the requirements in Subsection 109.01 *Measurement and Quantities*.

4. Controls for Dust Collector Fines

   Control dust collection as follows:

   a. When collecting airborne aggregate particles and returning them to the mixture, have the return system meter all or part of the collected dust uniformly into the aggregate mixture and waste the excess. The collected dust percentage returned to the mixture is subject to the Engineer's approval.

   b. When the collected dust is returned directly to the hot aggregate flow, interlock the dust feeder with the hot aggregate flow, and meter the flow to maintain a constant, proportioned and uniform flow.

5. Mineral Filler Supply System

   When mineral filler is required as a mixture ingredient:

   a. Use a separate bin and feed system to store and proportion the required quantity into the mixture with uniform distribution.

   b. Control the feeder system with a proportioning device meeting these specifications:

      - Is accurate to within ± 10 percent of the filler required
      - Has a convenient and accurate means of calibration
      - Interlocks with the aggregate feed or weigh system to maintain the correct proportions for all rates of production and batch sizes

   c. Provide flow indicators or sensing devices for the mineral filler system and interlock them with the plant controls to interrupt the mixture production if mineral filler introduction fails to meet the required target value after no longer than 60 seconds.

   d. Add mineral filler to the mixture as follows, according to the plant type:

      - Batch Type Asphalt Plant: add mineral filler to the mixture in the weigh hopper.
      - Continuous Plant Using Pugmill Mixers: feed the mineral filler into the hot aggregate before it is introduced into the mixer to ensure dry mixing is accomplished before the bituminous material is added.
      - Continuous Plants Using the Drier-Drum Mixers: add the mineral filler to ensure dry mixing is accomplished before the bituminous material is added and ensure the filler does not become entrained into the air stream of the drier.

6. Hydrated Lime Treatment System

   When hydrated lime is required as a mixture ingredient:

   a. Use a separate bin and feed system to store and proportion the required quantity into the mixture.

   b. Ensure the aggregate is uniformly coated with hydrated lime aggregate before adding the bituminous material to the mixture. Ensure the addition of hydrated lime will not become entrained in the exhaust system of the drier or plant.

   c. Control the feeder system with a proportioning device meeting these specifications:

      - Is accurate to within ± 10 percent of the amount required
      - Has a convenient and accurate means of calibration
      - Interlocks with the aggregate feed or weigh system to maintain the correct proportions for all rates of production and batch sizes and to ensure mixture produced is properly treated with lime

   d. Provide flow indicators or sensing devices for the hydrated lime system and interlock them with the plant controls to interrupt mixture production if hydrated lime introduction fails to meet the required target value after no longer than 60 seconds.

7. Net Weight Weighing Mechanisms

Certify the accuracy of the net weight weighing mechanisms by an approved registered scale serviceperson at least once every 6 months. Check the accuracy of net weight weighing mechanisms at the beginning of Project production and thereafter as directed by the Engineer. Check mechanism accuracy as follows:

a. Weigh a load on a set of certified commercial truck scales. Ensure the difference between the printed total net weight and weight obtained from the commercial scales is no greater than 4 lbs./1,000 lbs. (4 kg/Mg) of load.

Check the accuracy of the bitumen scales as follows:

- Use standard test weights.
- If the checks indicate printed weights are out of tolerance, have a registered scale serviceperson check the batch scales and certify the accuracy of the printer.
- While the printer system is out of tolerance and before its adjustment, continue production only if using a set of certified truck scales to determine the truck weights.

b. Ensure plants using batch scales maintain ten 50 lb. (25 kg) standard test weights at the plant site to check batching scale accuracy.

c. Ensure plant scales are used only to proportion mixture ingredients, and not to determine that pay quantities, are within two percent throughout the range.

8. Fiber Supply System

When stabilizing fiber is required as a mixture ingredient:

a. Use a separate feed system to store and proportion by weight the required quantity into the mixture with uniform distribution.

b. Control the feeder system with a proportioning device meeting these specifications:

- Is accurate to within ± 10 percent of the amount required. Automatically adjusts the feed rate to maintain the material within this tolerance at all times.
- Has a convenient and accurate means of calibration.
- Provide in-process monitoring, consisting of either a digital display of output or a printout of feed rate, in pounds (kg) per minute, to verify feed rate.
- Interlocks with the aggregate feed or weigh system to maintain the correct proportions for all rates of production and batch sizes.

c. Provide flow indicators or sensing devices for the fiber system and interlock them with the plant controls to interrupt the mixture production if fiber introduction fails or if the output rate is not within the tolerances given above.

d. Introduce the fiber as follows:

- When a batch type plant is used, add the fiber to the aggregate in the weigh hopper. Increase the batch dry mixing time by 8 to 12 seconds from the time the aggregate is completely emptied into the mixer to ensure the fibers are uniformly distributed prior to the injection of asphalt cement into the mixer.
- When a continuous or drier-drum type plant is used, add the fiber to the aggregate and uniformly disperse prior to the injection of asphalt cement. Ensure the fibers will not become entrained in the exhaust system of the drier or plant.

9. Crumb Rubber Modifier Supply System

When specified, crumb rubber modifier may be substituted at the Contractor's discretion to produce a PG 76-22 asphaltic cement at the production facility in accordance with Section 820:

a. Use a separate feed system to store and proportion by weight of the total asphaltic cement, the required percentage of crumb rubber into the mixture.

b. Control the feeder system with a proportioning device meeting these specifications:

- Is accurate to within ± 6 percent of the amount required. Automatically adjusts the feed rate to maintain the material within this tolerance at all times.
- Has a convenient and accurate means of calibration.
- Provide in-process monitoring, consisting of either a digital display of output or a printout of feed rate, in pounds per minute, to verify feed rate. Ensure the supply system reports the feed in 1 lb. (454 gr.) increments using load cells enabling the user to monitor the depletion of the modifier. Monitoring the system volumetrically will not be allowed.
- Interlocks with the aggregate weigh system and asphaltic cement pump to maintain the correct proportions for all rates of production and batch sizes.

c. Provide flow indicators or sensing devices for the system and interlock them with the plant controls to interrupt the mixture production if the crumb rubber introduction output rate is not within the ± 6 percent tolerance given above. This interlock will immediately notify the operator if the targeted rate exceeds introduction tolerances. All plant production will cease if the introduction rate is not brought back within tolerance after 30 seconds. When the interlock system interrupts production and the plant has to be restarted, upon restarting operations; ensure the modifier system runs until a uniform feed can be observed on the output display. Ensure all mix produced prior to obtaining a uniform feed is rejected.

d. Introduce the crumb rubber modifier as follows:

- When a batch type plant is used, add the rubber to the aggregate in the weigh hopper. Increase the batch dry mixing time by 15 to 20 seconds from the time the aggregate is completely emptied into the mixer to ensure the modifiers are uniformly distributed prior to the injection of asphalt cement into the mixer. Increase the batch wet mix time by 15 to 20 seconds to ensure the crumb rubber modifier is uniformly blended with the asphaltic cement.
- When a continuous or drier-drum type plant is used, add the rubber to the aggregate and uniformly disperse prior to the injection of asphalt cement. The point of introduction in the drum mixer will be approved by the Engineer prior to production. Ensure the crumb rubber modifier will not become entrained in the exhaust system of the drier or plant and will not be exposed to the drier flame at any point after induction.

e. No separate measurement and payment will be made if Contractor elects to utilize crumb rubber.

10. Fiber-Reinforcement Supply System

When reinforcement fiber is specified in the contract as a mixture ingredient:

Ensure, that the reinforcement fiber is an approved material and listed on QPL 97" Georgia's List of Approved Reinforcement Fiber". Use a separate Fiber Meetering Device feed system to proportion by weight of the total asphaltic cement, the required percentage of fiber-reinforcement into the mixture.

a. Control the meetering system with a proportioning device meeting these specifications:

- Is accurate to within ± 6 percent of the amount required. Automatically adjusts the feed rate to maintain the material within this tolerance at all times.
- Has a convenient and accurate means of calibration.
- Provides in-process monitoring, consisting of either a digital display of output or a printout of feed rate, in pounds, or (kg) per minute, to verify feed rate
- Interlocks with the aggregate feed or weigh system to maintain the correct proportions for all rates of production and batch sizes.

b. Provide flow indicators or sensing devices for the fiber system and interlock them with the plant controls to interrupt the mixture production if fiber introduction fails or if the output rate is not within the tolerances given above.

c. Introduce the fiber as follows:

- When a batch type plant is used, add the fiber dossage to the aggregate in the weigh hopper. This may be done with loose fibers and a Fiber Meetering Device or may be done by using pre-measured packages that are specifically designed to disintegrate within the mixing cycle. Increase the batch dry mixing time by 8 to 12 seconds from the time the aggregate is completely emptied into the mixer to ensure the fibers are uniformly distributed prior to the injection of asphalt cement into the mixer.
- When a continuous or drier-drum type plant is used, add the fiber to the aggregate or RAP material at the beginning of the mixing cycle and uniformly disperse prior to the injection of asphalt cement. The final configuration of the fibers at the point when mixing begins, should closely resemble the fibers as they are packaged. Pre-distributing the fibers into their individual form should be avoided. Ensure the fibers will not become entrained in the exhaust system of the drier or plant. The producer should inspect their plant for any protrusions that may accumulate fibers and create the potential for fiber clumps.
- When a continuous or drier-drum type plant is used for limited production volumes, the addition of the fibers may be done by using pre-measured packages that are specifically designed to disintegrate within the mixing cycle and adding them directly into the RAP port of the plant. Because this is not an automated process, a written protocol must be supplied by the producer to demonstrate how they will attain the dossage requirement, and documentation must be supplied by the material manufacturer assuring this method will produce the desired random fiber distribution.

C. Equipment at Project Site

1. Cleaning Equipment

Provide sufficient hand tools and power equipment to clean the roadway surface before placing the bituminous tack coat. Use power equipment complying with Subsection 424.3.02.F, *Power Broom and Power Blower*.

2. Pressure Distributor

To apply the bituminous tack coat, use a pressure distributor complying with Subsection 424.3.02.B, *Pressure Distributor*.

3. Bituminous Pavers

To place hot mix asphaltic concrete, use bituminous pavers that can spread and finish courses that are:

- As wide and deep as indicated on the plans
- True to line, grade, and cross section
- Smooth
- Uniform in density and texture

a. Continuous Line and Grade Reference Control. Furnish, place, and maintain the supports, wires, devices, and materials required to provide continuous line and grade reference control to the automatic paver control system.

b. Automatic Screed Control System. Equip the bituminous pavers with an automatic screed control system actuated from sensor-directed mechanisms or devices that will maintain the paver screed at a pre-determined transverse slope and elevation to obtain the required surface.

c. Transverse Slope Controller. Use a transverse slope controller capable of maintaining the screed at the desired slope within ± 0.1 percent. Do not use continuous paving set-ups resulting in unbalanced screed widths or off-center breaks in the main screed cross section unless approved by the Engineer.

d. Screed Control. Equip the paver to permit the following four modes of screed control. Ensure the method used is approved by the Engineer.

- Automatic grade sensing and slope control
- Automatic dual grade sensing
- Combination automatic and manual control
- Total manual control

Ensure the controls are referenced with a taut string or wire set to grade, or with a ski-type device or mobile reference at least 30 ft. (9 m) long when using a conventional ski. Approved non-contacting laser or sonar-type skis listed on QPL 91 "Georgia's List of Approved Non-contacting Laser and Sonar-type Electronic Grade and Slope Controls" may be used in lieu of conventional 30 ft. (9 m) skis. Under limited conditions, a short ski or shoe may be substituted for a long ski on the second paver operating in tandem, or when the reference plane is a newly placed adjacent lane.

Automatic screed control is required on all projects; however, when the Engineer determines that project conditions prohibit the use of such controls, the Engineer may waive the grade control, or slope control requirements, or both.

e. Paver Screed Extension. When the laydown width requires a paver screed extension, use bolt-on screed extensions to extend the screeds, or use an approved mechanical screed extension device. When the screed is extended, add auger extensions to assure a length of no more than 18 in. (0.5 m) from the auger to the end gate of the paver. Auger extensions may be omitted when paving variable widths. Ensure the paver is equipped with tunnel extensions when the screed and augers are extended.

NOTE: Do not use extendible strike-off devices instead of approved screed extensions. Only use a strike-off device in areas that would normally be luted in by hand labor.

4. Compaction Equipment

   Ensure that the compaction equipment is in good mechanical condition and can compact the mixture to the required density. The compaction equipment number, type, size, operation, and condition is subject to the Engineer's approval

5. Materials Transfer Vehicle (MTV)

   a. Use a Materials Transfer Vehicle (MTV) when placing asphaltic concrete mixtures on projects on the state route system with the following conditions. If a project fails to meet any one of the following conditions, the MTV's use is not required other than during the placement of SMA, PEM and OGFC mixtures. MTVs are required during the placement of SMA, PEM and OGFC mixtures regardless of ADT, project length and mixture tonnage unless waived at the discretion of the Office of Materials and Testing.

      1) When to use:

         - The two-way ADT is equal to or greater than 6000
         - The project length is equal to or greater than 3000 linear feet (915 linear meters)
         - The total tonnage (megagrams) of all asphaltic concrete mixtures is greater than 2000 tons (1815 Mg)

      2) Where to use:

         - Mainline of the traveled way
         - Collector/distributor (C/D) lanes on Interstates and limited access roadways
         - Leveling courses at the Engineer's discretion

      3) Do not use the MTV for the following conditions:

         - A resurfacing project that only 9.5 mm mix is required.
         - A project with lane width that is equal or less than 11 ft. (3.4 m).
         - A passing lane only project.
         - When noted on the plans.

   b. Ensure the MTV and conventional paving equipment meet the following requirements:

      1) MTV

         - Has a truck unloading system which receives mixture from the hauling equipment and independently deliver mixtures from the hauling equipment to the paving equipment.
         - Has mixture remixing capability approved by the Office of Materials and Testing and is listed on QPL 88 "Georgia's List of Approved Materials Transfer Vehicles".
         - Provides to the paver a homogeneous, non-segregated mixture of uniform temperature with no more than 20 °F (11 °C) difference between the highest and lowest temperatures when measured transversely across the width of the mat in a straight line at a distance of one foot to twenty-five feet (0.3 m to 7.6 m) from the screed while the paver is operating. Ensure that the MTV is capable of providing the paver a consistent material flow that is sufficient to prevent the paver from stopping between truck exchanges.

      2) Conventional Paving Equipment

         - Has a paver hopper insert with a minimum capacity of 14 tons (13 Mg) installed in the hopper of conventional paving equipment when an MTV is used.

c. If the MTV malfunctions during spreading operations, discontinue placement of hot mix asphaltic concrete after there is sufficient mix placed to maintain traffic in a safe manner. However, placement of hot mix asphaltic concrete in a lift not exceeding 2 in. (50 mm) may continue until any additional hot mix in transit at the time of the malfunction has been placed. Cease spreading operations thereafter until the MTV is operational.

d. Ensure the MTV is empty when crossing a bridge and is moved across without any other Contractor vehicles or equipment on the bridge. Move the MTV across a bridge in a travel lane and not on the shoulder. Ensure the speed of the MTV is no greater than 5 mph (8 kph) without any acceleration or deceleration while crossing a bridge.

400.3.03 Preparation

A. Prepare Existing Surface

Prepare the existing surface as follows:

1. Clean the Existing Surface. Before applying hot mix asphaltic concrete pavement, clean the existing surface to the Engineer's satisfaction.

2. Patch and Repair Minor Defects

Before placing leveling course:

a. Correct potholes and broken areas requiring patching in the existing surface and base as directed by the Engineer.

b. Cut out, trim to vertical sides, and remove loose material from the areas to be patched.

c. Prime or tack coat the area after being cleaned. Compact patches to the Engineer's satisfaction. Material for patches does not require a job mix formula but must meet the gradation range shown in Section 828. The Engineer must approve the asphalt content to be used.

3. Apply Bituminous Tack Coat

Apply the tack coat according to Section 413. The Engineer will determine the application rate, which must be within the limitations in Tables 2A and 2B.

TABLE 2A—APPLICATION RATES FOR BITUMINOUS TACK, GAL/YD² (L/M²)

Tack Uses	Minimum	Maximum
Under OGFC and PEM Mixes	0.06 (0.27)	0.08 (0.36)
All Other Mixes	0.04 (0.18)	0.06 (0.27)
Non-tracking Hot Applied Polymer Modified Tack (NTHAPT) (Note 2)	0.06 (0.27)	0.18 (0.81)

Note 1: On thin leveling courses and freshly placed asphaltic concrete mixes, reduce the application rate to 0.02 to 0.04 gal/yd² (0.09 to 0.18 L/m²).

Note 2: Use higher application rate (0.12 to 0.18) within the minimum and maximum range under OGFC and PEM Mixes

TABLE 2B – APPLICATION RATES FOR ANIONIC EMULSIFIED ASPHALT OR CATIONIC EMULSIFIED ASPHALT BITUMINUS TACK, GAL/YD² (L/M²)

Tack Uses	Minimum	Maximum
New Asphaltic Concrete Pavement to New Asphaltic Concrete Pavement or Thin Lift Leveling	0.05 (0.23)	0.08 (0.36)
New Asphaltic Concrete Pavement (≤ 25% RAP) to Aged Existing Pavement or Milled Surface	0.06 (0.27)	0.10 (0.45)
New Asphaltic Concrete Pavement (> 25% RAP) to Aged Existing Pavement or Milled Surface	0.08 (0.36)	0.12 (0.54)
Non-tracking Emulsified Asphalt	0.07 (0.32)	0.12 (0.54)
CQS-Special Modified Asphalt Emulsion (Note 1)	0.12 (0.54)	0.28 (1.27)

- Allow standard anionic emulsified asphalt or cationic emulsified asphalt to break per emulsion manufacturer's recommendation. Proceed with paving only after the anionic emulsified asphalt or cationic emulsified asphalt has cured to the satisfaction of the Engineer.
- Do not use anionic emulsified asphalt or cationic emulsified asphalt, other than CQS-Special Modified Asphalt Emulsion in conjunction with a spray paver, under OGFC or PEM on interstates or limited access state routes.

Note 1: Use higher application rate (0.22 to 0.28) within the minimum and maximum under OGFC and PEM Mixes

B. Place Patching and Leveling Course

1. When the existing surface is irregular, bring the surface area to the proper cross section and grade with a leveling course of hot mix asphaltic concrete materials.
2. Place leveling at the locations and in the amounts directed by the Engineer.
3. Use leveling course mixtures meeting the requirements of the job mix formulas defined in:
   - Subsection 400.3.05.A, *Observe Composition of Mixtures*
   - Section 828
   - Leveling acceptance schedules in Subsection 400.3.06.A, *Acceptance Plans for Gradation and Asphalt Cement Content*
4. If the leveling and patching mix type is undesignated, determine the mix type by the thickness or spread rate according to Table 3, but do not use 4.75 mm mix on interstate projects.
5. If patching is required to correct mat deficiencies in the final surface layer, ensure patches extend full lane width and no less than the length of the affected area as determined by the Engineer.

TABLE 3—LEVELING AND PATCHING MIX TYPES

Thickness	Rate of Spread	Type of Mix
Up to 0.75 in. (19 mm)	Up to 85 lbs./yd² (46 kg/m²)	4.75 mm Mix or 9.5 mm Superpave Type 1
0.75 to 1.5 in. (19 to 38 mm)	85 to 165 lbs./yd²(46 to 90 kg/m²)	9.5 mm Superpave Type 2
1.5 to 2 in. (38 to 50 mm)	165 to 220 lbs./yd² (90 to 120 kg/m²)	12.5 mm Superpave *
2 to 3 in. (50 to 75 mm)	220 to 330 lbs./yd² (120 to 180 kg/m²)	19 mm Superpave **
Over 2.5 in. (64 mm)	Over 275 lbs./yd² (180 kg/m²)	25 mm Superpave

* This mixture may be used for isolated patches no more than 6 in. (150 mm) deep and no more than 4 ft. (1.2 m) in diameter or length.

** This mixture may be used for patching no more than 4 in. (100 mm) deep in limited confined deep mill and patching locations.

400.3.04 Fabrication

General Provisions 101 through 150.

400.3.05 Construction

Provide the Engineer at least one day's notice prior to beginning construction, or prior to resuming production if operations have been temporarily suspended.

A. Observe Composition of Mixtures

1. Calibration of plant equipment

If the material changes, or if a component affecting the ingredient proportions has been repaired, replaced, or adjusted, check and recalibrate the proportions.

Calibrate as follows:

a. Before producing mixture for the Project, calibrate by scale weight the electronic sensors or settings for proportioning mixture ingredients.

b. Calibrate ingredient proportioning for all rates of production.

2. Mixture control

Compose hot mix asphaltic concrete from a uniform mixture of aggregates, bituminous material, and if required, hydrated lime, mineral filler, or other approved additive.

Ensure the constituents proportional to produce mixtures meeting the requirements in Section 828. The general composition limits prescribed are extreme ranges within which the job mix formula must be established. Base mixtures on a design analysis that meets the requirements of Section 828.

Ensure the field performance of the in-place mixtures meet the requirements of Subsection 828.2B for Permeability, Moisture Susceptibility, Rutting Susceptibility and Fatigue. In-place mix may be evaluated for compliance with Subsection 828.2.B at the discretion of the State Bituminous Construction Engineer under the following conditions:

- Deviates greater than 10 percent on gradation for mixture control sieves from the approved Job Mix Formula based on Acceptance or Independent Samples.
- Deviates greater than 0.7 percent in asphalt cement content from the approved Job Mix Formula based on Acceptance or Independent Samples.
- The calculated mean pavement air voids result in an adjusted pay factor less than 0.80 or any single sub lot result in mean pavement air voids exceeding 10.5 percent.
- Mix produced not using an approved mix design and/or job mix formula.

Remove and replace any material determined to not meet the requirements established in Section 828.2.B at the Contractor's expense.

If control test results show the characteristic tested does not conform to the job mix formula control tolerances given in Section 828, take immediate action to ensure that the quality control methods are effective.

Control the materials to ensure extreme variations do not occur. Maintain the gradation within the composition limits in Section 828.

B. Prepare Bituminous Material

Uniformly heat the bituminous material to the temperature specified in the job mix formula with a tolerance of ± 20 °F (± 11 °C).

C. Prepare the Aggregate

Prepare the aggregate as follows:

1. Heat the aggregate for the mixture and ensure a mix temperature within the limits of the job mix formula.
2. Do not contaminate the aggregate with fuel during heating.
3. Reduce the absorbed moisture in the aggregate until the asphalt does not separate from the aggregate in the prepared mixture. If this problem occurs, the Engineer will establish a maximum limit for moisture content in the aggregates. When this limit is established, maintain the moisture content below this limit.

D. Prepare the Mixture

Proportion the mixture ingredients as necessary to meet the required job mix formula. Mix until a homogenous mixture is produced.

1. Add Mineral Filler

When mineral filler is used, introduce it in the proper proportions and as specified in Subsection 400.3.02.B.5, *Mineral Filler Supply System*.

2. Add Hydrated Lime

When hydrated lime is included in the mixture, add it at a rate specified in Section 828 and the job mix formula. Use methods and equipment for adding hydrated lime according to Subsection 400.3.02.B.6, *Hydrated Lime Treatment System*.

Add hydrated lime to the aggregate by using Method A or B as follows:

Method A—Dry Form—Add hydrated lime in its dry form to the mixture as follows, according to the type of plant:

a. Batch Type Asphalt Plant: Add hydrated lime to the mixture in the weigh hopper or as approved and directed by the Engineer.

b. Continuous Plant Using Pugmill Mixer: Feed hydrated lime into the hot aggregate before it is introduced into the mixer to ensure dry mixing is complete before the bituminous material is added.

Method B—Lime/Water Slurry—Add the required quantity of hydrated lime (based on dry weight) in lime/water slurry form to the aggregate. This solution consists of lime and water in concentrations as directed by the Engineer.

Equip the plant to blend and maintain the hydrated lime in suspension and to mix the hydrated lime with the aggregates uniformly in the proportions specified.

c. Continuous Plant Using Drier-Drum Mixer: Add hydrated lime so to ensure the lime will not become entrained into the air stream of the drier and to ensure thorough dry mixing will be complete before the bituminous material is added.

3. Add Stabilizing Fiber

When stabilizing fiber is included in the mixture, add stabilizing fiber at a rate specified in Section 819 and the Job Mix Formula. Introduce it as specified in Subsection 400.3.02.B.8, *Fiber Supply System*.

4. Add Gilsonite Modifier

When approved by the Office of Materials and Testing and required by the Contract, add the Gilsonite modifier to the mixture at a rate to ensure eight percent by weight of the asphalt cement is replaced by Gilsonite. Use either PG 64-22 or PG 67-22 asphalt cement as specified in Subsection 820.2.01. Provide suitable means to calibrate and check the rate of Gilsonite being added. Introduce Gilsonite modifier by either of the following methods.

a. For batch type plants, incorporate Gilsonite into the pugmill at the beginning of the dry mixing cycle. Increase the dry mix cycle by a minimum of 10 seconds after the Gilsonite is added and prior to introduction of the asphalt cement. For this method, supply Gilsonite in plastic bags to protect the material during shipment and handling and store the modifier in a waterproof environment. Ensure the bags are capable of being completely melted and uniformly blended into the combined mixture.

Gilsonite may also be added through a mineral filler supply system as described in Subsection 400.3.02.B.5, *Mineral Filler Supply System*. Ensure the system is capable of injecting the modifier into the weigh hopper near the center of the aggregate batching cycle so the material can be accurately weighed.

b. For drier-drum plants, add Gilsonite through the recycle ring or through an acceptable means which will introduce the Gilsonite prior to the asphalt cement injection point. The modifier must proportionately feed into the drum mixer at the required rate by a proportioning device which shall be accurate within ± 10 percent of the amount required. Ensure the entry point is away from flames and the Gilsonite will not be caught up in the air stream and exhaust system.

5. Materials from Different Sources

Do not use mixtures prepared from aggregates from different sources intermittently. This will cause the color of the finished pavement to vary.

E. Observe Weather Limitations

Do not mix and place asphaltic concrete if the existing surface is wet or frozen. Do not lay asphaltic concrete OGFC mix or PEM at air temperatures below 60 ºF (16 ºC). When using a MTV, OGFC mix or PEM may be placed at 55 ºF (13 ºC) when approved by the Engineer. For other courses, follow the temperature guidelines in the following table:

TABLE 4—LIFT THICKNESS TABLE

Lift Thickness	Minimum Temperature
1 in. (25 mm) or less	55 °F (13 °C)
1.1 to 2 in. (26 mm to 50 mm)	45 °F (8 °C)
2.1 to 3 in. (51 mm to 75 mm)	40 °F (4 °C)
3.1 to 4 in. (76 mm to 100 mm)	35 °F (2 °C)
4.1 to 8 in. (101 mm to 200 mm)	32 °F (0 °C) and rising. Base material must not be frozen.

F. Perform Spreading and Finishing

Spread and finish the course as follows:
Determine the maximum compacted layer thickness by the type mix being used according to Table 5.

TABLE 5—MIX TYPE MINIMUM, MAXIMUM LAYER AND TOTAL THICKNESS

Mix Type	Minimum Layer Thickness	Maximum Layer Thickness	Maximum Total Thickness
25 mm Superpave	2 1/2 in. (64 mm)	5 in. (125 mm) *	—
19 mm Superpave	1 3/4 in. (44 mm)	3 in. (75 mm) *	—
12.5 mm Superpave	1 3/8 in. (35 mm)	2 1/2 in. (64 mm)**/***	8 in. (200 mm)
9.5 mm Superpave Type 2	1 1/8 in. (29 mm)	1 1/2 in. (38 mm)***	4 in. (100 mm)
9.5 mm Superpave Type 1	7/8 in. (22 mm)	1 1/4 in. (32 mm)	4 in. (100 mm)
4.75 mm Mix	3/4 in. (19 mm)	1 1/8 in. (29 mm)	2 in. (50 mm)
9.5 mm OGFC	75 lbs./yd² (41 kg/m²)	95 lbs./yd² (51 kg/m²)	—
12.5 mm OGFC	85 lbs./yd² (46 kg/m²)	110 lbs./yd² (60 kg/m²)	—
12.5 mm PEM	110 lbs./yd² (60 kg/m²)	165 lbs./yd² (90 kg/m²)	—
9.5 mm SMA	1 1/8 in. (29 mm)	1 1/2 in. (38 mm)	4 in. (100 mm)
12.5 mm SMA	1 3/8 in. (35 mm)	3 in. (75 mm)	6 in. (150 mm)
19 mm SMA	1 3/4 in. (44 mm)	3 in. (75 mm)	—

* Allow up to 6 in. (150 mm) per lift on trench widening. **Allow up to 4 in. (100 mm) per lift on trench widening of ≤ 2 ft. when no overlay is required. ***Place 9.5 mm Superpave and 12.5 mm Superpave up to 4 in. (100 mm) thick for driveway and side road transition.

1. Unload the mixture into the paver hopper or into a device designed to receive the mixture from delivery vehicles.
2. Except for leveling courses, spread the mixture to the loose depth for the compacted thickness or the spread rate. Use a mechanical spreader true to the line, grade, and cross section specified.
3. For leveling courses, use a motor grader equipped with a spreader box and smooth tires to spread the material or use a mechanical spreader meeting the requirements in Subsection 400.3.02.C, *Equipment at Project Site*.
4. Obtain the Engineer's approval for the sequence of paving operations, including paving the adjoining lanes. Minimize tracking tack onto surrounding surfaces.
5. Ensure the outside edges of the pavement being laid are aligned and parallel to the roadway center line.
6. For New Construction or Resurfacing Contracts containing multiple lifts or courses, arrange the width of the individual lifts so the longitudinal joints of each successive lift are offset from the previous lift at least 1 ft. (300 mm). This requirement does not apply to the lift immediately over thin lift leveling courses.
7. Ensure the longitudinal joint(s) in the surface course and the mix immediately underneath asphaltic concrete OGFC or PEM are at the lane line(s).

NOTE: Perform night work with artificial light provided by the Contractor and approved by the Engineer.

8. Where mechanical equipment cannot be used, spread and rake the mixture by hand. Obtain the Engineer's approval of the operation sequence, including compactive methods, in these areas.
9. Keep small hand raking tools clean and free from asphalt build up. Do not use fuel oil or other harmful solvents to clean tools during the work.
10. Do not use mixture with any of these characteristics:
    - Segregated
    - Nonconforming temperature
    - Deficient or excessive asphalt cement content
    - Otherwise unsuitable to place on the roadway in the work
11. Remove and replace mixture placed on the roadway that the Engineer determines has unacceptable blemish levels from segregation, raveling, streaking, pulling and tearing, or other deficient characteristics. Replace with acceptable mixture at the Contractor's expense. Do not continually place mixtures with deficiencies.

    Do not place subsequent course lifts over another lift or course while the temperature of the previously placed mix is 140 °F (60 °C) or greater.
12. Obtain the Engineer's approval of the material compaction equipment. Perform the rolling as follows:
    a. Begin the rolling as close behind the spreader as possible without causing excessive distortion of the asphaltic concrete surface.
    b. Continue rolling until roller marks are no longer visible.
    c. Use pneumatic-tired rollers with breakdown rollers on all courses except asphaltic concrete OGFC, PEM and SMA or other mixes designated by the Engineer.
13. If applicable, taper or "feather" asphaltic concrete from full depth to a depth no greater than 0.5 in. (13 mm) along curbs, gutters, raised pavement edges, and areas where drainage characteristics of the road must be retained. The Engineer will determine the location and extent of tapering.

G. Maintain Continuity of Operations

Coordinate plant production, transportation, and paving operations to maintain a continuous operation. If the spreading operations are interrupted, construct a transverse joint if the mixture immediately behind the paver screed cools to less than 250 ºF (120 ºC).

H. Construct the Joints

1. Construct Transverse Joints

   a. Construct transverse joints to facilitate full depth exposure of the course before resuming placement of the affected course.

   b. Properly clean and tack the vertical face of the transverse joint before placing additional material.

NOTE: Never burn or heat the joint by applying fuel oil or other volatile materials.

   c. Straightedge transverse joints immediately after forming the joint.

   d. Immediately correct any irregularity that exceeds 3/16 in. in 10 ft. (5 mm in 3 m).

2. Construct Longitudinal Joints

   Clean and tack the vertical face of the longitudinal joint before placing adjoining material. Construct longitudinal joints so that the joint is smooth, well-sealed, and bonded.

3. Construction Joint Detail for OGFC and PEM Mixtures

   In addition to meeting joint requirements described above, construct joints and transition areas for 12.5 mm OGFC and 12.5 mm PEM mixtures as follows:

   a. For projects which do not have milling included as a pay item:

      1) Place OGFC mixture meeting gradation requirements of 9.5 mm OGFC as specified in Section 828 on entrance and exit ramp gore areas and end of project construction joints.

         - Taper mixture from 3/8 in. (10 mm) at end of project to full plan depth within maximum distance of spread for one load of mixture.
         - Taper mixture placed on gore areas from thickness of the edge of the mainline to 3/8 in. (10 mm) at the point of the ramp transverse joint.

      2) Construct the ramp transverse joint at the point specified in the plans or as directed by the Engineer.

      3) Mixture placed in the transition and gore areas will be paid for at the contract unit price for 12.5 mm OGFC or 12.5 mm PEM, as applicable.

   b. For projects which have milling included as a pay item:

      1) Taper milling for a distance of no less than 50 ft. (15 m) to a depth of 2 1/4 in. (59 mm) at the point of the transverse joint.

      2) Taper thickness, if needed, of the dense-graded surface mix within the 50 ft. (15 m) distance to 1 1/2 in. (40 mm) at the point of the transverse joint.

      3) Taper thickness of the 12.5 mm OGFC or 12.5 mm PEM to 3/4 in. (19 mm) to ensure the material ties in at grade level with the existing surface at the point of the transverse joint

I. Protect the Pavement

Protect sections of the newly finished pavement from traffic until the traffic will not mar the surface or alter the surface texture. If directed by the Engineer, use artificial methods to cool the newly finished pavement to open the pavement to traffic more quickly.

J. Modify the Job Mix Formula

If the Engineer determines that undesirable mixture or mat characteristics are being obtained, the job mix formula may require immediate adjustment.

400.3.06 Quality Acceptance

A. Acceptance Plans for Gradation and Asphalt Cement Content

The Contractor will randomly sample and test mixtures for acceptance on a lot basis. The Department will monitor the Contractor testing program and perform comparison and quality assurance testing. The Contractor's Quality Control Technicians shall participate in the Department's Independent Assurance Systems Basis Program.

1. Determine Lot Amount

A lot consists of the tons (megagrams) of asphaltic concrete produced and placed each production day. If this production is less than 500 tons (500 Mg), or its square yard (meter) equivalent, production may be incorporated into the next working day. The Engineer may terminate a lot when a pay adjustment is imminent if a plant or materials adjustment resulting in a probable correction has been made. Terminate all open lots at the end of the month, except for materials produced and placed during the adjustment period. The lot will be terminated as described in Subsection 400.5.01, *Adjustments*.

If the final day's production does not constitute a lot, the production may be included in the lot for the previous day's run; or, the Engineer may treat the production as a separate lot with a corresponding lower number of tests.

2. Determine Lot Acceptance

Determine lot acceptance as found in Subsection 400.5.01, *Adjustments*.

The Department will perform the following task:

Determine the pay factor by using the mean of the deviations from the job mix formula of the tests in each lot and apply it to Table 10 Mixture Acceptance Schedule for Surface Mixes or Table 11 Mixture Acceptance Schedule for Subsurface Mixes, whichever is appropriate. This mean will be determined by averaging the actual numeric value of the individual deviations from the job mix formula, disregarding whether the deviations are positive or negative amounts. Do not calculate lot acceptance using test results for materials not used in the Work. Determine the pay factor for each lot by multiplying the contract unit price by the appropriate pay factor from the Mixture Acceptance Schedule - Table 10 or Table 11. When two or more pay factors for a specific lot are less than 1.0, determine the adjusted payment by multiplying the contract unit price by the lowest pay factor.

If the mean of the deviations from the job mix formula of the lot acceptance tests for a control sieve or for asphalt cement content exceeds the tolerances established in the appropriate Mixture Acceptance Schedule, and if the Engineer determines that the material need not be removed and replaced, the lot may be accepted at an adjusted unit price as determined by the Engineer. If the Engineer determines that the material is not acceptable to leave in place, the materials shall be removed and replaced at the Contractor's expense.

3. Provide Quality Control Program

Provide a Quality Control Program as established in SOP 27 which includes:

- Assignment of quality control responsibilities to specifically named individuals who have been certified by the Office of Materials and Testing
- Provisions for prompt implementation of control and corrective measures
- Provisions for communication with Project Manager, Bituminous Technical Services Engineer, and Testing Management Operations Supervisor at all times
- Provisions for reporting all test results daily through the Office of Materials and Testing computerized Field Data Collection System, AASHTO Trns*port SiteManager, or approved computerized application; other checks, calibrations and records will be reported on a form developed by the Contractor and will be included as part of the project records
- Notification in writing of any change in quality control personnel

a. Certification Requirements:

- Use laboratory and testing equipment certified by the Department. (Laboratories which participate in and maintain AASHTO accreditation for testing asphaltic concrete mixtures will be acceptable in lieu of Departmental certification.)
- Provide certified quality control personnel to perform the sampling and testing. A Quality Control Technician (QCT) may be certified at three levels:

1) Temporary Certification – must be a technician trainee who shall be given direct oversight by a certified Level 1 or Level 2 QCT while performing acceptance testing duties during the first 5 days of training. The trainee must complete qualification requirements within 30 Georgia Department of Transportation funded production days after being granted temporary certification. A trainee who does not become qualified within 30 Georgia Department of Transportation funded production days will not be re-eligible for temporary certification. A certified Level 1 or Level 2 QCT shall be at the plant at all times during production and shipment of mixture to monitor work of the temporarily certified technician.

2) Level 1 – must demonstrate they are competent in performing the process control and acceptance tests and procedures related to hot mix asphalt production and successfully pass a written exam.

3) Level 2 – must meet Level 1 requirements and must be capable of and responsible for making process control adjustments, and successfully pass a written exam.

- Technician certification is valid for 3 years from the date on the technician's certificate unless revoked or suspended. Eligible technicians may become certified through special training and testing approved by the Office of Materials and Testing. Technicians who lose their certification due to falsification of test data will not be eligible for recertification in the future unless approved by the State Materials and Testing Engineer.

b. Quality Control Management

1) Designate at least one Level 2 QCT as manager of the quality control operation. Ensure the Quality Control Manager meets the following requirements:

- Be accountable for actions of other QCT personnel.
- Ensure all applicable sampling requirements and frequencies, test procedures, and Standard Operating Procedures are followed.
- Ensure all reports, charts, and other documentation are completed as required

2) Provide QCT personnel at the plant as follows:

- If daily production for all mix types is to be greater than 250 tons (megagrams), have a QCT person at the plant at all times during production and shipment of mixture until all required acceptance tests have been completed.
- If daily production for all mix types will not be greater than 250 tons (megagrams), a QCT may be responsible for conducting tests at up to two plants, subject to random number sample selection.
- Have available at the plant, or within immediate contact by phone or radio, a Level 2 QCT responsible for making prompt process control adjustments as necessary to correct the mix.

3) Sampling, Testing, and Inspection Requirements.

a. Provide all sample containers, extractants, forms, diaries, and other supplies subject to approval of the Engineer.

b. Perform daily sampling, testing, and inspection of mixture production that meet the following requirements:

1) Randomly sample mixtures according to GSP 15 and GDT 73 (Method C) and test on a lot basis. In the event less than the specified number of samples are taken, obtain representative 6 in. (150 mm) cores from the roadway at a location where the load not sampled was placed. Take enough cores to ensure minimum sample size requirements are met for each sample needed.

2) Maintain a printed copy of the computer-generated random sampling data as a part of the project records.

3) Perform sampling, testing, and inspection duties of GSP 21.

4) Perform extraction or ignition test (GDT 83 or GDT 125) and extraction analysis (GDT 38). If the ignition oven is used, a printout of sample data including weights becomes a part of the project records. For asphalt cement content only, digital printouts of liquid asphalt cement weights may be substituted in lieu of an extraction test for plants with digital recorders. Calculate the asphalt content from the ticket representing the mixture tested for gradation.

5) Save extracted aggregate, opposite quarters, and remaining material (for possible referee testing) of each sample as follows:

- Store in properly labeled, suitable containers.
- Secure in a protected environment.
- Store for three working days. If not obtained by the Department within three days, they may be discarded in accordance with GSP 21.

6) Add the following information on load tickets from which a sample or temperature check is taken:

- Mixture temperature
- Signature of the QCT person performing the testing

7) Calibrate the lime system when hydrated lime is included in the mixture:

- Perform a minimum of twice weekly during production
- Post results at the plant for review.
- Provide records of materials invoices upon request (including asphalt cement, aggregate, hydrated lime, etc.).

8) Take action if acceptance test results are outside Mixture Control Tolerances of Section 828.

- One sample out of tolerance
  - **a.** Contact Level 2 - QCT to determine if a plant adjustment is needed.
  - **b.** Immediately run a process control sample. Make immediate plant adjustments if this sample is also out of tolerance.
  - **c.** Test additional process control samples as needed to ensure corrective action taken appropriately controls the mixture.
- Two consecutive acceptance samples of the same mix type out of tolerance regardless of Lot or mix design level, or three consecutive acceptance samples out of tolerance regardless of mix type.
  - **a.** Stop plant production immediately.
  - **b.** Reject any mixture in storage:
    - Deviating more than 10 percent in gradation from the job mix formula based on the acceptance sample.
    - Deviating more than 0.7 percent in asphalt content from the job mix formula based on the acceptance sample.
  - **c.** Make a plant correction to any mix type out of tolerance prior to resuming production.
    - Do not send any mixture to the project before test results of a process control sample meets Mixture Control Tolerances.
    - Reject any mixture produced at initial restarting that does not meet Mixture Control Tolerances.

NOTE: Determine mixture temperature at least once per hour of production for OGFC and PEM mixes.

4) Comparison Testing and Quality Assurance Program

a. Periodic comparison testing by the Department will be required of each QCT to monitor consistency of equipment and test procedures. The Department will take independent samples to monitor the Contractor's quality control program.

1) Comparison Sampling and Testing

Retain samples for comparison testing and referee testing if needed as described in Subsection 400.3.06.A.3.b.3. Discard these samples only if the Contractor's acceptance test results meet a 1.00 pay factor and the Department does not procure the samples within three working days.

The Department will test comparison samples on a random basis. Results will be compared to the respective contractor acceptance tests, and the maximum difference is as follows:

TABLE 6—ALLOWABLE PERCENT DIFFERENCE BETWEEN DEPARTMENT AND CONTRACTOR ACCEPTANCE TESTS

Sieve Size	Surface	Sub-surface
1/2 in. (12.5 mm)		4.0%
3/8 in. (9.5 mm)	3.5%	4.0%
No. 4 (4.75 mm)	3.5%	3.5%
No. 8 (2.36 mm)	2.5%	3.0%
No. 200 (75 μm)	2.0%	2.0%
A.C.	0.4%	0.5%

1) If test comparisons are within these tolerances:
   - Continue production
   - Use the Contractor's tests for acceptance of the lot

2) If test comparisons are not within these tolerances:
   - Another Departmental technician will test the corresponding referee sample.
   - Results of the referee sample will be compared to the respective contractor and Departmental tests using the tolerance for comparison samples given above.
     a. If referee test results are within the above tolerances when compared to the Contractor acceptance test, use the Contractor's test for acceptance of the effected lot.
     b. If referee test results are not within the above tolerances when compared to the Contractor acceptance test, the Department will review the Contractor's quality control methods and determine if a thorough investigation is needed.

b. Independent Verification Sampling and Testing

1) Randomly take a minimum of two independent samples from the lesser of five days or five lots of production regardless of mix type or number of projects.

2) Compare test deviation from job mix formula to Mixture Control Tolerances in Section 828. If results are outside these tolerances, another sample from the respective mix may be taken.

If test results of the additional sample are not within Mixture Control Tolerances, the Department will take the following action:

- Take random samples from throughout the subject lot(s) as established in Subsection 400.3.06.A.3.b.3 and use these test results for acceptance and in calculations for the monthly plant rating. Applicable pay factors will apply and the contractor QCT test results will not be included in pay factor calculations nor in the monthly plant rating.
- Determine if the Contractor's quality control program is satisfactory and require prompt corrective action by the Contractor if specification requirements are not being met.
- Determine if the QCT has not followed Departmental procedures or has provided erroneous information.
- Take samples of any in-place mixture represented by unacceptable QCT tests and use the additional sample results for acceptance and in calculations for the monthly plant rating and apply applicable pay factors. The Contractor QCT tests will not be included in the pay factor calculations nor in the monthly plant rating.

NOTE: For leveling or dense graded surface courses less than 110 lb./yd² (60 kg/m²) having quality assurance test results outside the Mixture Control Tolerances of Section 828, use the Department's test results only and applicable pay factors will apply.

B. Compaction

Determine the mixture compaction using either GDT 39, GDT 59, or AASHTO T 331. The method of GDT 39 for "Uncoated Specimens, Dense Graded Mixtures Only" shall not apply when the water absorption of a sample exceeds 2.0 percent, as measured according to AASHTO T 166. In this case, either AASHTO T 331 or the paraffin method of GDT 39 shall apply. The compaction is accepted in lots defined in Subsection 400.3.06. A, *Acceptance Plans for Gradation and Asphalt Cement Content* and is within the same lot boundaries as the mixture acceptance.

1. Calculate Pavement Mean Air Voids

The Department is responsible for pavement mean air void acceptance testing. The Contractor is responsible for establishing all roller patterns and any quality control testing. Upon written request by the Contractor, the Office of Materials and Testing will provide nuclear gauge testing assistance for compaction related issues.

The Department will calculate the pavement air voids placed within each lot as follows:

a. One test per sub-lot.

- Lots > 400 ton (400 Mg) of mix are divided into 5 sub-lots of equal distance.
- Lots ≤ 400 tons (400 Mg) of mix are divided into a sub-lot or sub-lots of equal distance at a rate of one per 100 tons (100 Mg) mix each (Example: 299 tons of mix require 3 sublots and 301 tons of mix require 4 sublots). There will be less than 5 sub-lots.

b. Average the results of all tests run on randomly selected sites in that lot.

c. Select representative sites randomly using GDT 73.

Density tests are not required for asphaltic concrete placed at 90 lbs./yd2 (50 kg/m2) or less, 4.75 mm mix, asphaltic concrete OGFC, PEM, and mixes placed as variable depth or width leveling. Compact these courses to the Engineer's satisfaction. Density tests will not be performed on turn-outs and driveways.

The targeted maximum Pavement Mean Air Void content for all Superpave and Stone Matrix Asphalt mixtures is 5.0 percent. Ensure that the maximum Pavement Mean Air Voids for all Superpave and Stone Matrix Asphalt mixtures does not exceed 7.0 percent. The maximum Pavement Mean Air Voids for 2 ft. shoulder widening is 9.0 percent. The adjustment period for density is four lots or four production days, whichever is less, in order for the contractor to ensure maximum compactive effort has been achieved, which will yield no more than the specified maximum allowed Mean Air Voids. One additional lot or production day of adjustment may be given for a reduction in asphalt cement content on the JMF made by the Office of Materials and Testing for mix designs incorporating the Corrected Optimum Asphalt Content COAC.

If the contractor needs to adjust the mixture to improve density results, a change in the job mix formula may be requested for approval during the adjustment period so long as the following values are not exceeded:

- Coarse pay sieve ± 4%
- No. 8 (2.36 mm) sieve ± 2%
- No. 200 (75 μm) sieve ± 1%
- Asphalt Content ± 0.2%
- All value changes must still be within specification limits.

If the Office of Materials and Testing is satisfied that the contractor has exerted the maximum compactive effort and is not able to maintain Pavement Mean Air Voids at no more than 7.0%, the Engineer may establish a maximum target for Pavement Mean Air Voids.

Ensure mixture placed during the adjustment period for density meets the requirements for a 0.90 pay factor in Table 13 of Subsection 400.5.01.C, *Calculate Mean Pavement Air Voids*. Mixture not meeting these density requirements is paid for using the applicable pay factor.

If the mean air voids of the pavement placed within a lot exceeds 100% of the maximum target air voids, if established, and the Engineer determines that the material need not be removed and replaced, the lot may be accepted at an adjusted unit price as determined by the Engineer.

2. Obtain Uniform Compaction

For a lot to receive a pay factor of 1.00 for compaction acceptance, the air void range cannot exceed 5 percent for new construction or resurfacing projects. The range is the difference between the highest and lowest acceptance test results within the affected lot. If the air void range exceeds these tolerances, apply a Pay Factor of 95%.

The 5% reduced pay factor for the compaction range does not apply in these instances:

- The mixture is placed during the adjustment period as defined in Subsection 400.5.01.A, *Materials Produced and Placed During the Adjustment Period*.
- All air void results within a given lot are less than 7.0%.
- A lot containing two sublot or less.
- On two foot trench widening.
- For sub-surfaces mixes including 19 mm and 25 mm Superpave mixes if all air void results within a given lot are >2.5 % <8 %.

When lots are reevaluated for range penalty, as shown in Subsection 106.03, *Samples, Tests, Cited Specifications*, sampling and testing is according to GDT 73. Request for reevaluation must be made within 5 working days of notification of the lot results. The following procedures apply:

The Department will reevaluate the lot through additional testing by obtaining and testing three additional cores acquired in representative sites selected randomly throughout each sub-lot representing the high and low in-place air voids as detailed in GDT 73. The additional six cores (three cores from each sub-lot will be averaged) will replace the original five core results for range specified requirements only. The original five cores' results will be reported for Pavement Mean Air Voids for the lot. This will be the final evaluation for compaction range for the lot. Lots will not be re-evaluated for range when the Pavement Mean Air Voids result in a lower than 95% pay factor. Ensure requests for reevaluation are made within 5 working days of notification of the lot results.

The Department will determine the payment for each lot by multiplying the Contract Unit Price by the adjusted pay factor shown in the Table 7 Average Air Voids Range Acceptance Schedule:

TABLE 7—AVERAGE AIR VOIDS RANGE FOR ACCEPTANCE SCHEDULE

Pay Factor	Range between High and Low Air Void Original 5 cores	Re-evaluated Range between High and Low Air Void Cores 6 New Cores obtained from High (3 cores) and Low location (3 cores)
100	≤ 5 %	≤ 4.50 %
0.95	> 5 %	> 4.50 %

C. Surface Tolerance

In this specification, pavement courses to be overlaid with an OGFC or PEM are considered surface courses. All OGFC or PEM are to be evaluated after the roadway has been opened to traffic for a minimum of 5 days and a maximum of 15 days. Asphaltic Concrete paving is subject to straightedge and visual inspection and irregularity correction as shown below:

1. Visual and Straightedge Inspection

Paving is subject to visual and straightedge inspection during and after construction operations until Final Acceptance. Locate surface irregularities as follows:

a. Keep a 10 ft. (3 m) straightedge near the paving operation to measure surface irregularities on courses. Provide the straightedge and the labor for its use.

b. Inspect the base, intermediate, and surface course surfaces with the straightedge to detect irregularities.

c. Correct irregularities that exceed 3/16 in. in 10 ft. (5 mm in 3 m) for base and intermediate courses and surface courses.

Mixture or operating techniques will be stopped if irregularities such as rippling, tearing, or pulling occur and the Engineer suspects a continuing equipment problem. Stop the paving operation and correct the problem. Correct surface course evaluations on individual Laser Road Profiler test sections, normally 1mile (1 km) long.

2. Target Surface Profile Smoothness

The Department will use the Laser Road Profiler method to conduct acceptance testing for surface course tolerance according to GDT 126. This testing will be performed only on:

- Surface courses on Projects with mainline traveled way measuring a minimum distance of 1 mile (1600 m)
- Ramps more than 0.5 mile (800 m) long

Combine partial sections measuring less than 0.5 mile (800 m) with the previous full mile for acceptance.

Achieve the smoothest possible ride during construction. Do not exceed the target Laser Road Profiler smoothness index as shown below:

TABLE 8—PAVEMENT SMOOTHNESS TARGET REQUIREMENTS

Construction Description	Smoothness Index
All Asphaltic Concrete OGFC and PEM on interstate including resurfacing and new construction. Asphaltic Concrete OGFC and PEM placed on state routes as new construction.	750
Asphaltic Concrete SMA or dense-graded surface mixtures placed directly beneath the Asphaltic Concrete OGFC or PEM on interstates. Asphaltic Concrete OGFC and PEM placed on state routes as resurfacing. All new construction on state routes with exception of OGFC and PEM as stated above.	825
All other resurfacing on state routes (excluding LARP, PR, airports, etc.)	900
All Urban new construction and resurfacing on state routes within curb and gutter sections located in posted 40 miles per hour (MPH) or less speed zones.	1175

If the target values are not achieved, immediately adjust the operations to meet the target values. Placement operations may be suspended until a remedial plan to comply with target smoothness requirements is submitted and approved by the Engineer if adjustments do not satisfy target smoothness values.

TABLE 9—PAVEMENT SMOOTHNESS CORRECTIVE WORK REQUIREMENT

Construction Description	Smoothness Index
All Asphaltic Concrete OGFC and PEM placed on interstate including resurfacing and new construction. Asphaltic Concrete OGFC and PEM placed on state routes as new construction.	825
Asphaltic Concrete SMA or dense-graded surface mixtures placed directly beneath the Asphaltic Concrete OGFC or PEM on interstates. Asphaltic Concrete OGFC and PEM placed on state routes as resurfacing. All new construction on state routes with exception of OGFC and PEM as stated above.	900
All other resurfacing on state routes (excluding LARP, PR, airports, etc.)	1025
All Urban new construction and resurfacing on state routes within curb and gutter sections located in posted 40 miles per hour (MPH) or less speed zones.	1250

If surface tolerance deficiencies need correction, obtain the Engineer's approval of the methods and type mix used.

3. Bridge Approach Profile Smoothness Quality

The following are subject to a ride quality test of roadway approaching each end of a bridge using the Laser Road Profiler, Rainhart Profiler or Lightweight Profiler:

- A state route with 4 lanes or more
- A 2-lane state route with a current traffic count two-way ADT 2,000 vpd or more
- Locations designated on the plans

All other bridge approaches not meeting the above criteria shall meet the 3/16 in. in 10 ft. (5 mm in 3 m) straightedge requirement. When the distance between the ends of two bridges, the end of a bridge and an intersection, or the end of a bridge and a vertical or horizontal curve is less than 540 ft. (165 m) and locations where the testing vehicle cannot maintain minimum testing speed while taking profile measurements will not be tested and will be subject to straightedge requirements.

The bridge approaches will meet the straightedge requirements.

Test ride quality as follows:

For Resurfacing Projects:

a. The Department will determine a profile smoothness index value using the laser road profiler in accordance with test method GDT 126.

b. The Department will determine the Half Car Simulation (HCS) IRI for each HMA asphalt 1/10th of mile (0.16 km) segments adjacent to each approach slab joint for each lane. The HCS IRI will be reported in 1/20th of mile (0.08 km) segment readings that will be averaged to calculate the final 1/10-mile section, in accordance with GDT 126.

- Correct individual bumps or depression exceeding 3/16 in. in 10 ft. (3 mm in 3 m) straightedge requirement as directed by the Engineer.
- Ensure the profile smoothness index shows an improvement over pre-construction profile smoothness or meets a profile smoothness index of ≤ 1025 mm/km (66 inches/mile) for the average 1/10 mile (0.16 km).

c. Ensure Resurfacing projects meet the profile smoothness index improvement requirement for the specified 1/10th mile (0.16 km) segment of roadway up to the bridge approach/exit slab joint.

In accordance with Section 106.3.A.3, the Contractor may request reevaluation(s) for Laser Road Profiler Test results on Resurfacing Bridge Projects and straightedge measurement(s) on either that fail to meet specified requirements. Request for reevaluation shall be made to the Engineer within 5 working days of notification of failing results. At the Engineer's approval, reevaluation of failing results using the Lightweight Profiler Test, Laser Road Profiler Test and straightedge measurement(s) shall be conducted in conjunction with representatives from the Office of Materials and Testing in accordance with GDT 126 or GDT 134, whichever is applicable. The Department will perform ride quality testing up to two times on the bridge approaches/exits at no cost to the Contractor. For these reevaluations, evaluation of the bridge exit end may be taken testing towards the bridge against traffic if the contractor provides traffic control, at the contractors' expense, upon request.

For All New Construction Projects:

a. The Department will determine a profile index value according to test method GDT 78 or GDT 134.

b. The Department will average the profile index value from the right and left wheelpath for each 100 ft. (30 m) section for each lane.

- Keep the profile index value under 30 in/mile (475 mm/km), correct individual bumps or depressions exceeding 0.2 in. (5 mm) from blanking band on the profilograph trace.

c. Ensure New Construction projects meet the profile index value for the specified 100 ft. (30 m) section of roadway up to the bridge joint.

d. Schedule the ride quality testing on All New Construction projects 5 days before needed by contacting the Office of Materials and Testing. Clean and clear obstructions from the test area.

Correct the sections that do not meet the ride quality criteria of this specification. After correction, these sections are subject to retesting with the Lightweight Profiler. The Engineer direct the type of correction method, which may include:

- Milling
- Grinding
- Removing and replacing the roadway

No additional compensation will be made.

In accordance with Section 106.3.A.3, the Contractor may request reevaluation(s) for Lightweight Profiler Test results on newly construction bridge projects, Laser Road Profiler Test results on resurfacing bridge projects and straightedge measurement(s) on either that fail to meet specified requirements. Request for reevaluation shall be made to the Engineer within 5 working days of notification of failing results. At the Engineer's approval, reevaluation of failing results using the Lightweight Profiler Test, Laser Road Profiler Test and straightedge measurement(s) shall be conducted by representatives from the Office of Materials and Testing in accordance with GDT 134.

The Department will perform ride quality testing up to two times on the bridge approaches at no cost to the Contractor. Additional testing will be charged to the Contractor in accordance with Section 500.5.01.B.

4. Surface Smoothness Acceptance

When recommended by the Office of Materials and Testing, a pay reduction may be accepted in lieu of correction for roadways and bridge approaches that fail to achieve specified smoothness indexes in accordance with SOP 46 "Procedure for Calculating Pay Reduction for Failing Roadway and Bridge Approach Smoothness" Roadway and Bridge Approach Smoothness. The Office of Materials and Testing may recommend a waiver of profile smoothness requirements when improvement over pre-construction smoothness profile exceeds 25 percent for urban roadways, as defined in Table 9.

D. Reevaluation of Lots

When lots are reevaluated as shown in Subsection 106.03, *Samples, Tests, Cited Specifications*, sampling and testing is according to GDT 73. Ensure request for reevaluation are made within 5 working days of notification of the lot results. The following procedures apply:

1. For asphaltic concrete mixtures other than OGFC and PEM mix types, thin lift courses < 110 lbs./yd^2 and mixture paid for as patching, the Department will take the same number of new tests using cores taken at randomly selected locations in accordance GDT 73. The Department will use only these test results for gradation and AC content obtained using these cores for acceptance. For OGFC and PEM mix types, thin lift courses < 110 lbs./yd^2 and mixture paid for as patching, the retained opposite quarter shall be used for mixture acceptance reevaluation when requested by the Contractor. The Department will use the absolute average deviations from the job mix formula for these tests to determine acceptance based on the appropriate column in the Asphalt Cement Content and Aggregate Gradation of Asphalt Concrete Mixture Acceptance Schedule—Table 10 or 11.
2. Compaction Acceptance

The Department will reevaluate the lot through additional testing by cutting the same number of cores originally obtained and averaging these results with the results from the original density tests. The Department will use the average to determine acceptance according to the Compaction Acceptance Schedule in Subsection 400.5.01.C, *Calculate Pavement Mean Air Voids*.

TABLE 10—MIXTURE ACCEPTANCE SCHEDULE—SURFACE MIXES

Mixture Characteristics	Pay Factor	Mean of the Deviations from the Job Mix Formula							
		1 Test	2 Tests	3 Tests	4 Tests	5 Tests	6 Tests	7 Tests	8 Tests
Asphalt Cement Content (Extraction, Ignition)	1.00	0.00 - 0.70	0.00 - 0.54	0.00 - 0.46	0.00 - 0.41	0.00 - 0.38	0.00 - 0.35	0.00 - 0.32	0.00 - 0.30
	0.95	0.71 - 0.80	0.55 - 0.61	0.47 - 0.52	0.42 - 0.46	0.39 - 0.43	0.36 - 0.39	0.33 - 0.36	0.31 - 0.34
	0.90	0.81 - 0.90	0.62 - 0.68	0.53 - 0.58	0.47 - 0.51	0.44 - 0.47	0.40 - 0.45	0.37 - 0.40	0.35 - 0.37
	0.80	0.91 - 1.00	0.69 - 0.75	0.59 - 0.64	0.52 - 0.56	0.48 - 0.52	0.44 - 0.47	0.41 - 0.44	0.38 - 0.41
	0.70	1.01 - 1.19	0.76 - 0.82	0.65 - 0.69	0.57 - 0.61	0.53 - 0.56	0.48 - 0.51	0.45 - 0.47	0.42 - 0.44
	0.50	1.20 - 1.40	0.83 - 0.85	0.70 - 0.72	0.62 - 0.64	0.57 - 0.59	0.52 - 0.55	0.48 - 0.51	0.45 - 0.48
3/8 in. (9.5 mm) Sieve (12.5 mm OGFC, 12.5 mm PEM, 12.5 mm Superpave)	1.00	0.00 – 9.0	0.00 - 6.6	0.00 - 5.6	0.00 - 5.0	0.00 - 4.6	0.00 - 4.2	0.00 - 3.9	0.00 - 3.6
	0.98	9.1 - 10.0	6.7 - 7.5	5.7 - 6.3	5.1 - 5.6	4.7 - 5.2	4.3 - 4.7	4.0 - 4.4	3.7 - 4.1
	0.95	10.1 - 11.9	7.6 - 8.4	6.4 - 7.0	5.7 - 6.3	5.3 - 5.8	4.8 - 5.3	4.5 - 5.0	4.2 - 4.6
	0.90	12.0 - 13.0	8.5 - 9.3	7.1 - 7.7	6.4 - 6.9	5.9 - 6.3	5.4 - 5.8	5.1 - 5.4	4.7 - 5.0
	0.85	13.1 - 14.0	9.4 - 10.2	7.8 - 8.6	7.0 - 7.6	6.4 - 6.9	5.9 - 6.3	5.5 - 5.9	5.1 - 5.5
	0.80	14.1 - 14.5	10.3 - 10.5	8.7 - 8.9	7.7 - 8.0	7.0 - 7.5	6.4 - 6.8	6.0 - 6.4	5.6 - 6.0
3/8 in. (9.5 mm) Sieve (12.5 mm SMA)	1.00	0.0 - 6.8	0.00 - 5.0	0.00 - 4.2	0.00 - 3.8	0.00 - 3.4	0.00 - 3.2	0.00 - 2.9	0.00 - 2.7
	0.98	6.9 - 7.5	5.1 - 5.6	4.3 - 4.7	3.9 - 4.2	3.5 - 3.9	3.3 - 3.5	3.0 - 3.3	2.8 - 3.1
	0.95	7.6 - 8.9	5.7 - 6.3	4.8 - 5.2	4.3 - 4.7	4.0 - 4.4	3.6 - 4.0	3.4 - 3.8	3.2 - 3.4
	0.90	9.0 - 9.8	6.4 - 7.0	5.3 - 5.8	4.8 - 5.2	4.5 - 4.8	4.1 - 4.4	3.9 - 4.1	3.5 - 3.8
	0.85	9.9 - 10.5	7.1 - 7.6	5.9 - 6.4	5.3 - 5.7	4.9 - 5.2	4.5 - 4.7	4.2 - 4.4	3.9 - 4.1
	0.80	10.6 - 10.9	7.7 - 7.9	6.5 - 6.7	5.8 - 6.0	5.3 - 5.6	4.8 - 5.1	4.5 - 4.8	4.2 - 4.5
No. 4 (4.75 mm) Sieve (9.5 mm OGFC, 9.5 mm Superpave)	1.00	0.00 - 9.0	0.00 - 6.7	0.00 - 5.7	0.00 - 5.2	0.00 - 4.8	0.00 - 4.4	0.00 - 4.1	0.00 - 3.8
	0.98	9.1 - 10.0	6.8 - 7.6	5.8 - 6.3	5.3 - 5.8	4.9 - 5.4	4.5 - 4.9	4.2 - 4.6	3.9 - 4.3
	0.95	10.1 - 11.9	7.7 - 8.5	6.4 - 6.9	5.9 - 6.4	5.5 - 5.9	5.0 - 5.4	4.7 - 5.0	4.4 - 4.7
	0.90	12.0 - 13.0	8.6 - 9.4	7.0 - 7.5	6.5 - 7.0	6.0 - 6.5	5.5 - 5.9	5.1 - 5.5	4.8 - 5.1

Mixture Characteristics	Pay Factor	Mean of the Deviations from the Job Mix Formula							
		1 Test	2 Tests	3 Tests	4 Tests	5 Tests	6 Tests	7 Tests	8 Tests
	0.85	13.1 - 14.0	9.5 - 10.2	7.6 - 8.0	7.1 - 7.6	6.6 - 7.0	6.0 - 6.4	5.6 - 5.9	5.2 - 5.5
	0.80	14.1 - 14.5	10.3 - 10.5	8.1 - 8.3	7.7 - 8.0	7.1 - 7.5	6.5 - 6.9	6.0 - 6.4	5.6 - 5.9
No. 4 (4.75 mm) Sieve (9.5 mm SMA)	1.00	0.00 - 6.8	0.00 - 5.0	0.00 - 4.3	0.00 - 3.9	0.00 - 3.6	0.00 - 3.3	0.00 - 3.1	0.00 - 2.8
	0.98	6.9 - 7.5	5.1 - 5.7	4.4 - 4.7	4.0 - 4.4	3.7 - 4.0	3.4 - 3.7	3.2 - 3.4	2.9 - 3.2
	0.95	7.6 - 8.9	5.8 - 6.4	4.8 - 5.2	4.5 - 4.8	4.1 - 4.4	3.8 - 4.0	3.5 - 3.8	3.3 - 3.5
	0.90	9.0 - 9.8	6.5 - 7.0	5.3 - 5.6	4.9 - 5.2	4.5 - 4.9	4.1 - 4.4	3.9 - 4.1	3.6 - 3.8
	0.85	9.9 - 10.5	7.1 - 7.7	5.7 - 6.0	5.3 - 5.7	5.0 - 5.2	4.3 - 4.8	4.2 - 4.4	3.9 - 4.1
	0.80	10.6 - 10.9	7.8 - 7.9	6.1 - 6.2	5.8 - 6.0	5.3 - 5.6	4.9 - 5.2	4.5 - 4.8	4.2 - 4.4
No. 8 (2.36 mm) Sieve (OGFC, PEM, Superpave and 4.75 mm mixes)	1.00	0.00 - 7.0	0.00 - 5.6	0.00 - 4.8	0.00 - 4.3	0.00 - 4.0	0.00 - 3.6	0.00 - 3.4	0.00 - 3.2
	0.98	7.1 - 8.0	5.7 - 6.3	4.9 - 5.4	4.4 - 4.8	4.1 - 4.5	3.7 - 4.1	3.5 - 3.8	3.3 - 3.6
	0.95	8.1 - 9.0	6.4 - 7.0	5.5 - 6.0	4.9 - 5.3	4.6 - 4.9	4.2 - 4.5	3.9 - 4.2	3.7 - 3.9
	0.90	9.1 - 10.9	7.1 - 7.7	6.1 - 6.6	5.4 - 5.8	5.0 - 5.4	4.6 - 4.9	4.3 - 4.6	4.0 - 4.3
	0.85	11.0 - 12.0	7.8 - 8.5	6.7 - 7.2	5.9 - 6.4	5.5 - 5.8	5.0 - 5.3	4.7 - 5.0	4.4 - 4.6
	0.75	12.1 - 12.5	8.6 - 8.8	7.3 - 7.5	6.5 - 6.8	5.9 - 6.3	5.4 - 5.7	5.1 - 5.3	4.7 - 4.9
No. 8 (2.36 mm) Sieve (12.5 mm SMA, 9.5 mm SMA)	1.00	0.00 - 5.3	0.00 - 4.2	0.00 - 3.6	0.00 - 3.2	0.00 - 3.0	0.00 - 2.7	0.00 - 2.6	0.00 - 2.4
	0.98	5.4 - 6.0	4.3 - 4.7	3.7 - 4.0	3.3 - 3.6	3.1 - 3.4	2.8 - 3.1	2.7 - 2.9	2.5 - 2.7
	0.95	6.1 - 6.8	4.8 - 5.3	4.1 - 4.5	3.7 - 4.0	3.5 - 3.7	3.2 - 3.4	3.0 - 3.2	2.8 - 2.9
	0.90	6.9 - 8.2	5.4 - 5.8	4.6 - 5.0	4.1 - 4.5	3.8 - 4.0	3.5 - 3.7	3.3 - 3.5	3.0 - 3.2
	0.85	8.3 - 9.0	5.9 - 6.4	5.1 - 5.4	4.6 - 4.8	4.1 - 4.4	3.8 - 4.0	3.6 - 3.8	3.3 - 3.4
	0.75	9.1 - 9.4	6.5 - 6.6	5.5 - 5.0	4.9 - 5.1	4.5 - 4.7	4.1 - 4.3	3.9 - 4.0	3.5 - 3.7
No. 8 (2.36 mm) Sieve for OGFC and PEM mixes: When the mean of the deviations from the Job Mix Formula for a particular lot exceeds the tolerance for a 1.00 pay factor in the appropriate column, the lot will be paid for at 0.50 of the Contract Price.									

TABLE 11—MIXTURE ACCEPTANCE SCHEDULE—SUBSURFACE MIXES

Mixture Characteristics	Pay Factor	Mean of the Deviations from the Job Mix Formula							
		1 Test	2 Tests	3 Tests	4 Tests	5 Tests	6 Tests	7 Tests	8 Tests
Asphalt Cement Content (Extraction, Ignition)	1.00	0.00 - 0.80	0.00 - 0.61	0.00 - 0.52	0.00 - 0.46	0.00 - 0.43	0.00 - 0.39	0.00 - 0.36	0.00 - 0.34
	0.95	0.81 - 0.90	0.62 - 0.68	0.53 - 0.58	0.47 - 0.51	0.44 - 0.47	0.40 - 0.43	0.37 - 0.40	0.35 - 0.37
	0.90	0.91 - 1.00	0.69 - 0.75	0.59 - 0.64	0.52 - 0.56	0.48 - 0.52	0.44 - 0.47	0.41 - 0.44	0.38 - 0.41
	0.80	1.01 - 1.19	0.76 - 0.82	0.65 - 0.69	0.57 - 0.61	0.53 - 0.56	0.48 - 0.51	0.45 - 0.47	0.42 - 0.44
	0.70	1.20 - 1.40	0.83 - 0.85	0.70 - 0.72	0.62 - 0.64	0.57 - 0.59	0.52 - 0.55	0.48 - 0.51	0.45 - 0.48
	0.50	1.41 - 1.60	0.86 - 0.88	0.73 - 0.75	0.65 - 0.67	0.60 - 0.63	0.56 - 0.60	0.52 - 0.56	0.49 - 0.52
1/2 in. (12.5 mm) Sieve (25 mm Superpave)	1.00	0.00 - 12.9	0.00 - 8.1	0.00 - 6.9	0.00 - 6.1	0.00 - 5.5	0.00 - 5.0	0.00 - 4.7	0.00 - 4.4
	0.98	13.0 - 14.0	8.2 - 9.1	7.0 - 7.7	6.2 - 6.8	5.6 - 6.1	5.1 - 5.6	4.8 - 5.2	4.5 - 4.9
	0.95	14.1 - 15.0	9.2 - 10.1	7.8 - 8.5	6.9 - 7.5	6.2 - 6.7	5.7 - 6.1	5.3 - 5.7	5.0 - 5.4
	0.90	15.1 - 16.0	10.2 - 11.1	8.6 - 9.3	7.6 - 8.2	6.8 - 7.4	6.2 - 6.7	5.8 - 6.3	5.5 - 5.9
	0.85	16.1 - 17.0	11.2 - 11.5	9.4 - 9.6	8.3 - 8.6	7.5 - 7.8	6.8 - 7.0	6.4 - 6.5	6.0 - 6.1
	0.80	17.1 - 18.0	11.6 - 11.9	9.7 - 9.9	8.7 - 9.0	7.9 - 8.1	7.1 - 7.3	6.6 - 6.8	6.2 - 6.4
1/2 in. (12.5 mm) Sieve (19 mm SMA)	1.00	0.00 - 9.7	0.00 - 6.0	0.00 - 5.2	0.00 - 4.6	0.00 - 4.1	0.00 - 3.8	0.00 - 3.5	0.00 - 3.3
	0.98	9.8 - 10.5	6.2 - 6.8	5.3 - 5.8	4.7 - 5.1	4.2 - 4.6	3.9 - 4.2	3.6 - 3.9	3.4 - 3.7
	0.95	10.6 - 11.2	6.9 - 7.8	5.9 - 6.4	5.2 - 5.6	4.7 - 5.0	4.3 - 4.6	4.0 - 4.3	3.8 - 4.0
	0.90	11.3 - 12.0	7.9 - 8.3	6.5 - 7.0	5.7 - 6.1	5.1 - 5.6	4.7 - 5.0	4.4 - 4.7	4.1 - 4.4
	0.85	12.1 - 12.8	8.4 - 8.6	7.1 - 7.2	6.2 - 6.5	5.7 - 5.9	5.1 - 5.3	4.8 - 4.9	4.5 - 5.6
	0.80	12.9 - 13.5	8.7 - 8.9	7.3 - 7.4	6.6 - 6.8	6.0 - 6.1	5.4 - 5.5	5.0 - 5.1	4.7 - 4.8
3/8 in. (9.5 mm) Sieve (19 mm Superpave, 12.5 mm Superpave)	1.00	0.00 - 10.0	0.00 - 7.5	0.00 - 6.3	0.00 - 5.6	0.00 - 5.2	0.00 - 4.7	0.00 - 4.4	0.00 - 4.1
	0.98	10.1 - 11.9	7.6 - 8.4	6.4 - 7.0	5.7 - 6.3	5.3 - 5.8	4.8 - 5.3	4.5 - 5.0	4.2 - 4.6
	0.95	12.0 - 13.0	8.5 - 9.3	7.1 - 7.7	6.4 - 6.9	5.9 - 6.3	5.4 - 5.8	5.1 - 5.4	4.7 - 5.0
	0.90	13.1 - 14.0	9.4 - 10.2	7.8 - 8.6	7.0 - 7.6	6.4 - 6.9	5.9 - 6.3	5.5 - 5.9	5.1 - 5.5

Mixture Characteristics	Pay Factor	Mean of the Deviations from the Job Mix Formula							
		1 Test	2 Tests	3 Tests	4 Tests	5 Tests	6 Tests	7 Tests	8 Tests
	0.85	14.1 - 14.5	10.3 - 10.5	8.7 - 8.9	7.7 - 8.0	7.0 - 7.5	6.4 - 6.8	6.0 - 6.4	5.6 - 6.0
	0.80	14.6 - 15.0	10.6 - 10.8	9.0 - 9.2	8.1 - 8.4	7.6 - 7.8	6.9 - 7.3	6.5 - 6.8	6.1 - 6.5
No. 4 (4.75 mm) Sieve (9.5 mm Superpave)	1.00	0.00 - 10.0	0.00 - 7.6	0.00 - 6.3	0.00 - 5.8	0.00 - 5.4	0.00 - 4.9	0.00 - 4.6	0.00 - 4.3
	0.98	10.1 - 11.9	7.7 - 8.5	6.4 - 6.9	5.9 - 6.4	5.5 - 5.9	5.0 - 5.4	4.7 - 5.0	4.4 - 4.7
	0.95	12.0 - 13.0	8.6 - 9.4	7.0 - 7.5	6.5 - 7.0	6.0 - 6.5	5.5 - 5.9	5.1 - 5.5	4.8 - 5.1
	0.90	13.1 - 14.0	9.5 - 10.2	7.6 - 8.0	7.1 - 7.6	6.6 - 7.0	6.0 - 6.4	5.6 - 5.9	5.2 - 5.5
	0.85	14.1 - 14.5	10.3 - 10.5	8.1 - 8.3	7.7 - 8.0	7.1 - 7.5	6.5 - 6.9	6.0 - 6.4	5.6 - 5.9
	0.80	14.6 - 15.0	10.6 - 10.8	8.4 - 8.6	8.1 - 8.4	7.6 - 8.0	7.0 - 7.4	6.5 - 6.8	6.0 - 6.3
No. 8 (2.36 mm) Sieve (All mixes except SMA)	1.00	0.00 - 8.0	0.00 - 6.3	0.00 - 5.4	0.00 - 4.8	0.00 - 4.5	0.00 - 4.1	0.00 - 3.8	0.00 - 3.6
	0.98	8.1 - 9.0	6.4 - 7.0	5.5 - 6.0	4.9 - 5.3	4.6 - 4.9	4.2 - 4.5	3.9 - 4.2	3.7 - 3.9
	0.95	9.1 - 10.0	7.1 - 7.7	6.1 - 6.6	5.4 - 5.8	5.0 - 5.4	4.6 - 4.9	4.3 - 4.6	4.0 - 4.3
	0.90	10.1 - 11.9	7.8 - 8.5	6.7 - 7.2	5.9 - 6.4	5.5 - 5.8	5.0 - 5.3	4.7 - 5.0	4.4 - 4.6
	0.85	12.0 - 13.0	8.6 - 8.8	7.3 - 7.5	6.5 - 6.8	5.9 - 6.3	5.4 - 5.7	5.1 - 5.3	4.7 - 4.9
	0.75	13.1 - 14.0	8.9 - 9.1	7.6 - 7.8	6.9 - 7.2	6.4 - 6.6	5.8 - 6.1	5.4 - 5.7	5.0 - 5.3
No. 8 (2.36 mm) Sieve (19 mm SMA)	1.00	0.00 - 6.0	0.00 - 4.7	0.00 - 4.1	0.00 - 3.6	0.00 - 3.4	0.00 - 3.1	0.00 - 2.9	0.00 - 2.4
	0.98	6.1 - 6.8	4.8 - 5.2	4.2 - 4.5	3.7 - 4.0	3.5 - 3.7	3.2 - 3.4	3.0 - 3.2	2.8 - 2.9
	0.95	6.9 - 7.5	5.3 - 5.8	4.6 - 5.0	4.1 - 4.4	3.8 - 4.0	3.5 - 3.7	3.3 - 3.5	3.0 - 3.2
	0.90	7.6 - 8.9	5.9 - 6.4	5.1 - 5.4	4.5 - 4.8	4.1 - 4.4	3.8 - 4.0	3.6 - 3.8	3.3 - 3.5
	0.85	9.0 - 9.8	6.5 - 6.6	5.5 - 5.6	4.9 - 5.1	4.5 - 4.7	4.1 - 4.3	3.9 - 4.0	3.6 - 3.7
	0.75	9.9 - 10.5	6.7 - 6.8	5.7 - 5.9	5.2 - 5.4	4.8 - 5.0	4.4 - 4.6	4.1 - 4.3	3.8 - 4..0

E. Segregated Mixture

Prevent mixture placement yielding a segregated mat by following production, storage, loading, placing, and handling procedures. Ensure needed plant modifications and provide necessary auxiliary equipment. (See Subsection 400.1.01, *Definitions*.)

If the mixture is segregated in the finished mat, the Department will take actions based on the degree of segregation. The actions are described below.

1. Unquestionably Unacceptable Segregation

   When the Engineer determines the segregation in the finished mat is unquestionably unacceptable, follow these measures:

   a. Suspend Work and require the Contractor to take positive corrective action. The Department will evaluate the segregated areas to determine the extent of the corrective work to the in-place mat as follows:

      - Perform extraction and gradation analysis by taking 6 in. (150 mm) cores from typical, visually unacceptable segregated areas.
      - Determine the corrective work according to Subsection 400.3.06.E.3.

   b. Require the Contractor to submit a written plan of measures and actions to prevent further segregation. Work will not continue until the plan is submitted to and approved by the Department.

   c. When work resumes, place a test section not to exceed 500 tons (500 Mg) of the affected mixture for the Department to evaluate. If a few loads show that corrective actions were not adequate, follow the measures above beginning with step 1.a. above. If the problem is solved, work may continue.

2. Unacceptable Segregation Suspected

   When the Engineer observes segregation in the finished mat and the work may be unacceptable, follow these measures:

   a. Allow work to continue at Contractor's risk.

   b. Require Contractor to immediately and continually adjust operation until the visually apparent segregated areas are eliminated from the finished mat. The Department will immediately investigate to determine the severity of the apparent segregation as follows:

      - Take 6 in. (150 mm) cores from typical areas of suspect segregation.
      - Test the cores for compliance with the mixture control tolerances in Section 828.

   When these tolerances are exceeded, suspend work for corrective action as outlined in Subsection 400.3.06.E.3.

3. Corrective Work

   a. Remove and replace (at the Contractor's expense) any segregated area where the gradation on the control sieves is found to vary 10 percent or more from the approved job mix formula, the asphalt cement varies 1.0% or more from the approved job mix formula, or if in-place air voids exceed 13.5% based on GDT 39. The control sieves for each mix type are shown in Subsection 400.5.01.B *Determine Lot Acceptance*.

   b. Subsurface mixes. For subsurface mixes, limit removal and replacement to the full lane width and no less than 10 ft. (3 m) long and as approved by the Engineer.

   c. Surface Mixes. For surface mixes, ensure that removal and replacement is not less than the full width of the affected lane and no less than the length of the affected areas as determined by the Engineer.

   d. Surface tolerance requirements apply to the corrected areas for both subsurface and surface mixes.

400.3.07 Contractor Warranty and Maintenance

A. Contractor's Record

Maintain a dated, written record of the most recent plant calibration. Keep this record available for the Engineer's inspection at all times. Maintain records in the form of:

- Graphs
- Tables
- Charts
- Mechanically prepared data

400.4 Measurement

Thickness and spread rate tolerances for the various mixtures are specified in Subsection 400.4.A.2.b, Table 12, Thickness and Spread Rate Tolerance at Any Given Location. These tolerances are applied as outlined below:

A. Hot Mix Asphaltic Concrete Paid for by Weight

1. Plans Designate a Spread Rate

   a. Thickness Determinations. Thickness determinations are not required when the plans designate a spread rate per square yard (meter).

      If the spread rate exceeds the upper limits outlined in the Subsection 400.4.A.2.b, Table 12, *Thickness and Spread Rate Tolerance at Any Given Location*, the mix in excess will not be paid for.

      If the rate of spread is less than the lower limit, correct the deficient course by overlaying the entire lot.

      The mixture used for correcting deficient areas is paid for at the Contract Unit Price of the course being corrected and is subject to the Mixture Acceptance Schedule—Table 10 or 11.

   b. Recalculate the Total Spread Rate. After the deficient hot mix course has been corrected, the total spread rate for that lot is recalculated, and mix in excess of the upper tolerance limit as outlined in the Subsection 400.4.A.2.b, Table 12, *Thickness and Spread Rate Tolerance at Any Given Location* is not paid for.

      The quantity of material placed on irregular areas such as driveways, turnouts, intersections, feather edge section, etc., is deducted from the final spread determination for each lot.

2. Plans Designate Thickness

   If the average thickness exceeds the tolerances specified in the Subsection 400.4.A.2.b, Table 12, *Thickness and Spread Rate Tolerance at Any Given Location*, the Engineer shall take cores to determine the area of excess thickness. Excess quantity will not be paid for.

   If the average thickness is deficient by more than the tolerances specified in the Thickness and Spread Rate Tolerance at Any Given Location table below, the Engineer shall take additional cores to determine the area of deficient thickness. Correct areas with thickness deficiencies as follows:

   a. Overlay the deficient area with the same mixture type being corrected or with an approved surface mixture. The overlay shall extend for a minimum of 300 ft. (90 m) for the full width of the course.

   b. Ensure that the corrected surface course complies with Subsection 400.3.06.C.1, *Visual and Straightedge Inspection*. The mixture required to correct a deficient area is paid for at the Contract Unit Price of the course being corrected.

      The mixture is subject to the Mixture Acceptance Schedule—Table 10 or 11. The quantity of the additional mixture shall not exceed the required calculated quantity used to increase the average thickness of the overlaid section to the maximum tolerance allowed under the following table.

TABLE 12—THICKNESS AND SPREAD RATE TOLERANCE AT ANY GIVEN LOCATION

Course	Thickness Specified	Spread Rate Specified
Asphaltic concrete base course	± 0.5 in. (± 13 mm)	± 55 lbs./yd^2 (30 kg/m^2)
Intermediate and/or wearing course	± 0.25 in. (± 6 mm)	± 27.5 lbs./yd^2 (15 kg/m^2)
Overall of any combination of 1 and 2	± 0.5 in. (± 13 mm)	± 55 lbs./yd^2 (30 kg/m^2)

Note: For asphaltic concrete 9.5 mm OGFC and 12.5 mm OGFC, control the spread rate per lot within 7 lbs./yd^2 (4 kg/m^2) of the designated spread rate. For asphaltic concrete 12.5 mm PEM, control the spread rate per lot within 10 lbs./yd^2 (6 kg/m^2) of the designated spread rate.

Note: Thickness and spread rate tolerances are provided to allow normal variations within a given lot. Do not continuously operate at a thickness of spread rate not specified.

When the plans specify a thickness, the Engineer may take as many cores as necessary to determine the average thickness of the intermediate or surface course. The Engineer shall take a minimum of one core per 1,000 ft. (300 m) per two lanes of roadway. Thickness will be determined by average measurements of each core according to GDT 42.

If the average exceeds the tolerances specified in the *Subsection 400.4.A.2.b, Table 12, Thickness and Spread Rate Tolerance at Any Given Location*, additional cores will be taken to determine the area of excess thickness and excess tonnage will not be paid for.

B. Hot Mix Asphaltic Concrete Paid for by Square Yard (Meter)

1. The thickness of the base course or the intermediate or surface course will be determined by the Department by cutting cores and the thickness will be determined by averaging the measurements of each core.
2. If any measurement is deficient in thickness more than the tolerances given in the table above, additional cores will be taken by the Department to determine the area of thickness deficiency. Correct thickness deficiency areas as follows:
   a. Overlay the deficient area with the same type mixtures being corrected or with surface mixture. Extend the overlay at least 300 ft. (90 m) for the full width of the course.
   b. Ensure the corrected surface course complies with Subsection 400.3.06.C.1, *Visual and Straightedge Inspection*.
   c. The mixture is subject to the Mixture Acceptance Schedule—Table 10 or 11.
3. No extra payment is made for mixtures used for correction.
4. No extra payment is made for thickness in excess of that specified.

C. Asphaltic Concrete

Hot mix asphaltic concrete, complete in place and accepted, is measured in tons (megagrams) or square yards (meters) as indicated in the Proposal. If payment is by the ton (megagram), the actual weight is determined by weighing each loaded vehicle on the required motor truck scale as the material is hauled to the roadway, or by using recorded weights if a digital recording device is used.

The weight measured includes all materials. No deductions are made for the weight of the individual ingredients. The actual weight is the pay weight except when the aggregates used have a combined bulk specific gravity greater than 2.75. In this case the pay weight is determined according to the following formula:

$$T1 = T \times \left\{ \frac{\% AC + \left(\frac{\% \text{ Aggregate} \times 2.75}{\text{combined bulk Specific Gravity}} \right) + \% Y}{100} \right\}$$

Where:

T1	Pay weight, tonnage (Mg)
T=	Actual weight
% AC=	Percent asphalt cement by weight of total mixture
% Aggregate =	Percent aggregate by weight of total mixture minus the hydrated lime
Combined Bulk Sp. Gr.=	Calculated combined bulk specific gravity of various mineral aggregates used in the mixture
% Y=	Percent hydrated lime by weight of mineral aggregate

D. Bituminous Material

Bituminous material is not measured for separate payment.

E. Hydrated Lime

When hydrated lime is used as an anti-stripping additive, it is not measured for separate payment.

F. Field Laboratory

The field laboratory required in this specification is not measured for separate payment.

G. Asphaltic Concrete Leveling

Payment of hot mix asphaltic concrete leveling, regardless of the type mix, is full compensation for furnishing materials, bituminous materials, and hydrated lime (when required) for patching and repair of minor defects, surface preparation, cleaning, hauling, mixing, spreading, and rolling.

Mixture for leveling courses is subject to the acceptance schedule as stated in Subsection 400.3.06.A and Subsection 400.3.06.B.

H. Asphaltic Concrete Patching

Hot mix asphaltic concrete patching, regardless of the type mix, is paid for at the Contract Unit Price per ton (Megagram), complete in place and accepted. Payment is full compensation for:

- Furnishing materials such as bituminous material and hydrated lime (when required)
- Preparing surface to be patched
- Cutting areas to be patched, trimmed, and cleaned
- Hauling, mixing, placing, and compacting the materials

When mixture for patching is paid for by the Department, ensure the mixture is subject to the acceptance schedule as stated in Subsection 400.3.06.A.

400.4.01 Limits

When the asphaltic concrete is paid for by the square yard (meter) and multiple lifts are used, the number and thickness of the lifts are subject to the Engineer's approval and are used to prorate the pay factor for the affected roadway section.

400.5 Payment

When materials or construction are not within the tolerances in this specification, the Contract Price will be adjusted according to Subsection 106.03, *Samples, Tests, Cited Specifications* and Subsection 400.3.06, *Quality Acceptance*.

Hot mix asphaltic concrete of the various types are paid for at the Contract Unit Price per ton (megagram) or per square yard (meter). Payment is full compensation for furnishing and placing materials including asphalt cement, hydrated lime when required, approved additives, and for cleaning and repairing, preparing surfaces, hauling, mixing, spreading, rolling, and performing other operations to complete the Contract Item.

Payment will be made under:

Item No. 400	Asphaltic concrete type Superpave, group-blend, Including polymer-modified bituminous materials and hydrated lime	Per ton (megagram)
Item No. 400	Asphaltic concrete type, Superpave, group-blend, including bituminous materials and hydrated lime	Per ton (megagram)
Item No. 400	Asphaltic concrete type Superpave, group-blend, Including bituminous materials, Gilsonite modifier, and hydrated lime	Per ton (megagram)
Item No. 400	_____ inches asphaltic concrete, type Superpave, group-blend including bituminous materials, Gilsonite modifier and hydrated lime	Per square yard (meter)
Item No. 400	Asphaltic concrete type Stone Matrix Asphalt, group-blend, including polymer-modified bituminous materials and hydrated lime	Per ton (megagram)
Item No. 400	Asphaltic concrete type OGFC, group 2 only, including bituminous materials and hydrated lime	Per ton (megagram)
Item No. 400	Asphaltic concrete type OGFC, group 2 only, including polymer-modified bituminous materials and hydrated lime	Per ton (megagram)
Item No. 400	Asphaltic concrete type Porous European Mix, group 2 only, including polymer-modified bituminous materials and hydrated lime	Per ton (megagram)

400.5.01 Adjustments

A. Materials Produced and Placed During the Adjustment Period

An adjustment period is allowed at the start of mixing operations for each type of mix placed on the Contract. Asphaltic Concrete OGFC or PEM shall be granted an adjustment period for the first 500 tons (500 Mg) produced for the Contract. A new adjustment period shall not be granted for a change of producer, mix design or asphalt plant location. The adjustment period is provided to adjust or correct the mix and to establish the construction procedures and sequence of operations.

The adjustment period consists of the tons (megagrams) of the affected mix produced and placed on the first day of operation. If this quantity is less than 500 tons (500 Mg), the Engineer may combine the tons (megagrams) produced and placed on the first day of operation with the tons (megagrams) produced and placed on the next production day of the affected mix for the adjustment period.

The material produced and placed during the mixture adjustment period is one lot. If the mix is adjusted during this period, a new lot may be necessary, but a new adjustment period will not be permitted.

This material shall be paid for at 100 percent of the Contract Unit Price provided it meets the minimum requirements for a 1.00 pay factor for asphalt cement content and a 0.90 pay factor for gradation in the Mixture Acceptance Schedule—Table 10 or 11.

If the material placed during the adjustment period fails to meet the above requirements, it will be paid for using the applicable acceptance schedule. However, when mixture used for leveling at a spread rate of 90 lbs./yd² (50 kg/m²) or less is also used for the surface mix at a spread rate greater than 90 lbs./yd² (50 kg/m²), an additional adjustment period will be allowed for compaction only. This material will be paid for at a 1.00 pay factor provided it:

- Meets the minimum requirements for a 1.00 pay factor in the Mixture Acceptance Schedule—Table 10 or 11 for both asphalt content and gradation.
- Meets the minimum requirements for a 0.90 pay factor in Table 13 of Subsection 400.5.01C, *Calculate Mean Pavement Air Voids*.

Mixture which does not meet these requirements shall be paid for using the applicable acceptance schedule.

B. Determine Lot Acceptance

Pay factor adjustments are based on control sieves and asphalt cement content. The control sieves used in the mixture acceptance schedule for the various types of mix are indicated below:

Control Sieves Used in the Mixture Acceptance Schedule	
Asphaltic concrete 25 mm Superpave	1/2 in., No. 8 (12.5 mm, 2.36 mm) sieves and asphalt cement
Asphaltic concrete 19 mm SMA	1/2 in., No. 8 (12.5 mm, 2.36 mm) sieves and asphalt cement
Asphaltic concrete 19 mm Superpave	3/8 in., No. 8 (9.5 mm, 2.36 mm) sieves and asphalt cement
Asphaltic concrete 12.5 mm Superpave	3/8 in., No. 8 (9.5 mm, 2.36 mm) sieves and asphalt cement
Asphaltic concrete 12.5 mm SMA	3/8 in., No. 8 (9.5 mm, 2.36 mm) sieves and asphalt cement
Asphaltic concrete 12.5 mm PEM	3/8 in., No. 8 (9.5 mm, 2.36 mm) sieves and asphalt cement
Asphaltic concrete 12.5 mm OGFC	3/8 in., No. 8 (9.5 mm, 2.36 mm) sieves and asphalt cement
Asphaltic concrete 9.5 mm Superpave	No. 4, No. 8 (4.75 mm, 2.36 mm) sieves and asphalt cement
Asphaltic concrete 9.5 mm SMA	No. 4, No. 8 (4.75 mm, 2.36 mm) sieves and asphalt cement
concrete 9.5 mm OGFC	No. 4, No. 8 (4.75 mm, 2.36 mm) sieves and asphalt cement
Asphaltic concrete 4.75 mm Mix	No. 8 (2.36 mm) sieve and asphalt cement

For projects which do not have milling quantities established as a Pay Item, the Department will pay for 12.5 mm OGFC and PEM placed on ramps and end of project transitions under the appropriate mixture pay item, but the mix shall be subject to the same gradation and control sieve requirements as asphaltic concrete 9.5 mm OGFC. Add polymer-modified bituminous material, hydrated lime, and stabilizing fiber to this mix.

The Department will perform the following tasks:

1. Using the Mixture Acceptance Schedule—Table 10 or 11, determine the mean of the deviations from the job mix formula per test results per lot.
2. Determine this mean by averaging the actual numeric value of the individual deviations from the job mix formula; disregard whether the deviations are positive or negative amounts.
3. Use the Asphalt Cement Content and Aggregate Gradation of Asphalt Concrete Mixture Acceptance Schedule—Table10 to determine acceptance of surface mixes and the Mixture Acceptance Schedule—Table 11 to determine acceptance of subsurface mixes.

On Contracts involving 1,000 tons (1000 Mg) or less of asphaltic concrete, the mixture is accepted for 100 percent payment of the asphaltic concrete Unit Price provided it meets the following:

1. Minimum requirements for a 1.00 pay factor for asphalt cement content and a 0.90 pay factor for gradation in the applicable Mixture Acceptance Schedule—Table 10 or 11.
2. Minimum requirements for a 0.90 pay factor in Table 13 of Subsection 400.5.01C, *Calculate Pavement Mean Air Voids*.

If the material placed on Contracts involving 1,000 tons (1000 Mg) or less of asphaltic concrete does not meet the above requirements, the material will be paid for using the applicable acceptance schedule.

C. Calculate Pavement Mean Air Voids

The Department will determine the percent of maximum air voids for each lot by dividing the pavement mean air voids by the maximum pavement mean air voids acceptable.

The Department will determine the payment for each lot by multiplying the Contract Unit Price by the adjusted pay factor shown in the following Air Voids Acceptance schedule:

TABLE 13 - AIR VOIDS ACCEPTANCE SCHEDULE

Pay Factor	Percent of Maximum Air Voids (Lot Average of Tests)	Percent of Maximum Air Voids (Lot Average all Tests) (for Reevaluations)
1.00	≤100	≤100
0.97	100.1 — 105	100.1 — 104
0.95	105.1 — 112	104.1— 109
0.90	112.1 — 124	109.1 — 118
0.80	124.1 — 149	118.1 — 136
0.70	149.1 —172	136.1 — 153
0.50	172.1 — 191	153.1 — 166

When recommended by the Office of Materials and Testing, Lots receiving less than 0.5 pay factor shall be removed and replaced at the Contractor's expense.

When the range tolerance is exceeded, the Department will apply a pay factor of 0.95 as described in Subsection 400.3.06.B.2.

D. Asphaltic Concrete for Temporary Detours

Hot mix asphaltic concrete placed on temporary detours not to remain in place as part of the permanent pavement does not require hydrated lime. Hot mix used for this purpose is paid for at an adjusted Contract Price. Ensure the payment for this item covers all cost of construction, maintenance and removal of all temporary mix. Ensure hot mix asphaltic concrete placed as temporary mix meets requirements established in Subsection 400.3.05.F.

Where the Contract Price of the asphaltic concrete for permanent pavement is let by the ton (megagram), the Contract Price for the asphaltic concrete placed on temporary detours is adjusted by subtracting $0.75/ton ($0.85/mg) of mix used.

Where the Contract price of the mix in the permanent pavement is based on the square yard (meter), obtain the adjusted price for the same mix used on the temporary detour by subtracting $0.04/yd² ($0.05/m²) per 1 in. (25 mm) plan depth.

Further price adjustments required in Subsection 400.3.06, *Quality Acceptance*, which are based on the appropriate adjusted Contract Price for mix used in the temporary detour work shall apply should temporary mix be left in place. Ensure hot mix asphalt produced as temporary mix containing no hydrated lime is removed and replaced with permanent mix containing hydrated lime.

E. Determine Lot Payment

Determine the lot payment as follows:

1. When one of the pay factors for a specific acceptance lot is less than 1.0, determine the payment for the lot by multiplying the Contract Unit Price by the adjusted pay factor.
2. When two or more pay factors for a specific acceptance lot are less than 1.0, determine the adjusted payment by multiplying the Contract Unit Price by the lowest pay factor.

If the mean of the deviations from the job mix formula of the tests for a sieve or asphalt cement content exceeds the tolerances established in the Mixture Acceptance Schedule—Table 10 or 11 and if the Engineer determines that the material need not be removed and replaced, the lot may be accepted at an adjusted unit price as determined by the Engineer. If the pavement mean air voids exceed the tolerances established in the Air Voids Acceptance Schedule – Table 13, remove and replace the materials at the Contractor's expense.

If the Engineer determines the material is not acceptable to leave in place, remove and replace the materials at the Contractor's expense.

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Item 656 Removal of Pavement Markings

This specification is taken from the GDOT Standard Specifications Construction of Transportation Systems as issued on 1/21/2021.

656.1 GENERAL DESCRIPTION

This work includes removing, salvaging, or disposing of items listed in the proposal as Pay Items to be removed, ~~and backfilling the excavations made during removal. Remove structures not separately listed as Pay Items in the Contract as specified in Sections 201, 202, or 205.~~

656.1.01 Definitions

General Provisions 101 through 150.

656.1.02 Related References

A. Standard Specifications

Section 107—Legal Regulations and Responsibility to the Public

Section 150—Traffic Control Section

804—Abrasives for Blast Cleaning

B. Referenced Documents

General Provisions 101 through 150.

656.1.03 Submittals.

General Provisions 101 through 150.

656.2 MATERIALS

610.2.01 Delivery, Storage and Handling.

General Provisions 101 through 150.

656.3 CONSTRUCTION REQUIREMENTS

656.3.01 Personnel.

General Provisions 101 through 150.

656.3.02 Equipment.

General Provisions 101 through 150.

656.3.03 Preparation.

If removing a structure may endanger a new construction, finish that part of the work before beginning the new construction.

656.3.04 Fabrication.

General Provisions 101 through 150.

656.3.05 Construction.

Remove pavement markings before changing the traffic pattern. This specification does not relieve the Contractor of the responsibilities in Section 150 or Subsection 107.07.

Utilize blasting~~, such as sand blasting or~~ water blasting, ~~grinding~~, or other approved methods to completely remove pavement markings without materially damaging the pavement surface or texture. Repair (at the Contractor's expense) damage to the pavement or other surface from removing the markings. Use repair methods acceptable to the Engineer.

A. Protection of Remaining Structures

Do not allow sand and other debris to accumulate and interfere with drainage or create a traffic hazard.

1. When blast cleaning within 10 ft. (3 m) of a lane occupied by public traffic, immediately remove residue and dust when the sand hits the pavement surface.
2. Use a vacuum attachment operating simultaneously with blast cleaning, or use other methods approved by the Engineer.
3. ~~Ensure that sand for blast cleaning conforms to Section 804.~~

656.3.06 Quality Acceptance
General Provisions 101 through 150.

656.3.07 Contractor Warranty and Maintenance
General Provisions 101 through 150.

656.4 MEASUREMENT
Removal of existing pavement markings is measured by the square foot ~~(meter), linear mile (kilometer), gross linear foot (meter), gross linear mile (kilometer), or square yard (meter)~~ of the designated width and the type of stripe.

~~Where removal of traffic markings will be paid for by the square yard (meter), the actual number of square yards (meters) removed will be paid for.~~ The space between the stripes or letters will be included in the overall measurement.

~~Removal of words in existing traffic markings is measured per each word removed.~~

656.4.01 Limits
General Provisions 101 through 150. Submit the monitoring summary report to the Engineer within seven (7) working days.

656.5 PAYMENT
When shown as a Pay Item on the Plans, payment for removing pavement markings will be at the Contract Unit Price for the Unit. Payment is full compensation for furnishing materials, labor, equipment, and traffic control necessary to perform the work.

Payment will be made under:

Item No. 656	Obliterate Pavement Markings	Per square foot

656.5.01 Adjustments
General Provisions 101 through 150.

END OF ITEM 656

APPENDIX 1

FAA STANDARD SPECIFICATIONS

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Item C-100 Contractor Quality Control Program (CQCP)

This specification is taken from the FAA AC 150/5370-10H as issued on 12/21/2018 and includes Errata Sheet updates up to 8/19/2020.

100-1 General. Quality is more than test results. Quality is the combination of proper materials, testing, workmanship, equipment, inspection, and documentation of the project. Establishing and maintaining a culture of quality is key to achieving a quality project. The Contractor shall establish, provide, and maintain an effective Contractor Quality Control Program (CQCP) that details the methods and procedures that will be taken to assure that all materials and completed construction required by this contract conform to contract plans, technical specifications and other requirements, whether manufactured by the Contractor, or procured from subcontractors or vendors. Although guidelines are established and certain minimum requirements are specified here and elsewhere in the contract technical specifications, the Contractor shall assume full responsibility for accomplishing the stated purpose.
The Contractor shall establish a CQCP that will:

a. Provide qualified personnel to develop and implement the CQCP.

b. Provide for the production of acceptable quality materials.

c. Provide sufficient information to assure that the specification requirements can be met.

d. Document the CQCP process.

The Contractor shall not begin any construction or production of materials to be incorporated into the completed work until the CQCP has been reviewed and approved by the Resident Project Representative (RPR). ~~No partial payment will be made for materials subject to specific quality control (QC) requirements until the CQCP has been reviewed and approved.~~

The QC requirements contained in this section and elsewhere in the contract technical specifications are in addition to and separate from the quality assurance (QA) testing requirements. QA testing requirements are the responsibility of the RPR or Contractor as specified in the specifications.

A Quality Control (QC)/Quality Assurance (QA) workshop with the Engineer, Resident Project Representative (RPR), Contractor, subcontractors, testing laboratories, and Owner's representative must be held prior to start of construction. The QC/QA workshop will be facilitated by the Contractor. The Contractor shall coordinate with the Airport and the RPR on time and location of the QC/QA workshop. Items to be addressed, at a minimum, will include:

a. Review of the CQCP including submittals, QC Testing, Action & Suspension Limits for Production, Corrective Action Plans, Distribution of QC reports, and Control Charts.

b. Discussion of the QA program.

c. Discussion of the QC and QA Organization and authority including coordination and information exchange between QC and QA.

d. Establish regular meetings to discuss control of materials, methods and testing.

e. Establishment of the overall QC culture.

100-2 Description of program.

a. General description. The Contractor shall establish a CQCP to perform QC inspection and testing of all items of work required by the technical specifications, including those performed by subcontractors. The CQCP shall ensure conformance to applicable specifications and plans with respect to materials, off-site fabrication, workmanship, construction, finish, and functional performance. The CQCP shall be effective for control of all construction work performed under this Contract and shall specifically include surveillance and tests required by the technical specifications, in addition to other requirements of this section and any other activities deemed necessary by the Contractor to establish an effective level of QC.

b. Contractor Quality Control Program (CQCP). The Contractor shall describe the CQCP in a written document that shall be reviewed and approved by the RPR prior to the start of any production, construction, or off-site fabrication. The written CQCP shall be submitted to the RPR for review and approval at least **[** 10 **]** calendar days before the CQCP Workshop. The Contractor's CQCP and QC testing laboratory must be approved in writing by the RPR prior to the Notice to Proceed (NTP).

The CQCP shall be organized to address, as a minimum, the following:

1. QC organization and resumes of key staff
2. Project progress schedule
3. Submittals schedule
4. Inspection requirements
5. QC testing plan
6. Documentation of QC activities and distribution of QC reports
7. Requirements for corrective action when QC and/or QA acceptance criteria are not met
8. Material quality and construction means and methods. Address all elements applicable to the project that affect the quality of the pavement structure including subgrade, subbase, base, and surface course. Some elements that must be addressed include, but is not limited to mix design, aggregate grading, stockpile management, mixing and transporting, placing and finishing, quality control testing and inspection, smoothness, laydown plan, equipment, and temperature management plan.

The Contractor must add any additional elements to the CQCP that is necessary to adequately control all production and/or construction processes required by this contract.

100-3 CQCP organization. The CQCP shall be implemented by the establishment of a QC organization. An organizational chart shall be developed to show all QC personnel, their authority, and how these personnel integrate with other management/production and construction functions and personnel.

The organizational chart shall identify all QC staff by name and function, and shall indicate the total staff required to implement all elements of the CQCP, including inspection and testing for each item of work. If necessary, different technicians can be used for specific inspection and testing functions for different items of work. If an outside organization or independent testing laboratory is used for implementation of all or part of the CQCP, the personnel assigned shall be subject to the qualification requirements of paragraphs 100-03a and 100-03b. The organizational chart shall indicate which personnel are Contractor employees and which are provided by an outside organization.
The QC organization shall, as a minimum, consist of the following personnel:

a. Program Administrator. The Contractor Quality Control Program Administrator (CQCPA) must be a full-time **[** on-site **]** employee of the Contractor, or a consultant engaged by the Contractor. The CQCPA must have a minimum of five (5) years of experience in QC pavement construction with prior QC experience on a project of comparable size and scope as the contract.

Included in the five (5) years of paving/QC experience, the CQCPA must meet at least one of the following requirements:

1) Professional Engineer with one (1) year of airport paving experience.

2) Engineer-in-training with two (2) years of airport paving experience.

3) National Institute for Certification in Engineering Technologies (NICET) Civil Engineering Technology Level IV with three (3) years of airport paving experience.

4) An individual with four (4) years of airport paving experience, with a Bachelor of Science Degree in Civil Engineering, Civil Engineering Technology or Construction.

The CQCPA must have full authority to institute any and all actions necessary for the successful implementation of the CQCP to ensure compliance with the contract plans and technical specifications. The CQCPA authority must include the ability to immediately stop production until materials and/or processes are in compliance with contract specifications. The CQCPA must report directly to a principal officer of the construction firm. The CQCPA may supervise the Quality Control Program on more than one project provided that person can be at the job site within two (2) hours after being notified of a problem.

b. QC technicians. A sufficient number of QC technicians necessary to adequately implement the CQCP must be provided. These personnel must be either Engineers, engineering technicians, or experienced craftsman with qualifications in the appropriate field equivalent to NICET Level II in Civil Engineering Technology or higher, and shall have a minimum of two (2) years of experience in their area of expertise.

The QC technicians must report directly to the CQCPA and shall perform the following functions:

1) Inspection of all materials, construction, plant, and equipment for conformance to the technical specifications, and as required by paragraph 100-6.

2) Performance of all QC tests as required by the technical specifications and paragraph100-8.

3) Performance of tests for the RPR when required by the technical specifications.

Certification at an equivalent level of qualification and experience by a state or nationally recognized organization will be acceptable in lieu of NICET certification.

c. Staffing levels. The Contractor shall provide sufficient qualified QC personnel to monitor each work activity at all times. Where material is being produced in a plant for incorporation into the work, separate plant and field technicians shall be provided at each plant and field placement location. The scheduling and coordinating of all inspection and testing must match the type and pace of work activity. The CQCP shall state where different technicians will be required for different work elements.

100-4 Project progress schedule. Critical QC activities must be shown on the project schedule as required by Section 80, paragraph 80-03, *Execution and Progress*.

100-5 Submittals schedule. The Contractor shall submit a detailed listing of all submittals (for example, mix designs, material certifications) and shop drawings required by the technical specifications. The listing can be developed in a spreadsheet format and shall include as a minimum:

a. Specification item number

b. Item description

c. Description of submittal

d. Specification paragraph requiring submittal

e. Scheduled date of submittal

100-6 Inspection requirements. QC inspection functions shall be organized to provide inspections for all definable features of work, as detailed below. All inspections shall be documented by the Contractor as specified by paragraph 100-9.

Inspections shall be performed as needed to ensure continuing compliance with contract requirements until completion of the particular feature of work. Inspections shall include the following minimum requirements:

a. During plant operation for material production, QC test results and periodic inspections shall be used to ensure the quality of aggregates and other mix components, and to adjust and control mix proportioning to meet the approved mix design and other requirements of the technical specifications. All equipment used in

proportioning and mixing shall be inspected to ensure its proper operating condition. The CQCP shall detail how these and other QC functions will be accomplished and used.

b. During field operations, QC test results and periodic inspections shall be used to ensure the quality of all materials and workmanship. All equipment used in placing, finishing, and compacting shall be inspected to ensure its proper operating condition and to ensure that all such operations are in conformance to the technical specifications and are within the plan dimensions, lines, grades, and tolerances specified. The CQCP shall document how these and other QC functions will be accomplished and used.

100-7 Contractor QC testing facility.

a. For projects that include Item P-401, Item P-403, and Item P-404, the Contractor shall ensure facilities, including all necessary equipment, materials, and current reference standards, are provided that meet requirements in the following paragraphs of ASTM D3666, *Standard Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials*:

- 8.1.3 Equipment Calibration and Checks;
- 8.1.9 Equipment Calibration, Standardization, and Check Records;
- 8.1.12 Test Methods and Procedures

b. For projects that include P-501, the Contractor shall ensure facilities, including all necessary equipment, materials, and current reference standards, are provided that meet requirements in the following paragraphs of ASTM C1077, Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation:

- 7 Test Methods and Procedures
- 8 Facilities, Equipment, and Supplemental Procedures

100-8 QC testing plan. As a part of the overall CQCP, the Contractor shall implement a QC testing plan, as required by the technical specifications. The testing plan shall include the minimum tests and test frequencies required by each technical specification Item, as well as any additional QC tests that the Contractor deems necessary to adequately control production and/or construction processes.

The QC testing plan can be developed in a spreadsheet fashion and shall, as a minimum, include the following:

a. Specification item number (e.g., P-401)

b. Item description (e.g., Hot Mix Asphalt Pavements)

c. Test type (e.g., gradation, grade, asphalt content)

d. Test standard (e.g., ASTM or American Association of State Highway and Transportation Officials (AASHTO) test number, as applicable)

e. Test frequency (e.g., as required by technical specifications or minimum frequency when requirements are not stated)

f. Responsibility (e.g., plant technician)

g. Control requirements (e.g., target, permissible deviations)

The QC testing plan shall contain a statistically-based procedure of random sampling for acquiring test samples in accordance with ASTM D3665. The RPR shall be provided the opportunity to witness QC sampling and testing. All QC test results shall be documented by the Contractor as required by paragraph 100-9.

100-9 Documentation. The Contractor shall maintain current QC records of all inspections and tests performed. These records shall include factual evidence that the required QC inspections or tests have been performed, including type and

number of inspections or tests involved; results of inspections or tests; nature of defects, deviations, causes for rejection, etc.; proposed remedial action; and corrective actions taken.

These records must cover both conforming and defective or deficient features, and must include a statement that all supplies and materials incorporated in the work are in full compliance with the terms of the contract. Legible copies of these records shall be furnished to the RPR daily. The records shall cover all work placed subsequent to the previously furnished records and shall be verified and signed by the CQCPA.

Contractor QC records required for the contract shall include, but are not necessarily limited to, the following records:

a. Daily inspection reports. Each Contractor QC technician shall maintain a daily log of all inspections performed for both Contractor and subcontractor operations. These technician's daily reports shall provide factual evidence that continuous QC inspections have been performed and shall, as a minimum, include the following:

1) Technical specification item number and description

2) Compliance with approved submittals

3) Proper storage of materials and equipment

4) Proper operation of all equipment

5) Adherence to plans and technical specifications

6) Summary of any necessary corrective actions

7) Safety inspection.

8) [Photographs and/or video **]**

The daily inspection reports shall identify all QC inspections and QC tests conducted, results of inspections, location and nature of defects found, causes for rejection, and remedial or corrective actions taken or proposed.

The daily inspection reports shall be signed by the responsible QC technician and the CQCPA. The RPR shall be provided at least one copy of each daily inspection report on the work day following the day of record. When QC inspection and test results are recorded and transmitted electronically, the results must be archived.

b. Daily test reports. The Contractor shall be responsible for establishing a system that will record all QC test results. Daily test reports shall document the following information:

1) Technical specification item number and description

2) Test designation

3) Location

4) Date of test

5) Control requirements

6) Test results

7) Causes for rejection

8) Recommended remedial actions

9) Retests

Test results from each day's work period shall be submitted to the RPR prior to the start of the next day's work period. When required by the technical specifications, the Contractor shall maintain statistical QC charts. When QC daily test results are recorded and transmitted electronically, the results must be archived.

100-10 Corrective action requirements. The CQCP shall indicate the appropriate action to be taken when a process is deemed, or believed, to be out of control (out of tolerance) and detail what action will be taken to bring the process into control. The requirements for corrective action shall include both general requirements for operation of the CQCP as a whole, and for individual items of work contained in the technical specifications.

The CQCP shall detail how the results of QC inspections and tests will be used for determining the need for corrective action and shall contain clear rules to gauge when a process is out of control and the type of correction to be taken to regain process control.

When applicable or required by the technical specifications, the Contractor shall establish and use statistical QC charts for individual QC tests. The requirements for corrective action shall be linked to the control charts.

100-11 Inspection and/or observations by the RPR. All items of material and equipment are subject to inspection and/or observation by the RPR at the point of production, manufacture or shipment to determine if the Contractor, producer, manufacturer or shipper maintains an adequate QC system in conformance with the requirements detailed here and the applicable technical specifications and plans. In addition, all items of materials, equipment and work in place shall be subject to inspection and/or observation by the RPR at the site for the same purpose.

Inspection and/or observations by the RPR does not relieve the Contractor of performing QC inspections of either on-site or off-site Contractor's or subcontractor's work.

100-12 Noncompliance.

a. The Resident Project Representative (RPR) will provide written notice to the Contractor of any noncompliance with their CQCP. After receipt of such notice, the Contractor must take corrective action.

b. When QC activities do not comply with either the CQCP or the contract provisions or when the Contractor fails to properly operate and maintain an effective CQCP, and no effective corrective actions have been taken after notification of non-compliance, the RPR will recommend the Owner take the following actions:

1) Order the Contractor to replace ineffective or unqualified QC personnel or subcontractors and/or

2) Order the Contractor to stop operations until appropriate corrective actions are taken.

METHOD OF MEASUREMENT

100-13 Basis of measurement and payment. ~~[Not Used]~~ [Contractor Quality Control Program (CQCP) is for the personnel, tests, facilities and documentation required to implement the CQCP. The CQCP will be paid as a lump sum with the following schedule of partial payments:]

~~**a.** With first pay request, 25% with approval of CQCP and completion of the Quality Control (QC)/Quality Assurance (QA) workshop.~~

~~**b.** When 25% or more of the original contract is earned, an additional 25%.~~

~~**c.** When 50% or more of the original contract is earned, an additional 20%.~~

~~**d.** When 75% or more of the original contract is earned, an additional 20%~~

~~**e.** After final inspection and acceptance of project, the final 10%.~~

BASIS OF PAYMENT

100-14 Payment will be made under:

Item C-100-1 Contractor Quality Control Program (CQCP) – per lump sum

REFERENCES

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

National Institute for Certification in Engineering Technologies (NICET)

ASTM International (ASTM)

ASTM C1077 Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation

ASTM D3665 Standard Practice for Random Sampling of Construction Materials

ASTM D3666 Standard Specification for Minimum Requirements for Agencies Testing and Inspecting Road and Paving Materials

END OF ITEM C-100

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Item C-102

Temporary Air and Water Pollution, Soil Erosion, and Siltation Control

This specification is taken from the FAA AC 150/5370-10H as issued on 12/21/2018 and includes Errata Sheet updates up to 8/19/2020.

DESCRIPTION

102-1. This item shall consist of temporary control measures as shown on the plans or as ordered by the Resident Project Representative (RPR) during the life of a contract to control pollution of air and water, soil erosion, and siltation through the use of silt fences, berms, dikes, dams, sediment basins, fiber mats, gravel, mulches, grasses, slope drains, and other erosion control devices or methods.

Temporary erosion control shall be in accordance with the approved erosion control plan; the approved Construction Safety and Phasing Plan (CSPP) and AC 150/5370-2, *Operational Safety on Airports During Construction*. The temporary erosion control measures contained herein shall be coordinated with the permanent erosion control measures specified as part of this contract to the extent practical to assure economical, effective, and continuous erosion control throughout the construction period.

Temporary control may include work outside the construction limits such as borrow pit operations, equipment and material storage sites, waste areas, and temporary plant sites.

Temporary control measures shall be designed, installed and maintained to minimize the creation of wildlife attractants that have the potential to attract hazardous wildlife on or near public-use airports.

MATERIALS

102-2.1 Grass. Grass that will not compete with the grasses sown later for permanent cover per Item T-901shall be a quick-growing species (such as ryegrass, Italian ryegrass, or cereal grasses) suitable to the area providing a temporary cover. Selected grass species shall not create a wildlife attractant.

102-2.2 Mulches. Mulches may be hay, straw, fiber mats, netting, bark, wood chips, or other suitable material reasonably clean and free of noxious weeds and deleterious materials per Item T-908. Mulches shall not create a wildlife attractant.

102-2.3 Fertilizer. Fertilizer shall be a standard commercial grade and shall conform to all federal and state regulations and to the standards of the Association of Official Agricultural Chemists.

102-2.4 Slope drains. Not used. ~~Slope drains may be constructed of pipe, fiber mats, rubble, concrete, asphalt, or other materials that will adequately control erosion.~~

102-2.5 Silt fence. See GDOT 171 for Silt Fence. ~~Silt fence shall consist of polymeric filaments which are formed into a stable network such that filaments retain their relative positions. Synthetic filter fabric shall contain ultraviolet ray inhibitors and stabilizers to provide a minimum of six months of expected usable construction life. Silt fence shall meet the requirements of ASTM D6461.~~

102-2.6 Other. All other materials shall meet commercial grade standards and shall be approved by the RPR before being incorporated into the project.

102-2.6.a Construction Exit. Construction exit shall be a stone-stabilized pad located where vehicular traffic will be leaving a site. Construction exit to follow Manual for Erosion and Sediment Control in Georgia.

102-2.6.b Maintenance of Erosion Control BMPs. Erosion control BMPs are existing on site. Contractor to maintain existing erosion control BMPs per Georgia EPD Green Book maintenance guidelines. All clean out of sediment and maintenance to existing erosion control BMPs to be in the presence of the Engineer and Owner.

Hand removal may be required. Damage to existing inlet protection shall be paid by Contractor. Removal shall be performed by the Contractor.

CONSTRUCTION REQUIREMENTS

102-3.1 General. In the event of conflict between these requirements and pollution control laws, rules, or regulations of other federal, state, or local agencies, the more restrictive laws, rules, or regulations shall apply.
The RPR shall be responsible for assuring compliance to the extent that construction practices, construction operations, and construction work are involved.

102-3.2 Schedule. Prior to the start of construction, the Contractor shall submit schedules in accordance with the approved Construction Safety and Phasing Plan (CSPP) and the plans for accomplishment of temporary and permanent erosion control work for clearing and grubbing; grading; construction; paving; and structures at watercourses. The Contractor shall also submit a proposed method of erosion and dust control on haul roads and borrow pits and a plan for disposal of waste materials. Work shall not be started until the erosion control schedules and methods of operation for the applicable construction have been accepted by the RPR.
102-3.3 Construction details. The Contractor will be required to incorporate all permanent erosion control features into the project at the earliest practicable time as outlined in the plans and approved CSPP. Except where future construction operations will damage slopes, the Contractor shall perform the permanent seeding and mulching and other specified slope protection work in stages, as soon as substantial areas of exposed slopes can be made available. Temporary erosion and pollution control measures will be used to correct conditions that develop during construction that were not foreseen during the design stage; that are needed prior to installation of permanent control features; or that are needed temporarily to control erosion that develops during normal construction practices, but are not associated with permanent control features on the project.

Where erosion may be a problem, schedule and perform clearing and grubbing operations so that grading operations and permanent erosion control features can follow immediately if project conditions permit. Temporary erosion control measures are required if permanent measures cannot immediately follow grading operations. The RPR shall limit the area of clearing and grubbing, excavation, borrow, and embankment operations in progress, commensurate with the Contractor's capability and progress in keeping the finish grading, mulching, seeding, and other such permanent control measures current with the accepted schedule. If seasonal limitations make such coordination unrealistic, temporary erosion control measures shall be taken immediately to the extent feasible and justified as directed by the RPR.

The Contractor shall provide immediate permanent or temporary pollution control measures to minimize contamination of adjacent streams or other watercourses, lakes, ponds, or other areas of water impoundment as directed by the RPR. If temporary erosion and pollution control measures are required due to the Contractor's negligence, carelessness, or failure to install permanent controls as a part of the work as scheduled or directed by the RPR, the work shall be performed by the Contractor and the cost shall be incidental to this item.

The RPR may increase or decrease the area of erodible earth material that can be exposed at any time based on an analysis of project conditions.

The erosion control features installed by the Contractor shall be maintained by the Contractor during the construction period.

Provide temporary structures whenever construction equipment must cross watercourses at frequent intervals. Pollutants such as fuels, lubricants, bitumen, raw sewage, wash water from concrete mixing operations, and other harmful materials shall not be discharged into any waterways, impoundments or into natural or manmade channels.

102-3.4 Installation, maintenance and removal of silt fence. See GDOT 171 for Silt Fence ~~Silt fences shall extend a minimum of 16 inches (41 cm) and a maximum of 34 inches (86 cm) above the ground surface. Posts shall be set no more than 10 feet (3 m) on center. Filter fabric shall be cut from a continuous roll to the length required minimizing joints where possible. When joints are necessary, the fabric shall be spliced at a support post with a minimum 12-inch (300-mm) overlap and securely sealed. A trench shall be excavated approximately 4 inches (100 mm) deep by 4 inches (100 mm) wide on the upslope side of the silt fence. The trench shall be backfilled and the soil compacted over the silt fence fabric. The Contractor shall remove and dispose of silt that accumulates during construction and prior to establishment of permanent erosion control. The fence shall be maintained in good working condition until permanent~~

~~erosion control is established. Silt fence shall be removed upon approval of the RPR.~~

METHOD OF MEASUREMENT

102-4.1 Temporary erosion and pollution control work required will be performed as scheduled or directed by the RPR. Completed and accepted work will be measured as follows:

a. Temporary seeding and mulching will be measured by the square yard ~~(square meter)~~.

~~**b.** Temporary slope drains will be measured by the linear foot (meter).~~

~~**c.** Temporary benches, dikes, dams, and sediment basins will be measured by the cubic yard (cubic meter) of excavation performed, including necessary cleaning of sediment basins, and the cubic yard (cubic meter) of embankment placed as directed by the RPR.~~

d. All fertilizing will be measured by the square yard ~~ton (kg).~~

e. Installation and removal of silt fence will be incidental to mobilization. ~~measured by the [linear foot (meter)] [Lump sum].~~

f. Installation, maintenance and removal of construction exit will be measured by the number of each, complete.

g. Stone outlet protection (St) and Rock Dam (Rd) will be measured by the cubic yards

h. Temporary sediment ponds (Sd4) construction, maintenance and removal will be measured per each

102-4.2 Control work performed for protection of construction areas outside the construction limits, such as borrow and waste areas, haul roads, equipment and material storage sites, and temporary plant sites, will not be measured and paid for directly but shall be considered as a subsidiary obligation of the Contractor.

BASIS OF PAYMENT

102-5.1 Accepted quantities of temporary water pollution, soil erosion, and siltation control work ordered by the RPR and measured as provided in paragraph 102-4.1 will be paid for under:

Item C-102-1	Temporary Sediment Trap
Item C-102-2	Crushed Aggregate, for Stone outlet protection (St) and Rock Dam (Rd) (18" depth)
Item C-102-3	Construction Entrance & Staging Area

Where other directed work falls within the specifications for a work item that has a contract price, the units of work shall be measured and paid for at the contract unit price bid for the various items.

Temporary control features not covered by contract items that are ordered by the RPR will be paid for in accordance with Section 90, paragraph 90-05 *Payment for Extra Work*.

REFERENCES

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

Advisory Circulars (AC)

AC 150/5200-33 *Hazardous Wildlife Attractants on or Near Airports*

AC 150/5370-2 *Operational Safety on Airports During Construction*

ASTM International (ASTM)

ASTM D6461 *Standard Specification for Silt Fence Materials*

United States Department of Agriculture (USDA)

FAA/USDA Wildlife Hazard Management at Airports, A Manual for Airport Personnel

END OF ITEM C-102

Item C-105 Mobilization

This specification is taken from the FAA AC 150/5370-10H as issued on 12/21/2018 and includes Errata Sheet updates up to 8/19/2020.

105-1 Description. This item of work shall consist of, but is not limited to, work and operations necessary for the movement of personnel, equipment, material and supplies to and from the project site for work on the project except as provided in the contract as separate pay items.

105-2 Mobilization limit. Mobilization shall be limited to **[** 10 **]** percent of the total project cost.

105-3 Posted notices. Prior to commencement of construction activities, the Contractor must post the following documents in a prominent and accessible place where they may be easily viewed by all employees of the prime Contractor and by all employees of subcontractors engaged by the prime Contractor: Equal Employment Opportunity (EEO) Poster "Equal Employment Opportunity is the Law" in accordance with the Office of Federal Contract Compliance Programs Executive Order 11246, as amended; Davis Bacon Wage Poster (WH 1321) - DOL "Notice to All Employees" Poster; and Applicable Davis-Bacon Wage Rate Determination. These notices must remain posted until final acceptance of the work by the Owner.

105-4 Engineer/RPR field office. ~~[**The Contractor shall provide dedicated space for the use of the field RPR and inspectors, as a field office for the duration of the project. This space shall be located conveniently near the construction and shall be separate from any space used by the Contractor. The Contractor shall furnish water, sanitary facilities, heat, air conditioning, and electricity in accordance with local building codes.**]~~ [**An Engineer/RPR field office is not required.**]

METHOD OF MEASUREMENT

105-5 Basis of measurement and payment. Based upon the contract lump sum price for "Mobilization" partial payments will be allowed as follows:

~~**a.** With first pay request, 25%.~~

~~**b.** When 25% or more of the original contract is earned, an additional 25%.~~

~~**c.** When 50% or more of the original contract is earned, an additional 40%.~~

~~**d.** After Final Inspection, staging area clean up and delivery of all Project Closeout materials as required by Section 90, paragraph 90-11, *Contractor Final Project Documentation*, the final 10%.~~

BASIS OF PAYMENT

105-6 Payment will be made under:

Item C-105-1 [Site Preparation And] Mobilization (10% Max Bid Section 1) – per lump sum
Item C-105-2 Site Preparation And Mobilization (10% Max Bid Section 2) – per lump sum

REFERENCES

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

Office of Federal Contract Compliance Programs (OFCCP)

Executive Order 11246, as amended

EEOC-P/E-1 – Equal Employment Opportunity is the Law Poster

United States Department of Labor, Wage and Hour Division (WHD)

WH 1321 – Employee Rights under the Davis-Bacon Act Poster

END OF ITEM C-105

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Item C-110

Method of Estimating Percentage of Material within Specification Limits (PWL)

This specification is taken from the FAA AC 150/5370-10H as issued on 12/21/2018 and includes Errata Sheet updates up to 8/19/2020.

110-1 General. When the specifications provide for acceptance of material based on the method of estimating percentage of material within specification limits (PWL), the PWL will be determined in accordance with this section. All test results for a lot will be analyzed statistically to determine the total estimated percent of the lot that is within specification limits. The PWL is computed using the sample average (X) and sample standard deviation (S_n) of the specified number (n) of sublots for the lot and the specification tolerance limits, L for lower and U for upper, for the particular acceptance parameter. From these values, the respective Quality index, Q_L for Lower Quality Index and/or Q_U for Upper Quality Index, is computed and the PWL for the lot for the specified n is determined from Table 1. All specification limits specified in the technical sections shall be absolute values. Test results used in the calculations shall be to the significant figure given in the test procedure.

There is some degree of uncertainty (risk) in the measurement for acceptance because only a small fraction of production material (the population) is sampled and tested. This uncertainty exists because all portions of the production material have the same probability to be randomly sampled. The Contractor's risk is the probability that material produced at the acceptable quality level is rejected or subjected to a pay adjustment. The Owner's risk is the probability that material produced at the rejectable quality level is accepted.

It is the intent of this section to inform the Contractor that, in order to consistently offset the Contractor's risk for material evaluated, production quality (using population average and population standard deviation) must be maintained at the acceptable quality specified or higher. In all cases, it is the responsibility of the Contractor to produce at quality levels that will meet the specified acceptance criteria when sampled and tested at the frequencies specified.

110-2 Method for computing PWL. The computational sequence for computing PWL is as follows:

a. Divide the lot into n sublots in accordance with the acceptance requirements of the specification.

b. Locate the random sampling position within the sublot in accordance with the requirements of the specification.

c. Make a measurement at each location, or take a test portion and make the measurement on the test portion in accordance with the testing requirements of the specification.

d. Find the sample average (X) for all sublot test values within the lot by using the following formula:

$$X = (x_1 + x_2 + x_3 + \ldots x_n) / n$$

Where: X = Sample average of all sublot test values within a lot

$x_1, x_2, \ldots x_n$ = Individual sublot test values

n = Number of sublot test values

e. Find the sample standard deviation (S_n) by use of the following formula:

$$S_n = [(d_1^2 + d_2^2 + d_3^2 + \ldots d_n^2)/(n-1)]^{1/2}$$

Where: S_n = Sample standard deviation of the number of sublot test values in the set

$d_1, d_2, \ldots d_n$ = Deviations of the individual sublot test values $x_1, x_2, \ldots$ from the average value X

that is: $d_1 = (x_1 - X)$, $d_2 = (x_2 - X) \ldots d_n = (x_n - X)$

n = Number of sublot test values

f. For single sided specification limits (i.e., L only), compute the Lower Quality Index Q_L by use of the following formula:

$$Q_L = (X - L) / S_n$$

Where: L = specification lower tolerance limit

Estimate the percentage of material within limits (PWL) by entering Table 1 with Q_L, using the column appropriate to the total number (n) of measurements. If the value of Q_L falls between values shown on the table, use the next higher value of PWL.

g. For double-sided specification limits (i.e., L and U), compute the Quality Indexes Q_L and Q_U by use of the following formulas:

$$Q_L = (X - L) / S_n$$
and
$$Q_U = (U - X) / S_n$$

Where: L and U = specification lower and upper tolerance limits

Estimate the percentage of material between the lower (L) and upper (U) tolerance limits (PWL) by entering Table 1 separately with Q_L and Q_U, using the column appropriate to the total number (n) of measurements, and determining the percent of material above P_L and percent of material below P_U for each tolerance limit. If the values of Q_L fall between values shown on the table, use the next higher value of P_L or P_U. Determine the PWL by use of the following formula:

$$PWL = (P_U + P_L) - 100$$

Where: P_L = percent within lower specification limit

P_U = percent within upper specification limit

EXAMPLE OF PWL CALCULATION

Project: Example Project
Test Item: Item P-401, Lot A.
A. PWL Determination for Mat Density.

1. Density of four random cores taken from Lot A.

A-1 = 96.60

A-2 = 97.55

A-3 = 99.30

A-4 = 98.35

n = 4

2. Calculate average density for the lot.

$X = (x_1 + x_2 + x_3 + \ldots x_n) / n$

$X = (96.60 + 97.55 + 99.30 + 98.35) / 4$

X = 97.95% density

3. Calculate the standard deviation for the lot.

$S_n = \mathbf{[}((96.60 - 97.95)^2 + (97.55 - 97.95)^2 + (99.30 - 97.95)^2 + (98.35 - 97.95)^2)) / (4 - 1)\mathbf{]}^{1/2}$

$S_n = [(1.82 + 0.16 + 1.82 + 0.16) / 3]^{1/2}$

$S_n = 1.15$

4. Calculate the Lower Quality Index Q_L for the lot. (L=96.3)

$Q_L = (X - L) / S_n$

$Q_L = (97.95 - 96.30) / 1.15$

$Q_L = 1.4348$

5. Determine PWL by entering Table 1 with Q_L= 1.44 and n= 4.

PWL = 98

B. PWL Determination for Air Voids.

1. Air Voids of four random samples taken from Lot A.

A-1 = 5.00

A-2 = 3.74

A-3 = 2.30

A-4 = 3.25

2. Calculate the average air voids for the lot.

$X = (x_1 + x_2 + x_3 \ldots n) / n$

$X = (5.00 + 3.74 + 2.30 + 3.25) / 4$

X = 3.57%

3. Calculate the standard deviation S_n for the lot.

$S_n = [((3.57 - 5.00)^2 + (3.57 - 3.74)^2 + (3.57 - 2.30)^2 + (3.57 - 3.25)^2) / (4 - 1)]^{1/2}$

$S_n = [(2.04 + 0.03 + 1.62 + 0.10) / 3]^{1/2}$

$S_n = 1.12$

4. Calculate the Lower Quality Index Q_L for the lot. (L= 2.0)

$Q_L = (X - L) / S_n$

$Q_L = (3.57 - 2.00) / 1.12$

$Q_L = 1.3992$

5. Determine P_L by entering Table 1 with Q_L = 1.41 and n = 4.

$P_L = 97$

6. Calculate the Upper Quality Index Q_U for the lot. (U= 5.0)

$Q_U = (U - X) / S_n$

$Q_U = (5.00 - 3.57) / 1.12$

$Q_U = 1.2702$

7. Determine P_U by entering Table 1 with Q_U = 1.29 and n = 4.

$P_U = 93$

8. Calculate Air Voids PWL

$PWL = (P_L + P_U) - 100$
$PWL = (97 + 93) - 100 = 90$

EXAMPLE OF OUTLIER CALCULATION (REFERENCE ASTM E178)

Project: Example Project
Test Item: Item P-401, Lot A.
A. Outlier Determination for Mat Density.

1. Density of four random cores taken from Lot A arranged in descending order.

A-3 = 99.30

A-4 = 98.35

A-2 = 97.55

A-1 = 96.60

2. From ASTM E178, Table 1, for n=4 an upper 5% significance level, the critical value for test criterion = 1.463.

3. Use average density, standard deviation, and test criterion value to evaluate density measurements.

a. For measurements greater than the average:

If (measurement - average)/(standard deviation) is less than test criterion, then the measurement is not considered an outlier.

For A-3, check if (99.30 - 97.95) / 1.15 is greater than 1.463.

Since 1.174 is less than 1.463, the value is not an outlier.

b. For measurements less than the average:

If (average - measurement)/(standard deviation) is less than test criterion, then the measurement is not considered an outlier.

For A-1, check if (97.95 - 96.60) / 1.15 is greater than 1.463.

Since 1.435 is less than 1.463, the value is not an outlier.

Note: In this example, a measurement would be considered an outlier if the density were:

Greater than (97.95 + 1.463 × 1.15) = 99.63%

OR

less than (97.95 - 1.463 × 1.15) = 96.27%.

Table 1. Table for Estimating Percent of Lot Within Limits (PWL)

Percent Within Limits (P_L and P_U)	Positive Values of Q (Q_L and Q_U)							
	n=3	n=4	n=5	n=6	n=7	n=8	n=9	n=10
99	1.1541	1.4700	1.6714	1.8008	1.8888	1.9520	1.9994	2.0362
98	1.1524	1.4400	1.6016	1.6982	1.7612	1.8053	1.8379	1.8630
97	1.1496	1.4100	1.5427	1.6181	1.6661	1.6993	1.7235	1.7420
96	1.1456	1.3800	1.4897	1.5497	1.5871	1.6127	1.6313	1.6454
95	1.1405	1.3500	1.4407	1.4887	1.5181	1.5381	1.5525	1.5635
94	1.1342	1.3200	1.3946	1.4329	1.4561	1.4717	1.4829	1.4914

Percent Within Limits (P_L and P_U)	Positive Values of Q (Q_L and Q_U)							
	n=3	n=4	n=5	n=6	n=7	n=8	n=9	n=10
93	1.1269	1.2900	1.3508	1.3810	1.3991	1.4112	1.4199	1.4265
92	1.1184	1.2600	1.3088	1.3323	1.3461	1.3554	1.3620	1.3670
91	1.1089	1.2300	1.2683	1.2860	1.2964	1.3032	1.3081	1.3118
90	1.0982	1.2000	1.2290	1.2419	1.2492	1.2541	1.2576	1.2602
89	1.0864	1.1700	1.1909	1.1995	1.2043	1.2075	1.2098	1.2115
88	1.0736	1.1400	1.1537	1.1587	1.1613	1.1630	1.1643	1.1653
87	1.0597	1.1100	1.1173	1.1192	1.1199	1.1204	1.1208	1.1212
86	1.0448	1.0800	1.0817	1.0808	1.0800	1.0794	1.0791	1.0789
85	1.0288	1.0500	1.0467	1.0435	1.0413	1.0399	1.0389	1.0382
84	1.0119	1.0200	1.0124	1.0071	1.0037	1.0015	1.0000	0.9990
83	0.9939	0.9900	0.9785	0.9715	0.9671	0.9643	0.9624	0.9610
82	0.9749	0.9600	0.9452	0.9367	0.9315	0.9281	0.9258	0.9241
81	0.9550	0.9300	0.9123	0.9025	0.8966	0.8928	0.8901	0.8882
80	0.9342	0.9000	0.8799	0.8690	0.8625	0.8583	0.8554	0.8533
79	0.9124	0.8700	0.8478	0.8360	0.8291	0.8245	0.8214	0.8192
78	0.8897	0.8400	0.8160	0.8036	0.7962	0.7915	0.7882	0.7858
77	0.8662	0.8100	0.7846	0.7716	0.7640	0.7590	0.7556	0.7531
76	0.8417	0.7800	0.7535	0.7401	0.7322	0.7271	0.7236	0.7211
75	0.8165	0.7500	0.7226	0.7089	0.7009	0.6958	0.6922	0.6896
74	0.7904	0.7200	0.6921	0.6781	0.6701	0.6649	0.6613	0.6587
73	0.7636	0.6900	0.6617	0.6477	0.6396	0.6344	0.6308	0.6282
72	0.7360	0.6600	0.6316	0.6176	0.6095	0.6044	0.6008	0.5982
71	0.7077	0.6300	0.6016	0.5878	0.5798	0.5747	0.5712	0.5686
70	0.6787	0.6000	0.5719	0.5582	0.5504	0.5454	0.5419	0.5394
69	0.6490	0.5700	0.5423	0.5290	0.5213	0.5164	0.5130	0.5105
68	0.6187	0.5400	0.5129	0.4999	0.4924	0.4877	0.4844	0.4820
67	0.5878	0.5100	0.4836	0.4710	0.4638	0.4592	0.4560	0.4537
66	0.5563	0.4800	0.4545	0.4424	0.4355	0.4310	0.4280	0.4257
65	0.5242	0.4500	0.4255	0.4139	0.4073	0.4030	0.4001	0.3980
64	0.4916	0.4200	0.3967	0.3856	0.3793	0.3753	0.3725	0.3705
63	0.4586	0.3900	0.3679	0.3575	0.3515	0.3477	0.3451	0.3432
62	0.4251	0.3600	0.3392	0.3295	0.3239	0.3203	0.3179	0.3161
61	0.3911	0.3300	0.3107	0.3016	0.2964	0.2931	0.2908	0.2892
60	0.3568	0.3000	0.2822	0.2738	0.2691	0.2660	0.2639	0.2624
59	0.3222	0.2700	0.2537	0.2461	0.2418	0.2391	0.2372	0.2358
58	0.2872	0.2400	0.2254	0.2186	0.2147	0.2122	0.2105	0.2093
57	0.2519	0.2100	0.1971	0.1911	0.1877	0.1855	0.1840	0.1829
56	0.2164	0.1800	0.1688	0.1636	0.1607	0.1588	0.1575	0.1566
55	0.1806	0.1500	0.1406	0.1363	0.1338	0.1322	0.1312	0.1304
54	0.1447	0.1200	0.1125	0.1090	0.1070	0.1057	0.1049	0.1042
53	0.1087	0.0900	0.0843	0.0817	0.0802	0.0793	0.0786	0.0781
52	0.0725	0.0600	0.0562	0.0544	0.0534	0.0528	0.0524	0.0521
51	0.0363	0.0300	0.0281	0.0272	0.0267	0.0264	0.0262	0.0260
50	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

Percent Within Limits (P_L and P_U)	Negative Values of Q (Q_L and Q_U)							
	n=3	n=4	n=5	n=6	n=7	n=8	n=9	n=10
49	-0.0363	-0.0300	-0.0281	-0.0272	-0.0267	-0.0264	-0.0262	-0.0260
48	-0.0725	-0.0600	-0.0562	-0.0544	-0.0534	-0.0528	-0.0524	-0.0521
47	-0.1087	-0.0900	-0.0843	-0.0817	-0.0802	-0.0793	-0.0786	-0.0781
46	-0.1447	-0.1200	-0.1125	-0.1090	-0.1070	-0.1057	-0.1049	-0.1042
45	-0.1806	-0.1500	-0.1406	-0.1363	-0.1338	-0.1322	-0.1312	-0.1304
44	-0.2164	-0.1800	-0.1688	-0.1636	-0.1607	-0.1588	-0.1575	-0.1566
43	-0.2519	-0.2100	-0.1971	-0.1911	-0.1877	-0.1855	-0.1840	-0.1829
42	-0.2872	-0.2400	-0.2254	-0.2186	-0.2147	-0.2122	-0.2105	-0.2093
41	-0.3222	-0.2700	-0.2537	-0.2461	-0.2418	-0.2391	-0.2372	-0.2358
40	-0.3568	-0.3000	-0.2822	-0.2738	-0.2691	-0.2660	-0.2639	-0.2624
39	-0.3911	-0.3300	-0.3107	-0.3016	-0.2964	-0.2931	-0.2908	-0.2892
38	-0.4251	-0.3600	-0.3392	-0.3295	-0.3239	-0.3203	-0.3179	-0.3161
37	-0.4586	-0.3900	-0.3679	-0.3575	-0.3515	-0.3477	-0.3451	-0.3432
36	-0.4916	-0.4200	-0.3967	-0.3856	-0.3793	-0.3753	-0.3725	-0.3705
35	-0.5242	-0.4500	-0.4255	-0.4139	-0.4073	-0.4030	-0.4001	-0.3980
34	-0.5563	-0.4800	-0.4545	-0.4424	-0.4355	-0.4310	-0.4280	-0.4257
33	-0.5878	-0.5100	-0.4836	-0.4710	-0.4638	-0.4592	-0.4560	-0.4537
32	-0.6187	-0.5400	-0.5129	-0.4999	-0.4924	-0.4877	-0.4844	-0.4820
31	-0.6490	-0.5700	-0.5423	-0.5290	-0.5213	-0.5164	-0.5130	-0.5105
30	-0.6787	-0.6000	-0.5719	-0.5582	-0.5504	-0.5454	-0.5419	-0.5394
29	-0.7077	-0.6300	-0.6016	-0.5878	-0.5798	-0.5747	-0.5712	-0.5686
28	-0.7360	-0.6600	-0.6316	-0.6176	-0.6095	-0.6044	-0.6008	-0.5982
27	-0.7636	-0.6900	-0.6617	-0.6477	-0.6396	-0.6344	-0.6308	-0.6282
26	-0.7904	-0.7200	-0.6921	-0.6781	-0.6701	-0.6649	-0.6613	-0.6587
25	-0.8165	-0.7500	-0.7226	-0.7089	-0.7009	-0.6958	-0.6922	-0.6896
24	-0.8417	-0.7800	-0.7535	-0.7401	-0.7322	-0.7271	-0.7236	-0.7211
23	-0.8662	-0.8100	-0.7846	-0.7716	-0.7640	-0.7590	-0.7556	-0.7531
22	-0.8897	-0.8400	-0.8160	-0.8036	-0.7962	-0.7915	-0.7882	-0.7858
21	-0.9124	-0.8700	-0.8478	-0.8360	-0.8291	-0.8245	-0.8214	-0.8192
20	-0.9342	-0.9000	-0.8799	-0.8690	-0.8625	-0.8583	-0.8554	-0.8533
19	-0.9550	-0.9300	-0.9123	-0.9025	-0.8966	-0.8928	-0.8901	-0.8882
18	-0.9749	-0.9600	-0.9452	-0.9367	-0.9315	-0.9281	-0.9258	-0.9241
17	-0.9939	-0.9900	-0.9785	-0.9715	-0.9671	-0.9643	-0.9624	-0.9610
16	-1.0119	-1.0200	-1.0124	-1.0071	-1.0037	-1.0015	-1.0000	-0.9990
15	-1.0288	-1.0500	-1.0467	-1.0435	-1.0413	-1.0399	-1.0389	-1.0382
14	-1.0448	-1.0800	-1.0817	-1.0808	-1.0800	-1.0794	-1.0791	-1.0789
13	-1.0597	-1.1100	-1.1173	-1.1192	-1.1199	-1.1204	-1.1208	-1.1212
12	-1.0736	-1.1400	-1.1537	-1.1587	-1.1613	-1.1630	-1.1643	-1.1653
11	-1.0864	-1.1700	-1.1909	-1.1995	-1.2043	-1.2075	-1.2098	-1.2115
10	-1.0982	-1.2000	-1.2290	-1.2419	-1.2492	-1.2541	-1.2576	-1.2602
9	-1.1089	-1.2300	-1.2683	-1.2860	-1.2964	-1.3032	-1.3081	-1.3118
8	-1.1184	-1.2600	-1.3088	-1.3323	-1.3461	-1.3554	-1.3620	-1.3670
7	-1.1269	-1.2900	-1.3508	-1.3810	-1.3991	-1.4112	-1.4199	-1.4265
6	-1.1342	-1.3200	-1.3946	-1.4329	-1.4561	-1.4717	-1.4829	-1.4914
5	-1.1405	-1.3500	-1.4407	-1.4887	-1.5181	-1.5381	-1.5525	-1.5635
4	-1.1456	-1.3800	-1.4897	-1.5497	-1.5871	-1.6127	-1.6313	-1.6454
3	-1.1496	-1.4100	-1.5427	-1.6181	-1.6661	-1.6993	-1.7235	-1.7420
2	-1.1524	-1.4400	-1.6016	-1.6982	-1.7612	-1.8053	-1.8379	-1.8630
1	-1.1541	-1.4700	-1.6714	-1.8008	-1.8888	-1.9520	-1.9994	-2.0362

REFERENCES

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

ASTM International (ASTM)

ASTM E178 Standard Practice for Dealing with Outlying Observations

END OF SECTION C-110

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Item P-101 Preparation/Removal of Existing Pavements

This specification is taken from the FAA AC 150/5370-10H as issued on 12/21/2018 and includes Errata Sheet updates up to 8/19/2020.

Description

101-1 This item shall consist of preparation of existing pavement surfaces for overlay, surface treatments, removal of existing pavement, and other miscellaneous items. The work shall be accomplished in accordance with these specifications and the applicable plans.

Equipment and Materials

101-2 All equipment and materials shall be specified here and in the following paragraphs or approved by the Resident Project Representative (RPR). The equipment shall not cause damage to the pavement to remain in place.

Construction

101-3.1 Removal of existing pavement.

The Contractor's removal operation shall be controlled to not damage adjacent pavement structure, and base material, cables, utility ducts, pipelines, or drainage structures which are to remain under the pavement.

a. Concrete pavement removal. Full depth saw cuts shall be made perpendicular to the slab surface. The Contractor shall saw through the full depth of the slab including any dowels at the joint, removing the pavement and installing new dowels as shown on the plans and per the specifications. Where the perimeter of the removal limits is not located on the joint and there are no dowels present, the perimeter shall be saw cut the full depth of the pavement. The pavement inside the saw cut shall be removed by methods which will not cause distress in the pavement which is to remain in place. ~~If the~~ No material is to be wasted on the airport site, ~~it shall be reduced to a maximum size of **[ ]**. Concrete~~ slabs that are damaged by under breaking shall be repaired or removed and replaced as directed by the RPR.

The edge of existing concrete pavement against which new pavement abuts shall be protected from damage at all times. Spall and underbreak repair shall be in accordance with the plans. Any underlaying material that is to remain in place, shall be recompacted and/or replaced as shown on the plans. Adjacent areas damaged during repair shall be repaired or replaced at the Contractor's expense.

b. Asphalt pavement removal. Asphalt pavement to be removed shall be cut to the full depth of the asphalt pavement around the perimeter of the area to be removed. ~~If the~~ No material is to be **[** wasted on the airport site **]** ~~**[** incorporated into embankment **]**, it shall be **[** broken to a maximum size of **[ ]** inches (mm). **]** **[** meet the following gradation: **[]**.~~

c. Repair or removal of Base, Subbase, and/or Subgrade. All failed material including surface, base course, subbase course, and subgrade shall be removed and repaired as shown on the plans or as directed by the RPR. Materials and methods of construction shall comply with the applicable sections of these specifications. Any damage caused by Contractor's removal process shall be repaired at the Contractor's expense.

101-3.2 Preparation of joints and cracks prior to overlay/surface treatment. Remove all vegetation and debris from cracks to a minimum depth of 1 inch (25 mm). If extensive vegetation exists, treat the specific area with a concentrated solution of a water-based herbicide approved by the RPR. Fill all cracks greater than 1/4 inch (6 mm) wide) with a crack sealant **[** per ASTM D6690 **]**. The crack sealant, preparation, and application shall be compatible with the surface treatment/overlay to be used. To minimize contamination of the asphalt with the crack sealant, underfill the crack sealant a minimum of 1/8 inch (3 mm), not to exceed ¼ inch (6 mm). Any excess joint or crack sealer shall be removed from the pavement surface.

[Wider cracks (over 1-1/2 inch wide (38 mm)), along with soft or sunken spots, indicate that the pavement or the pavement base should be repaired or replaced as stated below.

Cracks and joints may be filled with a mixture of emulsified asphalt and aggregate. The aggregate shall consist of limestone, volcanic ash, sand, or other material that will cure to form a hard substance. The combined gradation shall be as shown in the following table.

Gradation

Sieve Size	Percent Passing
No. 4 (4.75 mm)	100
No. 8 (2.36 mm)	90-100
No. 16 (1.18 mm)	65-90
No. 30 (600 µm)	40-60
No. 50 (300 µm)	25-42
No. 100 (150 µm)	15-30
No. 200 (75 µm)	10-20

Up to 3% cement can be added to accelerate the set time. The mixture shall not contain more than 20% natural sand without approval in writing from the RPR.

The proportions of asphalt emulsion and aggregate shall be determined in the field and may be varied to facilitate construction requirements. Normally, these proportions will be approximately one part asphalt emulsion to five parts aggregate by volume. The material shall be poured or placed into the joints or cracks and compacted to form a voidless mass. The joint or crack shall be filled to within +0 to -1/8 inches (+0 to -3 mm) of the surface. Any material spilled outside the width of the joint shall be removed from the pavement surface prior to constructing the overlay. ~~Where concrete overlays are to be constructed, only the excess joint material on the pavement surface and vegetation in the joints need to be removed.]~~

101-3.3 Removal of Foreign Substances/contaminates prior to [overlay] ~~[seal coat] [remarking].~~ Removal of foreign substances/contaminates from existing pavement that will affect the bond of the new treatment shall consist of removal of rubber, fuel spills, oil, crack sealer, at least 90% of paint, and other foreign substances from the surface of the pavement. Areas that require removal are designated on the plans and as directed by the RPR in the field during construction.

~~[Chemicals]~~ [high-pressure water **] ~~[heater scarifier (asphaltic concrete only)]~~ [** cold milling **] ~~[rotary grinding] [sandblasting]~~** may be used. If chemicals are used, they shall comply with the state's environmental protection regulations. Removal methods used shall not cause major damage to the pavement, or to any structure or utility within or adjacent to the work area. Major damage is defined as changing the properties of the pavement, removal of asphalt causing the aggregate to ravel, or removing pavement over 1/8 inch (3 mm) deep. If it is deemed by the RPR that damage to the existing pavement is caused by operational error, such as permitting the application method to dwell in one location for too long, the Contractor shall repair the damaged area without compensation and as directed by the RPR.

Removal of foreign substances shall not proceed until approved by the RPR. Water used for high-pressure water equipment shall be provided by the Contractor at the Contractor's expense. No material shall be deposited on the pavement shoulders. All wastes shall be disposed of in areas indicated in this specification or shown on the plans.

101-3.4 Concrete spall or failed asphaltic concrete pavement repair.

a. **Repair of concrete spalls in areas to be overlaid with asphalt.** The Contractor shall repair all spalled concrete as shown on the plans or as directed by the RPR. The perimeter of the repair shall be saw cut a minimum of 2 inches (50 mm) outside the affected area and 2 inches (50 mm) deep. The deteriorated material shall be removed to a depth where the existing material is firm or cannot be easily removed with a geologist pick. The removed area shall be filled with asphalt mixture with aggregate sized appropriately for the depth of the patch. The material shall be compacted with equipment approved by the RPR until the material is dense and no movement or marks are visible. The material shall not be placed in lifts over 4 inches (100 mm) in depth. This method of repair applies only to pavement to be overlaid.

b. Asphalt pavement repair. The Contractor shall repair all spalled concrete as shown on the plans or as directed by the RPR. The failed areas shall be removed as specified in paragraph 101-3.1b. All failed material including surface, base course, subbase course, and subgrade shall be removed. Materials and methods of construction shall comply with the applicable sections of these specifications.

101-3.5 Cold milling. Milling shall be performed with a power-operated milling machine or grinder, capable of producing a uniform finished surface. The milling machine or grinder shall operate without tearing or gouging the underlaying surface. The milling machine or grinder shall be equipped with grade and slope controls, and a positive means of dust control. All millings shall be removed and disposed **[** off Airport property **] [** ~~in areas designated on the plans~~ **]**. If the Contractor mills or grinds deeper or wider than the plans specify, the Contractor shall replace the material removed with new material at the Contractor's Expense.

a. Patching. The milling machine shall be capable of cutting a vertical edge without chipping or spalling the edges of the remaining pavement and it shall have a positive method of controlling the depth of cut. The RPR shall layout the area to be milled with a straightedge in increments of 1-foot (30 cm) widths. The area to be milled shall cover only the failed area. Any excessive area that is milled because the Contractor doesn't have the appropriate milling machine, or areas that are damaged because of his negligence, shall be repaired by the Contractor at the Contractor's Expense.

b. Profiling, grade correction, or surface correction. The milling machine shall have a minimum width of **[** 7 **]** feet (**[** 2 **]** m) and it shall be equipped with electronic grade control devices that will cut the surface to the grade specified. The tolerances shall be maintained within +0 inch and -1/4 inch (+0 mm and -6mm) of the specified grade. The machine must cut vertical edges and have a positive method of dust control. The machine must have the ability to **[** ~~windrow the millings or cuttings~~ **] [** remove the millings or cuttings from the pavement and load them into a truck **]**. All millings shall be removed and disposed of **[** off the airport **] [** ~~in areas designated on the plans~~ **]**.

~~c.~~ Clean-up. The Contractor shall sweep the milled surface daily and immediately after the milling until all residual materials are removed from the pavement surface. Prior to paving, the Contractor shall wet down the milled pavement and thoroughly sweep and/or blow the surface to remove loose residual material. Waste materials shall be collected and removed from the pavement surface and adjacent areas by sweeping or vacuuming. Waste materials shall be removed and disposed **[** off Airport property **] [** ~~in areas designated on the plans~~ **]**.

101-3.6. Preparation of asphalt pavement surfaces prior to surface treatment. Existing asphalt pavements to be treated with a surface treatment shall be prepared as follows:

a. Patch asphalt pavement surfaces that have been softened by petroleum derivatives or have failed due to any other cause. Remove damaged pavement to the full depth of the damage and replace with new asphalt pavement similar to that of the existing pavement in accordance with paragraph 101-3.4b.

b. Repair joints and cracks in accordance with paragraph 101-3.2.

c. Remove oil or grease that has not penetrated the asphalt pavement by scrubbing with a detergent and washing thoroughly with clean water. After cleaning, treat these areas with an oil spot primer.

d. Clean pavement surface immediately prior to placing the surface treatment so that it is free of dust, dirt, grease, vegetation, oil or any type of objectionable surface film.

101-3.7 Maintenance. The Contractor shall perform all maintenance work necessary to keep the pavement in a satisfactory condition until the full section is complete and accepted by the RPR. The surface shall be kept clean and free from foreign material. The pavement shall be properly drained at all times. If cleaning is necessary or if the pavement becomes disturbed, any work repairs necessary shall be performed at the Contractor's expense.

101-3.8 Preparation of Joints in Rigid Pavement prior to resealing. Prior to application of sealant material, clean and dry the joints of all scale, dirt, dust, old sealant, curing compound, moisture and other foreign matter. The Contractor shall demonstrate, in the presence of the RPR, that the method used cleans the joint and does not damage the joint.

101-3.8.1 Removal of Existing Joint Sealant. All existing joint sealants will be removed by plowing or use of hand tools. Any remaining sealant and or debris will be removed by use of wire brushes or other tools as necessary. Resaw joints removing no more than 1/16 inch (2 mm) from each joint face. Immediately after sawing, flush out joint with water and other tools as necessary to completely remove the slurry.

101-3.8.2 Cleaning prior to sealing. Immediately before sealing, joints shall be cleaned by removing any remaining laitance and other foreign material. Allow sufficient time to dry out joints prior to sealing. Joint surfaces will be surface-dry prior to installation of sealant.

101-3.8.3 Joint sealant. Joint material and installation will be in accordance with **[** Item P-605 **] ~~[Item P-604].~~**

101-3.9 Preparation of Cracks in Flexible Pavement prior to sealing. Prior to application of sealant material, clean and dry the joints of all scale, dirt, dust, old sealant, curing compound, moisture and other foreign matter. The Contractor shall demonstrate, in the presence of the RPR, that the method used cleans the cracks and does not damage the pavement.

101-3.9.1 Preparation of Crack. Widen crack with **[** router **] ~~[random crack saw]~~** by removing a minimum of 1/16 inch (2 mm) from each side of crack. Immediately before sealing, cracks will be blown out with a hot air lance combined with oil and water-free compressed air.

101-3.9.2 Removal of Existing Crack Sealant. Existing sealants will be removed by **[** routing **] [~~random crack saw ~~]**. Following **[** routing **] ~~[sawing]~~** any remaining debris will be removed by use of a hot lance combined with oil and water-free compressed air.

101-3.9.3 Crack Sealant. Crack sealant material and installation will be in accordance with **[** Item P-605 **]**.

101-3.9.4 Removal of Pipe and other Buried Structures.

a. **Removal of Existing Pipe Material. ~~[Remove the types of pipe as indicated on the plans. The pipe material shall be legally disposed of off-site in a timely manner following removal. Trenches shall be backfilled with material equal to or better in quality than adjacent embankment. Trenches under paved areas must be compacted to [95%] of ASTM [D1557] [D698]. ~~[** Not used. **]** **]**

b. **Removal of Inlets/Manholes. [** Where indicated on the plans or as directed by the RPR, inlets and/or manholes shall be removed and legally disposed of off-site in a timely fashion after removal. Excavations after removal shall be backfilled with material equal or better in quality than adjacent embankment. When under paved areas must be compacted to **[** 95% **]** of ASTM **[** D1557 **] [** D698 **]**, when outside of paved areas must be compacted to **[** 95% **]** of ASTM D698. **[** Not used. **]]**

Method of Measurement

~~[101-4.1 Lump sum~~. ~~No separate measurement for payment will be made. The work covered by this section shall be considered as a subsidiary obligation of the Contractor and covered under the other contract items.]~~

[101-4.1 Pavement removal. The unit of measurement for pavement removal shall be the number of square yards (square meters) removed by the Contractor. Any pavement removed outside the limits of removal because the pavement was damaged by negligence on the part of the Contractor shall not be included in the measurement for payment. No direct measurement or payment shall be made for saw cutting. Saw cutting shall be incidental to pavement removal. Dowel bar installation shall be incidental to pavement removal.

~~101-4.2 Joint and crack repair~~. ~~The unit of measurement for joint and crack repair shall be the linear foot (meter) of joint.~~

~~101-4.3 Removal of Foreign Substances/contaminates~~. ~~The unit of measurement for foreign Substances/contaminates removal shall be the square foot (meter).~~

~~**101-4.4 Spalled and failed asphalt pavement repair.** The unit of measure for failed asphalt pavement repair shall be square foot (square meter).~~

~~**101-4.5 Concrete Spall Repair.** The unit of measure for concrete spall repair shall be the number of square feet (square meter). The location and average depth of the patch shall be determined and agreed upon by the RPR and the Contractor.~~

101-4.6 Cold milling. The unit of measure for cold milling shall be **[**2**]** inches of milling per square yard (square meter). The location and average depth of the cold milling shall be as shown on the plans. If the initial cut does not correct the condition, the Contractor shall re-mill the area and will be paid for the total depth of milling. **]**

~~**101-4.7 Removal of Pipe and other Buried Structures. [** Not required. **] [** The unit of measurement for removal of pipe and other buried structures will be **[** lump sum. No separate measurement for payment will be made. The work covered by this section shall be considered as a subsidiary obligation of the Contractor and covered under the other contract items. **] [** made at the contract unit price for each completed and accepted item. This price shall be full compensation for all labor, equipment, tools, and incidentals necessary to complete this item in accordance with paragraph 101-3.9.4. **]]**~~

BASIS OF PAYMENT

101-5.1 Payment. Payment shall be made at contract unit price for the unit of measurement as specified above. This price shall be full compensation for furnishing all materials and for all preparation, hauling, and placing of the material and for all labor, equipment, tools, and incidentals necessary to complete this item.

Item P 101-1 Full Depth Pavement Removal – per square yard

Item P 101-2 Remove Base Mounted Sign, Including Foundation, Complete - per each

Item P 101-3 Remove Existing Taxiway Sign and Reuse Foundation - per each

Item P 101-4 Remove Base Mounted Taxiway Edge Light - per each

Item P-101-5 Remove Stake Mounted Taxiway Edge Light - per each

Item P-101-6 Cold Milling (0 to 2 Inches) – per square yard (square meter)) – per square yard

References

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

Advisory Circulars (AC)

AC 150/5380-6 Guidelines and Procedures for Maintenance of Airport Pavements.

ASTM International (ASTM)

ASTM D6690 Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements

END OF ITEM P-101

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Item P-151 Clearing and Grubbing

This specification is taken from the FAA AC 150/5370-10H as issued on 12/21/2018 and includes Errata Sheet updates up to 8/19/2020.

DESCRIPTION

151-1.1 This item shall consist of clearing or clearing and grubbing, including the disposal of materials, for all areas within the limits designated on the plans or as required by the Resident Project Representative (RPR).

a. **Clearing** shall consist of the cutting and removal of all trees, stumps, brush, logs, hedges, the removal of fences and other loose or projecting material from the designated areas. The grubbing of stumps and roots will not be required.

b. **Clearing and grubbing** shall consist of clearing the surface of the ground of the designated areas of all trees, stumps, down timber, logs, snags, brush, undergrowth, hedges, heavy growth of grass or weeds, fences, structures, debris, and rubbish of any nature, natural obstructions or such material which in the opinion of the RPR is unsuitable for the foundation of strips, pavements, or other required structures, including the grubbing of stumps, roots, matted roots, foundations, and the disposal from the project of all spoil materials resulting from clearing and grubbing.

c. **Tree Removal.** Tree Removal shall consist of the cutting and removal of isolated single trees or isolated groups of trees, and the grubbing of stumps and roots. The removal of all the trees of this classification shall be in accordance with the requirements for the particular area being cleared.

CONSTRUCTION METHODS

151-2.1 General. The areas denoted on the plans to be **[** ~~[cleared]~~ **] [** cleared and grubbed **]** shall be staked on the ground by the **[** ~~[RPR]~~ **] [** Contractor as indicated on the plans **]**.

The removal of existing structures and utilities required to permit orderly progress of work shall be accomplished by local agencies, unless otherwise shown on the plans. Whenever a telephone pole, pipeline, conduit, sewer, roadway, or other utility is encountered and must be removed or relocated, the Contractor shall advise the RPR who will notify the proper local authority or owner to secure prompt action.

151-2.1.1 Disposal. All materials removed by clearing or by clearing and grubbing shall be disposed of **[** ~~[in the designated waste disposal area]~~ **] [** outside the Airport's limits at the Contractor's responsibility **] [** ~~[by burning]~~, except when otherwise directed by the RPR. ~~[When burning of material is permitted, it shall be burned under the constant overseeing of a watchman to assure the surrounding vegetation and other adjacent property is not jeopardized. Burning shall be done in accordance with all applicable federal, state and local laws, ordinances, and regulations. The Contractor shall notify the agency having jurisdiction and obtain all approvals in writing before starting any burning operations.]~~ As far as practicable, waste concrete and masonry shall be placed on slopes of embankments or channels. When embankments are constructed of such material, this material shall be placed in accordance with requirements for formation of embankments. Any broken concrete or masonry that cannot be used in construction and all other materials not considered suitable for use elsewhere, shall be disposed of by the Contractor. In no case, shall any discarded materials be left in windrows or piles adjacent to or within the airport limits. The manner and location of disposal of materials shall be subject to the approval of the RPR and shall not create an unsightly or objectionable view. When the Contractor is required to locate a disposal area outside the airport property limits, the Contractor shall obtain and file with the RPR permission in writing from the property owner for the use of private property for this purpose.

151-2.1.2 Blasting. [Blasting shall not be allowed. **] [** ~~Blasting and explosive storage shall be in accordance with Section 70, paragraph 70-09 and all federal, state, and local safety regulations. Submit notice 15 days prior to starting work. Submit a Blasting Plan, prepared and sealed by a registered professional Engineer, that includes calculations for overpressure and debris hazard. Obtain written approval prior to performing any blasting and notify the RPR 24 hours~~

~~prior to blasting. Include provisions for storing, handling and transporting explosives as well as for the blasting operations in the plan. The Contractor is responsible for damage caused by blasting operations.]~~

151-2.2 Clearing. The Contractor shall clear the staked or indicated area of all materials as indicated on the plans. Trees unavoidably falling outside the specified clearing limits must be cut up, removed, and disposed of in a satisfactory manner. To minimize damage to trees that are to be left standing, trees shall be felled toward the center of the area being cleared. The Contractor shall preserve and protect from injury all trees not to be removed. The trees, stumps, and brush shall be cut flush with the original ground surface. The grubbing of stumps and roots will not be required.
Fences shall be removed and disposed of as directed by the RPR. Fence wire shall be neatly rolled and the wire and posts stored on the airport if they are to be used again, or stored at a location designated by the RPR if the fence is to remain the property of a local owner or authority.

151-2.3 Clearing and grubbing. In areas designated to be cleared and grubbed, all stumps, roots, buried logs, brush, grass, and other unsatisfactory materials as indicated on the plans, shall be removed, except where embankments exceeding 3-1/2 feet (105 cm) in depth will be constructed outside of paved areas. For embankments constructed outside of paved areas, all unsatisfactory materials shall be removed, but sound trees, stumps, and brush can be cut off flush with the original ground and allowed to remain. Tap roots and other projections over 1-1/2 inches (38 mm) in diameter shall be grubbed out to a depth of at least 18 inches (0.5 m) below the finished subgrade or slope elevation.

Any buildings and miscellaneous structures that are shown on the plans to be removed shall be demolished or removed, and all materials shall be disposed of by removal from the site. The cost of removal is incidental to this item. The remaining or existing foundations, wells, cesspools, and like structures shall be destroyed by breaking down the materials of which the foundations, wells, cesspools, etc., are built to a depth at least 2 feet (60 cm) below the existing surrounding ground. Any broken concrete, blocks, or other objectionable material that cannot be used in backfill shall be removed and disposed of at the Contractor's expense. The holes or openings shall be backfilled with acceptable material and properly compacted.

All holes in embankment areas remaining after the grubbing operation shall have the sides of the holes flattened to facilitate filling with acceptable material and compacting as required in Item P-152. The same procedure shall be applied to all holes remaining after grubbing in areas where the depth of holes exceeds the depth of the proposed excavation.

METHOD OF MEASUREMENT

~~**151-3.1** The quantities of clearing as shown by the limits on the plans shall be [the number of acres (square meters) or fractions thereof,] [per lump sum] of land specifically cleared.~~

151-3.2 The quantities of clearing and grubbing as shown by the limits on the plans shall be **[** ~~the number of acres (square meters) or fractions thereof]~~ **[** per lump sum **]** of land specifically cleared and grubbed.

~~**151-3.3** The quantity of tree removal as shown on the plans shall be the [number of individual trees] [number of acres (square meters) or fractions thereof] [per lump sum] of land specifically cleared.~~

BASIS OF PAYMENT

~~**151-4.1** Payment shall be made at the contract unit price [per acre (square meter) or fractions thereof] [per lump sum] for clearing. This price shall be full compensation for furnishing all materials and for all labor, equipment, tools, and incidentals necessary to complete the item.~~

151-4.2 Payment shall be made at the contract unit price ~~[per acre (square meter)]~~ **[** per lump sum **]** for clearing and grubbing. This price shall be full compensation for furnishing all materials and for all labor, equipment, tools, and incidentals necessary to complete the item.

~~**151-4.3** Payment shall be made at the contract unit price [per number of individual trees] [per acre (square meter)] [per lump sum] for tree removal. This price shall be full compensation for furnishing all materials and for all labor, equipment, tools, and incidentals necessary to complete the item.~~

Payment will be made under:

Item P-151-1 Clearing and grubbing - per lump sum

Item P-151-2 Unclassified Excavation (cut) – per cubic yard

Item P-151-3 In-Place Embankment (fill) – per cubic yard

END OF ITEM P-151

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Item P-152 Excavation, Subgrade, and Embankment

This specification is taken from the FAA AC 150/5370-10H as issued on 12/21/2018 and includes Errata Sheet updates up to 8/19/2020.

DESCRIPTION

152-1.1 This item covers excavation, disposal, placement, and compaction of all materials within the limits of the work required to construct safety areas, runways, taxiways, aprons, and intermediate areas as well as other areas for drainage, building construction, parking, or other purposes in accordance with these specifications and in conformity to the dimensions and typical sections shown on the plans.

152-1.2 Classification. All material excavated shall be classified as defined below:

a. Unclassified excavation. Unclassified excavation shall consist of the excavation and disposal of all material, regardless of its nature ~~**[** which is not otherwise classified and paid for under one of the following items **]**.~~

b. Not used

~~**[Rock excavation**. Rock excavation shall include all solid rock in ledges, in bedded deposits, in unstratified masses, and conglomerate deposits which are so firmly cemented they cannot be removed without blasting or using rippers. All boulders containing a volume of more than 1/2 cubic yard (0.4 m^3) will be classified as "rock excavation." **]**~~

~~**[Muck excavation**. Muck excavation shall consist of the removal and disposal of deposits or mixtures of soils and organic matter not suitable for foundation material. Muck shall include materials that will decay or produce subsidence in the embankment. It may consist of decaying stumps, roots, logs, humus, or other material not satisfactory for incorporation in the embankment. **]**~~

~~**[Drainage excavation**. Drainage excavation shall consist of all excavation made for the primary purpose of drainage and includes drainage ditches, such as intercepting, inlet or outlet ditches; temporary levee construction; or any other type as shown on the plans. **]**~~

~~**[Borrow excavation**. Borrow excavation shall consist of approved material required for the construction of embankments or for other portions of the work in excess of the quantity of usable material available from required excavations. Borrow material shall be obtained from areas designated by the Resident Project Representative (RPR) within the limits of the airport property but outside the normal limits of necessary grading, or from areas outside the airport boundaries. **]**~~

~~**[Other.]]**~~

152-1.3 Unsuitable excavation. Unsuitable material shall be disposed in designated waste areas as shown on the plans. Materials containing vegetable or organic matter, such as muck, peat, organic silt, or sod shall be considered unsuitable for use in embankment construction. Material suitable for topsoil may be used on the embankment slope when approved by the RPR.

CONSTRUCTION METHODS

152-2.1 General. Before beginning excavation, grading, and embankment operations in any area, the area shall be cleared or cleared and grubbed in accordance with Item P-151.

The suitability of material to be placed in embankments shall be subject to approval by the RPR. All unsuitable material shall be disposed of in waste areas as shown on the plans. All waste areas shall be graded to allow positive drainage of the area and adjacent areas. The surface elevation of waste areas shall be specified on the plans or approved by the RPR. When the Contractor's excavating operations encounter artifacts of historical or archaeological significance, the operations shall be temporarily discontinued and the RPR notified per Section 70, paragraph 70-20. At the direction of the RPR, the Contractor shall excavate the site in such a manner as to preserve the artifacts encountered and allow for their removal. Such excavation will be paid for as extra work.

Areas outside the limits of the pavement areas where the top layer of soil has become compacted by hauling or other Contractor activities shall be scarified and disked to a depth of 4 inches (100 mm), to loosen and pulverize the soil. Stones or rock fragments larger than 4 inches (100 mm) in their greatest dimension will not be permitted in the top 6 inches (150 mm) of the subgrade.

If it is necessary to interrupt existing surface drainage, sewers or under-drainage, conduits, utilities, or similar underground structures, the Contractor shall be responsible for and shall take all necessary precautions to preserve them or provide temporary services. When such facilities are encountered, the Contractor shall notify the RPR, who shall arrange for their removal if necessary. The Contractor, at their own expense, shall satisfactorily repair or pay the cost of all damage to such facilities or structures that may result from any of the Contractor's operations during the period of the contract.

~~a.~~ Blasting. [Blasting shall not be allowed. **] ~~[Blasting will be permitted as directed by the RPR and in accordance with the following:~~**

~~Blasting will be permitted only when proper precautions are taken for the safety of all persons, work, and property. All damage done to the work or property shall be repaired by the Contractor. The cost of repair is incidental to this item. All operations of the Contractor in connection with the transportation, storage, and use of explosives shall conform to all federal, state and local regulations and explosive manufacturers' instructions, with applicable approved permits reviewed by the RPR. Any approval will not relieve the Contractor of their responsibility in blasting operations.~~

~~Where blasting is approved, the Contractor shall employ a vibration consultant, approved by the RPR, to advise on explosive charge weights per delay and to analyze records from seismograph recordings. The seismograph shall be capable of producing a permanent record of the three components of the motion in terms of particle velocity, and in addition shall be capable of internal dynamic calibration.~~

~~In each distinct blasting area, where pertinent factors affecting blast vibrations and their effects in the area remain the same, the Contractor shall submit a blasting plan of the initial blasts to the RPR for approval. This plan must consist of hole size, depth, spacing, burden, type of explosives, type of delay sequence, maximum amount of explosive on any one delay period, depth of rock, and depth of overburden if any. The maximum explosive charge weights per delay included in the plan shall not be increased without the approval of the RPR.~~

~~The Contractor shall keep a record of each blast: its date, time and location; the amount of explosives used, maximum explosive charge weight per delay period, and, where necessary, seismograph records identified by instrument number and location.~~

~~Blasting and explosive storage shall be in accordance with Section 70, paragraph 70-09 and all federal, state, and local safety regulations.~~

~~These records shall be made available to the RPR on a monthly basis or in tabulated form at other times as required.]~~

152-2.2 Excavation. No excavation shall be started until the work has been staked out by the Contractor and the RPR has obtained from the Contractor, the survey notes of the elevations and measurements of the ground surface. The Contractor and RPR shall agree that the original ground lines shown on the original topographic mapping are accurate, or agree to any adjustments made to the original ground lines.

[Digital terrain model (DTM) files of the existing surfaces, finished surfaces and other various surfaces were used to develop the design plans. **]**

~~[Volumetric quantities were calculated by comparing DTM files of the applicable design surfaces and generating Triangle Volume Reports. Electronic copies of DTM files and a paper copy of the original topographic map will be issued to the successful bidder.]~~

~~[Volumetric quantities were calculated using design cross sections which were created for this project using the DTM files of the applicable design surfaces and generating End Area Volume Reports. Paper copies of design cross sections and a paper copy of the original topographic map will be issued to the successful bidder.]~~

Existing grades on the design cross sections or DTM's, where they do not match the locations of actual spot elevations shown on the topographic map, were developed by computer interpolation from those spot elevations. Prior to disturbing original grade, Contractor shall verify the accuracy of the existing ground surface by verifying spot elevations at the same locations where original field survey data was obtained as indicated on the topographic map. Contractor shall recognize that, due to the interpolation process, the actual ground surface at any particular location may differ somewhat from the interpolated surface shown on the design cross sections or obtained from the DTM's. Contractor's verification of original ground surface, however, shall be limited to verification of spot elevations as indicated herein, and no adjustments will be made to the original ground surface unless the Contractor demonstrates that spot elevations shown are incorrect. For this purpose, spot elevations which are within **[** 0.1 foot (30 mm) **]** of the stated elevations for ground surfaces, or within **[** 0.04 foot (12 mm) **]** for hard surfaces (pavements, buildings, foundations, structures, etc.) shall be considered "no change". Only deviations in excess of these will be considered for adjustment of the original ground surface. If Contractor's verification identifies discrepancies in the topographic map, Contractor shall notify the RPR in writing at least **[** two weeks **]** before disturbance of existing grade to allow sufficient time to verify the submitted information and make adjustments to the design cross sections or DTM's. Disturbance of existing grade in any area shall constitute acceptance by the Contractor of the accuracy of the original elevations shown on the topographic map for that area. **]**

All areas to be excavated shall be stripped of vegetation and topsoil. Topsoil shall be stockpiled for future use in areas designated on the plans or by the RPR. All suitable excavated material shall be used in the formation of embankment, subgrade, or other purposes **as** shown on the plans. All unsuitable material shall be disposed of as shown on the plans. The grade shall be maintained so that the surface is well drained at all times.

When the volume of the excavation exceeds that required to construct the embankments to the grades as indicated on the plans, the excess shall be used to grade the areas of ultimate development or disposed as directed by the RPR. When the volume of excavation is not sufficient for constructing the embankments to the grades indicated, the deficiency shall be obtained from borrow areas.

a. Selective grading. When selective grading is indicated on the plans, the more suitable material designated by the RPR shall be used in constructing the embankment or in capping the pavement subgrade. If, at the time of excavation, it is not possible to place this material in its final location, it shall be stockpiled in approved areas until it can be placed. The more suitable material shall then be placed and compacted as specified. Selective grading shall be considered incidental to the work involved. The cost of stockpiling and placing the material shall be included in the various pay items of work involved.

b. Undercutting. Rock, shale, hardpan, loose rock, boulders, or other material unsatisfactory for safety areas, subgrades, roads, shoulders, or any areas intended for turf shall be excavated to a minimum depth of 12 inches (300 mm) below the subgrade or to the depth specified by the RPR. Muck, peat, matted roots, or other yielding material, unsatisfactory for subgrade foundation, shall be removed to the depth specified. Unsuitable materials shall be ~~[disposed of at locations shown on the plans.]~~ **[** disposed off the airport. The cost is incidental to this item. **]** This excavated material shall be paid for at the contract unit price per cubic yard (per cubic meter) for **[**unclassified excavation**]**. The excavated area shall be backfilled with suitable material obtained from the grading operations or borrow areas and compacted to specified densities. The necessary backfill will constitute a part of the embankment. Where rock cuts are made, backfill with select material. Any pockets created in the rock surface shall be drained in accordance with the details shown on the plans. Undercutting will be paid as **[** unclassified excavation **]** ~~[rock excavation]~~.

c. Over-break. Over-break, including slides, is that portion of any material displaced or loosened beyond the finished work as planned or authorized by the RPR. All over-break shall be graded or removed by the Contractor and disposed of as directed by the RPR. The RPR shall determine if the displacement of such material was unavoidable and their own decision shall be final. Payment will not be made for the removal and disposal of over-break that the RPR determines as avoidable. Unavoidable over-break will be classified as "Unclassified Excavation."

d. Removal of utilities. The removal of existing structures and utilities required to permit the orderly progress of work will be accomplished **[** ~~by someone other than the Contractor~~ **] [** by the Contractor as indicated on the plans **]**. All existing foundations shall be excavated at least 2 feet (60 cm) below the top of subgrade or as indicated on the plans, and the material disposed of as directed by the RPR. All foundations thus excavated shall be backfilled with suitable material and compacted as specified for embankment or as shown on the plans.

152-2.3 Borrow excavation. [Borrow areas are not required. **] [** ~~Borrow areas within the airport property are indicated on the plans. Borrow excavation shall be made only at these designated locations and within the horizontal and vertical limits as staked or as directed by the RPR. All unsuitable material shall be disposed of by the Contractor as shown on the plans. All borrow pits shall be opened to expose the various strata of acceptable material to allow obtaining a uniform product. Borrow areas shall be drained and left in a neat, presentable condition with all slopes dressed uniformly. Borrow areas shall not create a hazardous wildlife attractant.~~ **[___]** ~~**]**~~

~~**[** There are no borrow sources within the boundaries of the airport property. The Contractor shall locate and obtain borrow sources, subject to the approval of the RPR. The Contractor shall notify the RPR at least **[** 15 **]** days prior to beginning the excavation so necessary measurements and tests can be made by the RPR. All borrow pits shall be opened to expose the various strata of acceptable material to allow obtaining a uniform product. Borrow areas shall be drained and left in a neat, presentable condition with all slopes dressed uniformly. Borrow areas shall not create a hazardous wildlife attractant. **[___]** **]**~~

152-2.4 Drainage excavation. Drainage excavation shall consist of excavating drainage ditches including intercepting, inlet, or outlet ditches; or other types as shown on the plans. The work shall be performed in sequence with the other construction. Ditches shall be constructed prior to starting adjacent excavation operations. All satisfactory material shall be placed in embankment fills; unsuitable material shall be placed in designated waste areas or as directed by the RPR. All necessary work shall be performed true to final line, elevation, and cross-section. The Contractor shall maintain ditches constructed on the project to the required cross-section and shall keep them free of debris or obstructions until the project is accepted.

152-2.5 Preparation of cut areas or areas where existing pavement has been removed. In those areas on which a subbase or base course is to be placed, the top **[** 12 inches (300 mm) **]** of subgrade shall be compacted to not less than **[** 100 % **]** of maximum density for non-cohesive soils, and **[** 95% **]** of maximum density for cohesive soils as determined by ASTM [D1557] As used in this specification, "non-cohesive" shall mean those soils having a plasticity index (PI) of less than 3 as determined by ASTM D4318.

152-2.6 Preparation of embankment area. All sod and vegetative matter shall be removed from the surface upon which the embankment is to be placed. The cleared surface shall be broken up by plowing or scarifying to a minimum depth of 6 inches (150 mm) and shall then be compacted per paragraph 152-2.10.

Sloped surfaces steeper than one (1) vertical to four (4) horizontal shall be plowed, stepped, benched, or broken up so that the fill material will bond with the existing material. When the subgrade is part fill and part excavation or natural ground, the excavated or natural ground portion shall be scarified to a depth of 12 inches (300 mm) and compacted as specified for the adjacent fill.

No direct payment shall be made for the work performed under this section. The necessary clearing and grubbing and the quantity of excavation removed will be paid for under the respective items of work.

152-2.7 Control Strip. The first half-day of construction of subgrade and/or embankment shall be considered as a control strip for the Contractor to demonstrate, in the presence of the RPR, that the materials, equipment, and construction processes meet the requirements of this specification. The sequence and manner of rolling necessary to obtain specified density requirements shall be determined. The maximum compacted thickness may be increased to a maximum of 12 inches (300 mm) upon the Contractor's demonstration that approved equipment and operations will uniformly compact the lift to the specified density. The RPR must witness this demonstration and approve the lift thickness prior to full production.

Control strips that do not meet specification requirements shall be reworked, re-compacted, or removed and replaced at the Contractor's expense. Full operations shall not begin until the control strip has been accepted by the RPR. The Contractor shall use the same equipment, materials, and construction methods for the remainder of construction, unless adjustments made by the Contractor are approved in advance by the RPR.

152-2.8 Formation of embankments. The material shall be constructed in lifts as established in the control strip, but not less than 6 inches (150 mm) nor more than 12 inches (300 mm) of compacted thickness.

When more than one lift is required to establish the layer thickness shown on the plans, the construction procedure described here shall apply to each lift. No lift shall be covered by subsequent lifts until tests verify that compaction requirements have been met. The Contractor shall rework, re-compact and retest any material placed which does not meet the specifications.

The lifts shall be placed, to produce a soil structure as shown on the typical cross-section or as directed by the RPR. Materials such as brush, hedge, roots, stumps, grass and other organic matter, shall not be incorporated or buried in the embankment.

Earthwork operations shall be suspended at any time when satisfactory results cannot be obtained due to rain, freezing, or other unsatisfactory weather conditions in the field. Frozen material shall not be placed in the embankment nor shall embankment be placed upon frozen material. Material shall not be placed on surfaces that are muddy, frozen, or contain frost. The Contractor shall drag, blade, or slope the embankment to provide surface drainage at all times.
The material in each lift shall be within ±2% of optimum moisture content before rolling to obtain the prescribed compaction. The material shall be moistened or aerated as necessary to achieve a uniform moisture content throughout the lift. Natural drying may be accelerated by blending in dry material or manipulation alone to increase the rate of evaporation.

The Contractor shall make the necessary corrections and adjustments in methods, materials or moisture content to achieve the specified embankment density.

The ~~[RPR]~~[contractor] will take samples of excavated materials which will be used in embankment for testing and develop a Moisture-Density Relations of Soils Report (Proctor) in accordance with **[** ~~ASTM D698~~ **] [** D 1557 **]**. A new Proctor shall be developed for each soil type based on visual classification.

Density tests will be taken by the ~~[RPR]~~[contractor] for every **[** 3,000 **]** square yards of compacted embankment for each lift which is required to be compacted, or other appropriate frequencies as determined by the RPR.
If the material has greater than 30% retained on the 3/4-inch (19.0 mm) sieve, follow AASHTO T-180 Annex Correction of maximum dry density and optimum moisture for oversized particles.
Rolling operations shall be continued until the embankment is compacted to not less than **[** 100% **]** of maximum density for non-cohesive soils, and **[** 95% **]** of maximum density for cohesive soils as determined by ASTM **[**D 1557 **]**. Under all areas to be paved, the embankments shall be compacted to a depth of **[** 12 inches**]** and to a density of not less than **[**95**]** percent of the maximum density as determined by ASTM **[**1557**]**. As used in this specification, "non-cohesive" shall mean those soils having a plasticity index (PI) of less than 3 as determined by ASTM D4318.

On all areas outside of the pavement areas, no compaction will be required on the top **[** 4 inches (100 mm) **]** which shall be prepared for a seedbed in accordance with **[** Item T-901 **] [** ~~T-906~~ **]**.

The in-place field density shall be determined in accordance with [~~ASTM D1556~~] [ASTM 6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938.]. The [~~RPR shall perform all density tests~~] [Contractor's laboratory shall perform all density tests in the RPR's presence and provide the test results upon completion to the RPR for acceptance]. If the specified density is not attained, the area represented by the test or as designated by the RPR shall be reworked and/or re-compacted and additional random tests made. This procedure shall be followed until the specified density is reached.

Compaction areas shall be kept separate, and no lift shall be covered by another lift until the proper density is obtained.

During construction of the embankment, the Contractor shall route all construction equipment evenly over the entire

width of the embankment as each lift is placed. Lift placement shall begin in the deepest portion of the embankment fill. As placement progresses, the lifts shall be constructed approximately parallel to the finished pavement grade line.

When rock, concrete pavement, asphalt pavement, and other embankment material are excavated at approximately the same time as the subgrade, the material shall be incorporated into the outer portion of the embankment and the subgrade material shall be incorporated under the future paved areas. Stones, fragmentary rock, and recycled pavement larger than 4 inches (100 mm) in their greatest dimensions will not be allowed in the top 12 inches (300 mm) of the subgrade. Rockfill shall be brought up in lifts as specified or as directed by the RPR and the finer material shall be used to fill the voids forming a dense, compact mass. Rock, cement concrete pavement, asphalt pavement, and other embankment material shall not be disposed of except at places and in the manner designated on the plans or by the RPR.

When the excavated material consists predominantly of rock fragments of such size that the material cannot be placed in lifts of the prescribed thickness without crushing, pulverizing or further breaking down the pieces, such material may be placed in the embankment as directed in lifts not exceeding 2 feet (60 cm) in thickness. Each lift shall be leveled and smoothed with suitable equipment by distribution of spalls and finer fragments of rock. The lift shall not be constructed above an elevation 4 feet (1.2 m) below the finished subgrade.

[There will be no separate measurement of payment for compacted embankment. All costs incidental to placing in lifts, compacting, discing, watering, mixing, sloping, and other operations necessary for construction of embankments will be included in the contract price for excavation, borrow, or other items. **] [** ~~Payment for compacted embankment will be made under embankment in-place and no payment will be made for excavation, borrow, or other items.~~ **]**

152-2.9 Proof rolling. [~~Not Used~~ **]** The purpose of proof rolling the subgrade is to identify any weak areas in the subgrade and not for compaction of the subgrade. **[** Before start of embankment, **] [** and **] [** After compaction is completed, **]** the subgrade area shall be proof rolled with a **[[** 20 ton (18.1 metric ton) **]** Tandem axle Dual Wheel Dump Truck loaded to the legal limit with tires inflated to **[** 80/100/150 psi (0.551 MPa/0.689 MPa/1.034 MPa) **]]** ~~**[[**___**]** ton Proof Roller with tires spaced not more than 32 inches (0.8 m) on center with tires inflated to **[** 100/125/150 psi (0.689 MPa/0.861 MPa/1.034 MPa) **]**~~ **]** in the presence of the RPR. Apply a minimum of **[**1**]** coverage, or as specified by the RPR, under pavement areas. A coverage is defined as the application of one tire print over the designated area. Soft areas of subgrade that deflect more than 1 inch (25 mm) or show permanent deformation greater than 1 inch (25 mm) shall be removed and replaced with suitable material or reworked to conform to the moisture content and compaction requirements in accordance with these specifications. Removal and replacement of soft areas is incidental to this item.

152-2.10 Compaction requirements. The subgrade under areas to be paved shall be compacted to a depth of **[** 12 inches (300 mm) **]** and to a density of not less than **[** 100 **]** percent of the maximum dry density as determined by ASTM **[** ~~D1557~~ **] [** D698 **]**. The subgrade in areas outside the limits of the pavement areas shall be compacted to a depth of **[** 12 inches (300 mm) **]** and to a density of not less than **[** 95 **]** percent of the maximum density as determined by ASTM **[** D698 **]**.

The material to be compacted shall be within ±2% of optimum moisture content before being rolled to obtain the prescribed compaction (except for expansive soils). When the material has greater than 30 percent retained on the ¾ inch (19.0 mm) sieve, follow the methods in **[** ASTM D698 **] [** ~~ASTM D1557~~ **]] [** ~~procedures in AASHTO T180 Annex for correction of maximum dry density and optimum moisture for oversized particles.~~ **]** Tests for moisture content and compaction will be taken at a minimum of **[** 3,000 **]** S.Y. of subgrade. All quality assurance testing shall be done by ~~**[** the RPR. **]**~~ **[** the Contractor's laboratory in the presence of the RPR, and density test results shall be furnished upon completion to the RPR for acceptance determination. **]**

The in-place field density shall be determined in accordance with ~~**[** ASTM D1556 **]**~~ **[** ASTM D6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938 within 12 months prior to its use on this contract. The gage shall be field standardized daily. **]**

Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.
If the specified density is not attained, the entire lot shall be reworked and/or re-compacted and additional random tests made. This procedure shall be followed until the specified density is reached.

All cut-and-fill slopes shall be uniformly dressed to the slope, cross-section, and alignment shown on the plans or as directed by the RPR and the finished subgrade shall be maintained.

152-2.11 Finishing and protection of subgrade. Finishing and protection of the subgrade is incidental to this item. Grading and compacting of the subgrade shall be performed so that it will drain readily. All low areas, holes or depressions in the subgrade shall be brought to grade. Scarifying, blading, rolling and other methods shall be performed to provide a thoroughly compacted subgrade shaped to the lines and grades shown on the plans. All ruts or rough places that develop in the completed subgrade shall be graded, re-compacted, and retested. The Contractor shall protect the subgrade from damage and limit hauling over the finished subgrade to only traffic essential for construction purposes.

The Contractor shall maintain the completed course in satisfactory condition throughout placement of subsequent layers. No subbase, base, or surface course shall be placed on the subgrade until the subgrade has been accepted by the RPR.

152-2.12 Haul. All hauling will be considered a necessary and incidental part of the work. The Contractor shall include the cost in the contract unit price for the pay of items of work involved. No payment will be made separately or directly for hauling on any part of the work.

The Contractor's equipment shall not cause damage to any excavated surface, compacted lift or to the subgrade as a result of hauling operations. Any damage caused as a result of the Contractor's hauling operations shall be repaired at the Contractor's expense.

The Contractor shall be responsible for providing, maintaining and removing any haul roads or routes within or outside of the work area, and shall return the affected areas to their former condition, unless otherwise authorized in writing by the Owner. No separate payment will be made for any work or materials associated with providing, maintaining and removing haul roads or routes.

152-2.13 Surface Tolerances. In those areas on which a subbase or base course is to be placed, the surface shall be tested for smoothness and accuracy of grade and crown. Any portion lacking the required smoothness or failing in accuracy of grade or crown shall be scarified to a depth of at least 3 inches (75 mm), reshaped and re-compacted to grade until the required smoothness and accuracy are obtained and approved by the RPR. The Contractor shall perform all final smoothness and grade checks in the presence of the RPR. Any deviation in surface tolerances shall be corrected by the Contractor at the Contractor's expense.

a. Smoothness. The finished surface shall not vary more than +/- ½ inch (12 mm) when tested with a 12-foot (3.7-m) straightedge applied parallel with and at right angles to the centerline. The straightedge shall be moved continuously forward at half the length of the 12-foot (3.7-m) straightedge for the full length of each line on a 50-foot (15-m) grid.

b. Grade. The grade and crown shall be measured on a 50-foot (15-m) grid and shall be within +/-0.05 feet (15 mm) of the specified grade.

On safety areas, turfed areas and other designated areas within the grading limits where no subbase or base is to placed, grade shall not vary more than 0.10 feet (30 mm) from specified grade. Any deviation in excess of this amount shall be corrected by loosening, adding or removing materials, and reshaping.

152-2.14 Topsoil. When topsoil is specified or required as shown on the plans or under Item T-905, it shall be salvaged from stripping or other grading operations. The topsoil shall meet the requirements of Item T-905. If, at the time of excavation or stripping, the topsoil cannot be placed in its final section of finished construction, the material shall be stockpiled at approved locations. Stockpiles shall be located as shown on the plans and the approved CSPP, and shall not be placed on areas that subsequently will require any excavation or embankment fill. If, in the judgment of the RPR, it is practical to place the salvaged topsoil at the time of excavation or stripping, the material shall be placed in its final position without stockpiling or further re-handling.
Upon completion of grading operations, stockpiled topsoil shall be handled and placed as shown on the plans and as required in Item T-905. Topsoil shall be paid for as provided in Item T-905. No direct payment will be made for topsoil under Item P-152.

METHOD OF MEASUREMENT

152-3.1 Measurement for payment specified by the cubic yard (cubic meter) shall be computed by the ~~**[** average end areas of design cross sections **]**~~ **[** the comparison of digital terrain model (DTM) surfaces ~~**]** for computation of neat line design quantities **[**~~**.** The end area is that bound by the original ground line established by field cross-sections and the final theoretical pay line established by cross-sections shown on the plans, subject to verification by the RPR.

152-3.1 [The quantity of **[** unclassified **] [** ~~rock **] [** muck **] [** drainage **]** excavation to be paid for shall be the number of cubic yards (cubic meters) measured in its original position. Measurement shall not include the quantity of materials excavated without authorization beyond normal slope lines, or the quantity of material used for purposes other than those directed. **]**

152-3.2 The quantity of embankment in place shall be the number of cubic yards (cubic meters) measured in its final position.

[152-3.3 [~~Stockpiled material shall be paid for on the basis of the number of cubic yards (cubic meters) measured in the stockpiled position.~~ **] [** Stockpiled material shall not be measured for payment in the stockpiled position. **]]**

BASIS OF PAYMENT

152-4.1 [Unclassified excavation **] [** ~~Rock Excavation **] [** Muck Excavation **] [** Drainage Excavation **] [** Stockpiled Material **]** payment shall be made at the contract unit price per cubic yard (cubic meter). This price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the item.

152-4.2 For embankment in place, payment shall be made at the contract unit price per cubic yard (cubic meter). This price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the item.

~~**[152-4.3** Stockpiled material shall be paid for on the basis of the number of cubic yards (cubic meters) measured in the stockpiled position. **]**~~

Payment will be made under:

Item P-152-1 Unclassified Excavation (Cut) - per cubic yard

Item P-152-2 In-Place Embankment (Fill - Furnished from off-site) - per cubic yard

REFERENCES

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

American Association of State Highway and Transportation Officials (AASHTO)

AASHTO T-180	Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop

ASTM International (ASTM)

ASTM D698	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600 kN-m/m^3))
ASTM D1556	Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D1557	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3 (2700 kN-m/m^3))

ASTM D6938 Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

Advisory Circulars (AC)

AC 150/5370-2 Operational Safety on Airports During Construction Software

Software

FAARFIELD – FAA Rigid and Flexible Iterative Elastic Layered Design

U.S. Department of Transportation

FAA RD-76-66 Design and Construction of Airport Pavements on Expansive Soils

END OF ITEM P-152

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Item P-207 In-place Full Depth Reclamation (FDR) Recycled Asphalt Aggregate Base Course

This specification is taken from the FAA AC 150/5370-10H as issued on 12/21/2018 and includes Errata Sheet updates up to 8/19/2020 as well as EB-106 updates issued February 7, 2023.

DESCRIPTION

207-1.1 This item consists of a recycled asphalt aggregate base course resulting from the in-place full depth reclamation (FDR) of the existing pavement section (asphalt wearing surface and aggregate base), plus mechanical stabilization with additional aggregate or chemical stabilization with cement, asphalt emulsion or fly ash when required.

MATERIALS

207-2.1 Aggregate. The FDR shall consist of materials produced by recycling (pulverizing and mixing) the existing asphalt pavement, aggregate base, subgrade, and any additional aggregate as necessary. Material larger than 2 inches in any dimension shall not be permitted in the recycle asphalt aggregate base course.

The FDR shall meet the gradation in the table below.

FDR Gradation

Sieve	**Minimum Percentage by weight passing sieves**
2 inch (51 mm)	100
No. 4 (4.75 mm)	55
No. 200 (75 µm)	**[** 0-15 **]**

a. Deleterious substances. Materials for aggregate base shall be kept free from weeds, sticks, grass, roots and other foreign matter.

b. Uniformity. The materials shall be thoroughly recycled (pulverized and mixed) to ensure a uniform gradation.

207-2.2 Stabilization.

a. Mechanical stabilization. [~~Not required.~~ **][** Addition of corrective aggregate material to adjust gradation shall be equivalent to P-208 or better. **]**

b. Chemical Stabilization. **[** Cement shall meet the requirements of ASTM C150, Types I, II, or V; ASTM C595, Types IS, IP, IL, or IT . **] [** Fly ash shall meet the requirements of ASTM C618. **] [** Emulsified asphalt cement shall meet the requirements of ASTM D977. **] [** ~~Stabilizing agent is not required.~~ **]**. Materials shall be handled, stored, and applied in accordance with all federal, state, and local requirements.

207-2.3 Water. Water used in mixing or curing shall be from potable water sources. Other sources shall be tested in accordance with ASTM C1602 prior to use.

207-2.4 Quality Control (QC) Sampling and testing. The Contractor shall take at least **[** two **]** FDR samples per day of production in the presence of the Resident Project Representative (RPR) to check the gradation. Sampling shall be per ASTM D75. Material shall meet the requirements in paragraph 207-2.1. Samples shall be taken from the in-place, un-compacted material at random sampling locations per ASTM D3665.

CONSTRUCTION METHODS

207-3.1 Milling. **[** Milling is not required. **] [** ~~The existing asphalt pavement shall be milled to a depth of **[ ]** inches below surface grade.~~ **]]**

207-3.2 Control Strip. The first half-day of construction shall be considered the control strip. The Contractor shall demonstrate, in the presence of the RPR, that the materials, equipment, and construction processes meet the requirements of the specification. The sequence and manner of rolling necessary to obtain specified density requirements shall be determined. Control strips that do not meet specification requirements shall be reworked, re-compacted, or removed and replaced at the Contractor's expense. Full operations shall not begin until the control strip has been accepted by the RPR. Upon acceptance of the control strip by the RPR, the Contractor shall use the same equipment, materials, and construction methods for the remainder of construction, unless adjustments made by the Contractor are approved in advance by the RPR.

207-3.3 Recycling (Pulverization and mixing). The asphalt pavement, aggregate base and subgrade shall be recycled (pulverized and mixed) into a uniformly blended mixture with **[** 4 **]** inches (100 mm) of **[** P-208 **]** aggregate base **] [** and **] [[** 6 **]**% cement **] [[** 3 **]** percent of emulsified asphalt **] [[** 12 **]**% fly ash **]** by dry unit weight and water to the depth indicated on the plans. All material over approximately 2 inches (50 mm) shall be removed by the Contractor. The mixture shall be brought to the desired moisture content.

The maximum lift thickness of the recycled aggregate base course material to be compacted shall be **[** 12 inches (300 mm) **]**.

207-3.4 Grading and compaction. Immediately upon completion of recycling (pulverization and mixing), the material shall be shaped and graded in accordance with the project plans. The recycled asphalt aggregate base course shall be compacted within the same day to an in-place density of **[** 95% **]** as determined by **[** ~~ASTM D1557~~ **] [** ASTM D698 **]**. The moisture content of the material during compaction shall be within ±2% of the optimum moisture content as determined by ASTM D2216. The number, type and weight of rollers shall be sufficient to compact the material to the required density. Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

207-3.5 Finishing. The surface of the aggregate base course shall be finished by blading or with automated equipment designed for this purpose. If the top layer is 1/2 inch (12 mm) or more below grade, the top layer shall be scarified to a depth of at least 3 inches (75mm), new material added, and the layer blended and re-compacted to bring it to grade. The addition of layers less than 3 inches (75mm) shall not be allowed.

207-3.6 Proof rolling. Compacted asphalt aggregate base course shall be proof rolled with a **[** tandem axle dual wheel dump truck loaded to the legal limit with tires inflated to 80 psi (550 kPa) **] [[**20**]** ton Proof Roller with tires spaced not more than 32 inches (0.8 m) on-center with tires inflated to **[** ~~100 (690)~~ **] [** 125 (860) **] [** ~~150 (1030)~~ **]** psi (kPa) **]** in the presence of the RPR. Soft areas that deflect greater than 0.5 inch (12 mm) or show permanent deformation greater than 0.5 inch (12 mm) shall be removed and reworked at the Contractor's expense.

207-3.7 Weather limitations. When weather conditions detrimentally affect the construction process and/or quality of the materials, the Contractor shall stop construction. Cement or fly ash shall not be applied when wind conditions affect the distribution of the materials. When the aggregates contain frozen materials or when the underlying course is frozen or wet, the construction shall be stopped. Construction shall not be performed unless the atmospheric temperature is above 35°F (2°C) and rising or approved by the RPR. When the temperature falls below 35°F (2°C), protect all completed areas against detrimental effects of freezing by approved methods. Correct completed areas damaged by freezing, rainfall, or other weather conditions to meet specified requirements.

207-3.8 Maintenance. The asphalt aggregate base course shall be maintained in a satisfactory condition until the work is accepted by the RPR. Equipment used in the construction of an adjoining section may be routed over completed sections of asphalt aggregate base course, provided that no damage results and equipment is routed over the full width of the completed asphalt aggregate base course. Any damage to the recycled asphalt aggregate base course shall be repaired by the Contractor at the Contractor's expense.

207-3.9 Surface tolerances. The finished surface shall be tested for smoothness and accuracy of grade. Any area failing smoothness or grade shall be scarified to a depth of at least 3 inches (75 mm), reshaped and re-compacted by the Contractor at the Contractor's expense.

a. Smoothness. The finished surface shall not vary more than 3/8-inch (9 mm) when tested with a 12-foot (3.7-m) straightedge applied parallel with and at right angles to the centerline. The straightedge shall be moved

continuously forward at half the length of the 12-foot (3.7-m) straightedge for the full length of each line on a 50-foot (15-m) grid.

b. Grade. The grade shall be measured on a 50-foot (15-m) grid and shall be within +0 and -1/2 inch (12 mm) of the specified grade.

207-3.10 Acceptance sampling and testing for density. FDR base course shall be accepted for density and thickness on an area basis. One (1) test for density and thickness will be made for each **[** 1200 square yds (1000 square meters) **]**. Sampling locations will be determined on a random basis in accordance with ASTM D3665.

a. Density. The ~~**[** RPR shall perform all density tests **]**~~ **[** Contractor's laboratory shall perform all density tests in the RPR's presence and provide the test results upon completion to the RPR for acceptance **]**.

Each area will be accepted for density when the field density is at least **[** 95% **]** of the maximum density of the FDR base course in accordance with ~~**[** ASTM D1557 **]**~~ **[** ASTM D698 **]**. The in-place field density shall be determined in accordance with ~~**[** ASTM D1556 **]**~~ **[** or **]** **[** ASTM D6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938 **]**. If the specified density is not attained, the area represented by the failed test must be reworked and/or recompacted and two additional random tests made. This procedure shall be followed until the specified density is reached. Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

a. Thickness. The thickness of the base course shall be within +0 and -1/2 inch (12 mm) of the specified thickness as determined by depth tests taken by the Contractor in the presence of the RPR for each area. Where the thickness is deficient by more than 1/2-inch (12 mm), the Contractor shall correct such areas at no additional cost by scarifying to a depth of at least 3 inches (75 mm), adding new material, and recompacted to grade. The Contractor shall replace, at his expense, base material where depth tests have been taken.

METHOD OF MEASUREMENT

207-4.1 The quantity of FDR asphalt aggregate base course shall be measured by the number of square yards (m^2) of material in compliance with the plans and specifications.

~~**207-4.2 [** The quantity of corrective aggregate material shall be measured by the **[** ton **] [** kg **] [** cubic yards **] [** cubic meters **].]**~~
~~**[** The quantity of emulsified asphalt shall be measured by the **[** ton **] [** kg **].]**~~
~~**[** The quantity of cement shall be measured by the **[** ton **] [** kg **].]**~~
~~**[** The quantity of fly ash shall be measured by the **[** ton **] [** kg **].]**~~

BASIS OF PAYMENT

207-5.1 Payment shall be made at the contract unit price per square yard (m^2) for recycling the existing asphalt pavement, aggregate base course, subgrade and mixing with stabilizing agent, if required, spreading, compacting, and maintaining the recycled material to the compacted thickness as indicated on the drawings. This price shall be full compensation for furnishing all materials, for preparing and placing these materials, and for all labor, equipment tools and incidentals to complete the item.

Payment will be made under:

Item P207-1 In-place Full Depth Recycled (FDR) asphalt aggregate base course –per square yard (m^2)

~~**207-5.2** Payment shall be made at the contract unit price per **[** ton (kg) **]** for the stabilizing agent.~~

~~Item P207-2 **[** Corrective aggregate material per **[** ton **] [** kg **] [** cubic yards **] [** cubic meters **]].~~

~~**[** Emulsified asphalt, per **[** ton **] [** kg **]]~~

~~[Cement, per [ton] [kg]]~~

~~[Fly ash, per [ton] [kg]]~~

REFERENCES

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

ASTM International (ASTM)

ASTM C29	Unit Weight of Aggregate
ASTM C88	Soundness of Aggregates by Use of Sodium or Magnesium Sulfate
ASTM C117	Materials Finer than 75-μm (No. 200) Sieve in Mineral Aggregate by Washing
ASTM C131	Resistance to abrasion of Small Size Coarse Aggregate by Use of Los Angeles Machine
ASTM C136	Sieve or Screen Analysis of Fine and Coarse Aggregate
ASTM C150	Standard Specification for Portland Cement
ASTM C595	Standard Specification for Blended Hydraulic Cements
ASTM C1602	Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete
ASTM D75	Sampling Aggregate
ASTM D558	ASTM D558 Standard Test Methods for Moisture-Density (Unit Weight) Relations of Soil-Cement Mixtures
ASTM D698	Moisture Density Relations of Soils and Aggregate using 5.5 lb Rammer and 12 in drop
ASTM D977	Standard Specification for Emulsified Asphalt
ASTM D1556	Test Method for Density and Unit Weight of Soil in Place by the Sand Cone Method
ASTM D1557	Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort
ASTM D2216	Test Methods for Laboratory Determination of Water (Moisture) Soil and Rock by Mass
ASTM D2419	Test Method for Sand Equivalent Value of Soils and Fine Aggregate
ASTM D2487	Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D3665	Standard Practice for Random Sampling of Construction Materials
ASTM D4318	Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
ASTM D4491	Standard Test Methods for Water Permeability of Geotextiles by Permittivity
ASTM D4751	Standard Test Methods for Determining Apparent Opening Size of a Geotextile

ASTM D5821 Standard Test Method for Determining the Percentage of Fractured Particles in Coarse Aggregate

ASTM D6938 Standard Test Method for In-Place Density and Water Content of Soil and Soil Aggregate by Nuclear Methods (Shallow Depth)

American Association of State Highway and Transportation Officials (AASHTO)

M288 Standard Specification for Geosynthetic Specification for Highway Applications

END OF ITEM P-207

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Item P-209 Crushed Aggregate Base Course

This specification is taken from the FAA AC 150/5370-10H as issued on 12/21/2018 and includes Errata Sheet updates up to 8/19/2020.

DESCRIPTION

209-1.1 This item consists of a base course composed of crushed aggregate base constructed on a prepared course in accordance with these specifications and in conformity to the dimensions and typical cross-sections shown on the plans.

MATERIALS

209-2.1 Crushed aggregate base. Crushed aggregate shall consist of clean, sound, durable particles of crushed stone, crushed gravel, ~~[or crushed slag]~~ and shall be free from coatings of clay, silt, organic material, clay lumps or balls or other deleterious materials or coatings. The method used to produce the crushed gravel shall result in the fractured particles in the finished product as consistent and uniform as practicable. Fine aggregate portion, defined as the portion passing the No. 4 (4.75 mm) sieve shall consist of fines from the coarse aggregate crushing operation. The fine aggregate shall be produced by crushing stone, gravel, ~~[or slag]~~ that meet the coarse aggregate requirements for wear and soundness. Aggregate base material requirements are listed in the following table.

Crushed Aggregate Base Material Requirements

Material Test	Requirement	Standard
Coarse Aggregate		
Resistance to Degradation	Loss: 45% maximum	ASTM C131
Soundness of Aggregates by Use of Sodium Sulfate **or** Magnesium Sulfate	Loss after 5 cycles: 12% maximum using Sodium sulfate - or - 18% maximum using magnesium sulfate	ASTM C88
Percentage of Fractured Particles	Minimum 90% by weight of particles with at least two fractured faces and 98% with at least one fractured face[1]	ASTM D5821
Flat Particles, Elongated Particles, or Flat and Elongated Particles	10% maximum, by weight, of flat, elongated, or flat and elongated particles [2]	ASTM D4791
~~[Bulk density of slag~~	~~Weigh not less than 70 pounds per cubic foot (1.12 Mg/cubic meter)~~	~~ASTM C29]~~
~~[Clay lumps and friable particles~~	~~Less than or equal to 3 percent~~	~~ASTM C142]~~
Fine Aggregate		
Liquid limit	Less than or equal to 25	ASTM D4318
Plasticity Index	Not more than five (5)	ASTM D4318

[1]The area of each face shall be equal to at least 75% of the smallest mid-sectional area of the piece. When two fractured faces are contiguous, the angle between the planes of fractures shall be at least 30 degrees to count as two fractured faces.

[2]A flat particle is one having a ratio of width to thickness greater than five (5); an elongated particle is one having a ratio of length to width greater than five (5).

209-2.2 Gradation requirements. The gradation of the aggregate base material shall meet the requirements of the gradation given in the following table when tested per ASTM C117 and ASTM C136. The gradation shall be well graded from coarse to fine and shall not vary from the lower limit on one sieve to the high limit on an adjacent sieve or vice versa.

Gradation of Aggregate Base

Sieve Size	**Design Range Percentage by Weight passing**	**Contractor's Final Gradation**	**Job Control Grading Band Tolerances[1] (Percent)**
2 inch (50 mm)	100		0
1-1/2 inch (37.5 mm)	95-100		±5
1 inch (25.0 mm)	70-95		±8
3/4 inch (19.0 mm)	55-85		±8
No. 4 (4.75 mm)	30-60		±8
No. 40[2] (425 µm)	10-30		±5
No. 200[2] (75 µm)	**[** 0-10 **]**		±3

[1] The "Job Control Grading Band Tolerances for Contractor's Final Gradation" in the table shall be applied to "Contractor's Final Gradation" to establish a job control grading band. The full tolerance still applies if application of the tolerances results in a job control grading band outside the design range.

[2] The fraction of material passing the No 200 (75 µm) sieve shall not exceed two-thirds the fraction passing the No 40 (425 µm) sieve.

209-2.3 Sampling and Testing.

a. Aggregate base materials. The Contractor shall take samples of the aggregate base in accordance with ASTM D75 to verify initial aggregate base requirements and gradation. Material shall meet the requirements in paragraph 209-2.1. This sampling and testing will be the basis for approval of the aggregate base quality requirements.

b. Gradation requirements. The Contractor shall take at least **[** two **]** aggregate base samples per day in the presence of the Resident Project Representative (RPR) to check the final gradation. Sampling shall be per ASTM D75. Material shall meet the requirements in paragraph 209-2.2. The samples shall be taken from the in-place, un-compacted material at sampling points and intervals designated by the RPR.

209-2.4 Separation Geotextile. **[** Not used. **]** ~~**[** Separation geotextile shall be **[** Class 2 **]**, **[** 0.02 sec^{-1} **]** permittivity per ASTM D4491, Apparent opening size per ASTM D4751 with **[** 0.60 mm **]** maximum average roll value. **]**~~

CONSTRUCTION METHODS

209-3.1 Control strip. The first half-day of construction shall be considered the control strip. The Contractor shall demonstrate, in the presence of the RPR, that the materials, equipment, and construction processes meet the requirements of the specification. The sequence and manner of rolling necessary to obtain specified density requirements shall be determined. The maximum compacted thickness may be increased to a maximum of 12 inches (300 mm) upon the Contractor's demonstration that approved equipment and operations will uniformly compact the lift to the specified density. The RPR must witness this demonstration and approve the lift thickness prior to full production.

Control strips that do not meet specification requirements shall be reworked, re-compacted or removed and replaced at the Contractor's expense. Full operations shall not continue until the control strip has been accepted by the RPR. The Contractor shall use the same equipment, materials, and construction methods for the remainder of construction, unless adjustments made by the Contractor are approved by the RPR.

209-3.2 Preparing underlying subgrade and/or subbase. The underlying subgrade and/or subbase shall be checked and accepted by the RPR before base course placing and spreading operations begin. Re-proof rolling of the subgrade or proof rolling of the subbase in accordance with Item P-152, at the Contractor's expense, may be required by the RPR if the Contractor fails to ensure proper drainage or protect the subgrade and/or subbase. Any ruts or soft, yielding areas due to improper drainage conditions, hauling, or any other cause, shall be corrected before the base course is placed. To ensure proper drainage, the spreading of the base shall begin along the centerline of the pavement on a crowned section or on the high side of the pavement with a one-way slope.

209-3.3 Production. The aggregate shall be uniformly blended and, when at a satisfactory moisture content per paragraph 209-3.5, the approved material may be transported directly to the placement.

209-3.4 Placement. The aggregate shall be placed and spread on the prepared underlying layer by spreader boxes or other devices as approved by the RPR, to a uniform thickness and width. The equipment shall have positive thickness controls to minimize the need for additional manipulation of the material. Dumping from vehicles that require re-handling shall not be permitted. Hauling over the uncompacted base course shall not be permitted.
The aggregate shall meet gradation and moisture requirements prior to compaction. The base course shall be constructed in lifts as established in the control strip, but not less than 4 inches (100 mm) nor more than 12 inches (300 mm) of compacted thickness.

When more than one lift is required to establish the layer thickness shown on the plans, the construction procedure described here shall apply to each lift. No lift shall be covered by subsequent lifts until tests verify that compaction requirements have been met. The Contractor shall rework, re-compact and retest any material placed which does not meet the specifications at the Contractor's expense.

209-3.5 Compaction. Immediately after completion of the spreading operations, compact each layer of the base course, as specified, with approved compaction equipment. The number, type, and weight of rollers shall be sufficient to compact the material to the required density within the same day that the aggregate is placed on the subgrade.
The field density of each compacted lift of material shall be at least **[** 100% **]** of the maximum density of laboratory specimens prepared from samples of the base material delivered to the jobsite. The laboratory specimens shall be compacted and tested in accordance with **[** ASTM D1557 **]**. The moisture content of the material during placing operations shall be within ±2 percentage points of the optimum moisture content as determined by ASTM **[** ASTM D1557 **]**. Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

209-3.6 Weather limitations. Material shall not be placed unless the ambient air temperature is at least 40°F (4°C) and rising. Work on base course shall not be conducted when the subgrade or subbase is wet or frozen or the base material contains frozen material.

209-3.7 Maintenance. The base course shall be maintained in a condition that will meet all specification requirements. When material has been exposed to excessive rain, snow, or freeze-thaw conditions, prior to placement of additional material, the Contractor shall verify that materials still meet all specification requirements. Equipment may be routed over completed sections of base course, provided that no damage results and the equipment is routed over the full width of the completed base course. Any damage resulting to the base course from routing equipment over the base course shall be repaired by the Contractor at the Contractor's expense.

209-3.8 Surface tolerances. After the course has been compacted, the surface shall be tested for smoothness and accuracy of grade and crown. Any portion lacking the required smoothness or failing in accuracy of grade or crown shall be scarified to a depth of at least 3 inches (75 mm), reshaped and recompacted to grade until the required smoothness and accuracy are obtained and approved by the RPR. Any deviation in surface tolerances shall be corrected by the Contractor at the Contractor's expense. The smoothness and accuracy requirements specified here apply only to the top layer when base course is constructed in more than one layer.

a. Smoothness. The finished surface shall not vary more than 3/8-inch (9 mm) when tested with a 12-foot (3.7-m) straightedge applied parallel with and at right angles to the centerline. The straightedge shall be moved continuously forward at half the length of the 12-foot (3.7-m) straightedge for the full length of each line on a 50-foot (15-m) grid.

b. Grade. The grade and crown shall be measured on a 50-foot (15-m) grid and shall be within +0 and -1/2 inch (12 mm) of the specified grade.

209-3.9 Acceptance sampling and testing. Crushed aggregate base course shall be accepted for density and thickness on an area basis. Two tests shall be made for density and thickness for each **[** 1200 square yds ~~(1000 m²)~~ **]**. Sampling locations will be determined on a random basis per ASTM D3665

a. Density. The ~~**[** RPR shall perform all density tests **]**~~ **[** Contractor's laboratory shall perform all density tests in the RPR's presence and provide the test results upon completion to the RPR for acceptance **]**.

Each area shall be accepted for density when the field density is at least **[** 100% **]** of the maximum density of laboratory specimens compacted and tested per ASTM **[** 1557 **]** ~~**[** D698 **]**~~. The in-place field density shall be determined per **[** ~~ASTM D1556. **]** **[** or~~ **]** **[** ASTM D6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938. **]**. If the specified density is not attained, the area represented by the failed test must be reworked and/or recompacted and two additional random tests made. This procedure shall be followed until the specified density is reached. Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

b. Thickness. Depth tests shall be made by test holes at least 3 inches (75 mm) in diameter that extend through the base. The thickness of the base course shall be within +0 and -1/2 inch (12 mm) of the specified thickness as determined by depth tests taken by the Contractor in the presence of the RPR for each area. Where the thickness is deficient by more than 1/2-inch (12 mm), the Contractor shall correct such areas at no additional cost by scarifying to a depth of at least 3 inches (75 mm), adding new material of proper gradation, and the material shall be blended and recompacted to grade. The Contractor shall replace, at his expense, base material where depth tests have been taken.

METHOD OF MEASUREMENT

209-4.1 The quantity of crushed aggregate base course will be determined by measurement of the number of **[** square yards ~~(square meters) **]** **[** cubic yards (cubic meters) **]**~~ of material actually constructed and accepted by the RPR as complying with the plans and specifications. Base materials shall not be included in any other excavation quantities.

~~**[** **209-4.2** Separation geotextile shall be measured by the number of **[** square yards **]** **[** square meters **]** of materials placed and accepted by the RPR as complying with the plans and specifications excluding seam overlaps and edge anchoring. **]**~~

BASIS OF PAYMENT

209-5.1 Payment shall be made at the contract unit price per **[** square yard ~~(square meter) **]** **[** cubic yard (cubic meter) **]**~~ for crushed aggregate base course. This price shall be full compensation for furnishing all materials, for preparing and placing these materials, and for all labor, equipment tools, and incidentals necessary to complete the item. ~~**[** **209-5.2** Payment shall be made at the contract unit price per **[** square yard **]** **[** square meter **]** for separation geotextile. The price shall be full compensation for furnishing all labor, equipment, material, anchors, and incidentals necessary. **]**~~

Payment will be made under:

Item P-209-1 Crushed Aggregate Base Course, 8.0" Thick - per square yard

REFERENCES

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

ASTM International (ASTM)

ASTM C29	Standard Test Method for Bulk Density ("Unit Weight") and Voids in Aggregate
ASTM C88	Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate
ASTM C117	Standard Test Method for Materials Finer than 75-µm (No. 200) Sieve in Mineral Aggregates by Washing
ASTM C131	Standard Test Method for Resistance to Degradation of Small-Size Coarse Aggregate by Abrasion and Impact in the Los Angeles Machine
ASTM C136	Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregates
ASTM C142	Standard Test Method for Clay Lumps and Friable Particles in Aggregates
ASTM D75	Standard Practice for Sampling Aggregates
ASTM D698	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft^3 (600 kN-m/m^3))
ASTM D1556	Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D1557	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3 (2700 kN-m/m^3))
ASTM D2167	Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method
ASTM D2419	Standard Test Method for Sand Equivalent Value of Soils and Fine Aggregate
ASTM D3665	Standard Practice for Random Sampling of Construction Materials
ASTM D4318	Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils
ASTM D4491	Standard Test Methods for Water Permeability of Geotextiles by Permittivity
ASTM D4643	Standard Test Method for Determination of Water Content of Soil and Rock by Microwave Oven Heating
ASTM D4751	Standard Test Methods for Determining Apparent Opening Size of a Geotextile
ASTM D4791	Standard Test Method for Flat Particles, Elongated Particles, or Flat and Elongated Particles in Coarse Aggregate
ASTM D5821	Standard Test Method for Determining the Percentage of Fractured Particles in Coarse Aggregate
ASTM D6938	Standard Test Method for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)

ASTM D7928 Standard Test Method for Particle-Size Distribution (Gradation) of Fine-Grained Soils Using the Sedimentation (Hydrometer) Analysis

American Association of State Highway and Transportation Officials (AASHTO)

M288 Standard Specification for Geosynthetic Specification for Highway Applications

END OF ITEM P-209

Item P-603 Emulsified Asphalt Tack Coat

This specification is taken from the FAA AC 150/5370-10H as issued on 12/21/2018 and includes Errata Sheet updates up to 8/19/2020.

DESCRIPTION

603-1.1 This item shall consist of preparing and treating an asphalt or concrete surface with asphalt material in accordance with these specifications and in reasonably close conformity to the lines shown on the plans.

MATERIALS

603-2.1 Asphalt materials. The asphalt material shall be an emulsified asphalt as specified in ASTM D3628 as an asphalt application for tack coat appropriate to local conditions. The emulsified asphalt shall not be diluted. The Contractor shall provide a copy of the manufacturer's Certificate of Analysis (COA) for the asphalt material to the Resident Project Representative (RPR) before the asphalt material is applied for review and acceptance. The furnishing of COA for the asphalt material shall not be interpreted as a basis for final acceptance. The manufacturer's COA may be subject to verification by testing the material delivered for use on the project.

CONSTRUCTION METHODS

603-3.1 Weather limitations. The tack coat shall be applied only when the existing surface is dry and the atmospheric temperature is 50°F (10°C) or above; the temperature has not been below 35°F (2°C) for the 12 hours prior to application; and when the weather is not foggy or rainy. The temperature requirements may be waived when directed by the RPR.

603-3.2 Equipment. The Contractor shall provide equipment for heating and applying the emulsified asphalt material. The emulsion shall be applied with a manufacturer-approved computer rate-controlled asphalt distributor. The equipment shall be in good working order and contain no contaminants or diluents in the tank. Spray bar tips must be clean, free of burrs, and of a size to maintain an even distribution of the emulsion. Any type of tip or pressure source is suitable that will maintain predetermined flow rates and constant pressure during the application process with application speeds under eight (8) miles per hour (13 km per hour) or seven (700) feet per minute (213 m per minute).

The equipment will be tested under pressure for leaks and to ensure proper set-up before use to verify truck set-up (via a test-shot area), including but not limited to, nozzle tip size appropriate for application, spray-bar height and pressure and pump speed, evidence of triple-overlap spray pattern, lack of leaks, and any other factors relevant to ensure the truck is in good working order before use.

The distributor truck shall be equipped with a minimum 12-foot (3.7-m) spreader spray bar with individual nozzle control with computer-controlled application rates. The distributor truck shall have an easily accessible thermometer that constantly monitors the temperature of the emulsion, and have an operable mechanical tank gauge that can be used to cross-check the computer accuracy. If the distributor is not equipped with an operable quick shutoff valve, the prime operations shall be started and stopped on building paper.

The distributor truck shall be equipped to effectively heat and mix the material to the required temperature prior to application as required. Heating and mixing shall be done in accordance with the manufacturer's recommendations. Do not overheat or over mix the material.

The distributor shall be equipped with a hand sprayer.

Asphalt distributors must be calibrated annually in accordance with ASTM D2995. The Contractor must furnish a current calibration certification for the asphalt distributor truck from any State or other agency as approved by the RPR. A power broom and/or power blower suitable for cleaning the surfaces to which the asphalt tack coat is to be applied shall be provided.

603-3.3 Application of emulsified asphalt material. The emulsified asphalt shall not be diluted. Immediately before applying the emulsified asphalt tack coat, the full width of surface to be treated shall be swept with a power broom and/or power blower to remove all loose dirt and other objectionable material.

The emulsified asphalt material shall be uniformly applied with an asphalt distributor at the rates appropriate for the conditions and surface specified in the table below. The type of asphalt material and application rate shall be approved by the RPR prior to application.

Emulsified Asphalt

Surface Type	Residual Rate, gal/SY (L/square meter)	Emulsion Application Bar Rate, gal/SY (L/square meter)
New asphalt	0.02-0.05 (0.09-0.23)	0.03-0.07 (0.13-0.32)
Existing asphalt	0.04-0.07 (0.18-0.32)	0.06-0.11 (0.27-0.50)
Milled Surface	0.04-0.08 (0.18-0.36)	.0.06-0.12 (0.27-0.54)
Concrete	0.03-0.05 (0.13-0.23)	0.05-0.08 (0.23-0.36)

After application of the tack coat, the surface shall be allowed to cure without being disturbed for the period of time necessary to permit drying and setting of the tack coat. This period shall be determined by the RPR. The Contractor shall protect the tack coat and maintain the surface until the next course has been placed. When the tack coat has been disturbed by the Contractor, tack coat shall be reapplied at the Contractor's expense.

603-3.4 Freight and waybills The Contractor shall submit waybills and delivery tickets, during progress of the work. Before the final statement is allowed, file with the RPR certified waybills and certified delivery tickets for all emulsified asphalt materials used in the construction of the pavement covered by the contract. Do not remove emulsified asphalt material from storage until the initial outage and temperature measurements have been taken. The delivery or storage units will not be released until the final outage has been taken.

METHOD OF MEASUREMENT

603-4.1 The emulsified asphalt material for tack coat shall be measured by the **[** gallon ~~(liter)] [ton (kg)].~~ Volume shall be corrected to the volume at 60°F (16°C) in accordance with ASTM D1250. The emulsified asphalt material paid for will be the measured quantities used in the accepted work, provided that the measured quantities are not 10% over the specified application rate. Any amount of emulsified asphalt material more than 10% over the specified application rate for each application will be deducted from the measured quantities, except for irregular areas where hand spraying of the emulsified asphalt material is necessary. Water added to emulsified asphalt will not be measured for payment.

BASIS OF PAYMENT

603.5-1 Payment shall be made at the contract unit price per **[** gallon ~~(liter)] [ton (kg)~~ **]** of emulsified asphalt material. This price shall be full compensation for furnishing all materials, for all preparation, delivery, and application of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item P-603-1 Emulsified Asphalt Tack Coat - per gallon

REFERENCES

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

ASTM International (ASTM)

ASTM D1250	Standard Guide for Use of the Petroleum Measurement Tables
ASTM D2995	Standard Practice for Estimating Application Rate and Residual Application Rate of Bituminous Distributors
ASTM D3628	Standard Practice for Selection and Use of Emulsified Asphalts

END ITEM P-603

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Item P-605 Joint Sealants for Pavements

This specification is taken from the FAA AC 150/5370-10H as issued on 12/21/2018 and includes Errata Sheet updates up to 8/19/2020.

DESCRIPTION

605-1.1 This item shall consist of providing and installing a resilient and adhesive joint sealing material capable of effectively sealing joints in pavement; joints between different types of pavements; and cracks in existing pavement.

MATERIALS

605-2.1 Joint sealants. Joint sealant materials shall meet the requirements of **[**ASTM D6690**]**.

Each lot or batch of sealant shall be delivered to the jobsite in the manufacturer's original sealed container. Each container shall be marked with the manufacturer's name, batch or lot number, the safe heating temperature, and shall be accompanied by the manufacturer's certification stating that the sealant meets the requirements of this specification.

605-2.2 Backer rod. The material furnished shall be a compressible, non-shrinking, non-staining, non-absorbing material that is non-reactive with the joint sealant in accordance with ASTM D5249. The backer-rod material shall be 25% ± 5 % larger in diameter than the nominal width of the joint.

605-2.3 Bond breaking tapes. Provide a bond breaking tape or separating material that is a flexible, non-shrinkable, non-absorbing, non-staining, and non-reacting adhesive-backed tape. The material shall have a melting point at least 5°F (3°C) greater than the pouring temperature of the sealant being used when tested in accordance with ASTM D789. The bond breaker tape shall be approximately 1/8 inch (3 mm) wider than the nominal width of the joint and shall not bond to the joint sealant.

CONSTRUCTION METHODS

605-3.1 Time of application. Joints shall be sealed as soon after completion of the curing period as feasible and before the pavement is opened to traffic, including construction equipment. The pavement temperature shall be 50°F (10°C) and rising at the time of application of the poured joint sealing material. Do not apply sealant if moisture is observed in the joint.

605-3.2 Equipment. Machines, tools, and equipment used in the performance of the work required by this section shall be approved before the work is started and maintained in satisfactory condition at all times. Submit a list of proposed equipment to be used in performance of construction work including descriptive data, [as soon as possible, but no later than 10] days prior to use on the project.

a. [Tractor-mounted routing tool. Provide a routing tool, used for removing old sealant from the joints, of such shape and dimensions and so mounted on the tractor that it will not damage the sides of the joints. The tool shall be designed so that it can be adjusted to remove the old material to varying depths as required. The use of V-shaped tools or rotary impact routing devices will not be permitted. Hand-operated spindle routing devices may be used to clean and enlarge random cracks.

b. Concrete saw. Provide a self-propelled power saw, with water-cooled diamond or abrasive saw blades, for cutting joints to the depths and widths specified.

c. Sandblasting equipment. [Sandblasting is not allowed. **] [** ~~The Contractor must demonstrate sandblasting equipment including the air compressor, hose, guide and nozzle size, under job conditions, before approval in accordance with paragraph 605-3.3. The Contractor shall demonstrate, in the presence of the Resident Project Representative (RPR), that the method cleans the joint and does not damage the joint.~~ **]]**

d. [Waterblasting equipment. The Contractor must demonstrate waterblasting equipment including the pumps, hose, guide and nozzle size, under job conditions, before approval in accordance with paragraph 605-3.3. The

Contractor shall demonstrate, in the presence of the RPR, that the method cleans the joint and does not damage the joint.

e. Hand tools. Hand tools may be used, when approved, for removing defective sealant from a crack and repairing or cleaning the crack faces. Hand tools should be carefully evaluated for potential spalling effects prior to approval for use.

f. Hot-poured sealing equipment. The unit applicators used for heating and installing ASTM D6690 joint sealant materials shall be mobile and shall be equipped with a double-boiler, agitator-type kettle with an oil medium in the outer space for heat transfer; a direct-connected pressure-type extruding device with a nozzle shaped for inserting in the joint to be filled; positive temperature devices for controlling the temperature of the transfer oil and sealant; and a recording type thermometer for indicating the temperature of the sealant. The applicator unit shall be designed so that the sealant will circulate through the delivery hose and return to the inner kettle when not in use.

g. Cold-applied, single-component sealing equipment. Not Used ~~The equipment for installing ASTM D5893 single component joint sealants shall consist of an extrusion pump, air compressor, following plate, hoses, and nozzle for transferring the sealant from the storage container into the joint opening. The dimension of the nozzle shall be such that the tip of the nozzle will extend into the joint to allow sealing from the bottom of the joint to the top. Maintain the initially approved equipment in good working condition, serviced in accordance with the supplier's instructions, and unaltered in any way without obtaining prior approval. Small hand-held air-powered equipment (i.e., caulking guns) may be used for small applications. **[**~~

605-3.3 Preparation of joints. Pavement joints for application of material in this specification must be dry, clean of all scale, dirt, dust, curing compound, and other foreign matter. The Contractor shall demonstrate, in the presence of the RPR, that the method cleans the joint and does not damage the joint.

a. Sawing. All joints shall be sawed in accordance with specifications and plan details. Immediately after sawing the joint, the resulting slurry shall be completely removed from joint and adjacent area by flushing with a jet of water, and by use of other tools as necessary.

b. Sealing. Immediately before sealing, the joints shall be thoroughly cleaned of all remaining laitance, curing compound, filler, protrusions of hardened concrete, old sealant and other foreign material from the sides and upper edges of the joint space to be sealed. Cleaning shall be accomplished by ~~**[** sandblasting **]**~~ **[** tractor-mounted routing equipment **] [** concrete saw **] [** waterblaster **]** as specified in paragraph 605-3.2. The newly exposed concrete joint faces and the pavement surface extending a minimum of 1/2 inch (12 mm) from the joint edge shall be sandblasted clean. Sandblasting shall be accomplished in a minimum of two passes. One pass per joint face with the nozzle held at an angle directly toward the joint face and not more than 3 inches (75 mm) from it. After final cleaning and immediately prior to sealing, blow out the joints with compressed air and leave them completely free of debris and water. The joint faces shall be surface dry when the seal is applied.

c. Backer Rod. When the joint opening is of a greater depth than indicated for the sealant depth, plug or seal off the lower portion of the joint opening using a backer rod in accordance with paragraph 605-2.2 to prevent the entrance of the sealant below the specified depth. Take care to ensure that the backer rod is placed at the specified depth and is not stretched or twisted during installation.

d. Bond-breaking tape. Where inserts or filler materials contain bitumen, or the depth of the joint opening does not allow for the use of a backup material, insert a bond-separating tape breaker in accordance with paragraph 605-2.3 to prevent incompatibility with the filler materials and three-sided adhesion of the sealant. Securely bond the tape to the bottom of the joint opening so it will not float up into the new sealant.

605-3.4 Installation of sealants. Joints shall be inspected for proper width, depth, alignment, and preparation, and shall be approved by the RPR before sealing is allowed. Sealants shall be installed in accordance with the following requirements:
Immediately preceding, but not more than 50 feet (15 m) ahead of the joint sealing operations, perform a final cleaning with compressed air. Fill the joints from the bottom up to **[** 1/8 **]** ~~**[** 1/4 **]**~~ inch (~~**[** 3 **] [** 6 **]**~~ mm) ±1/16 inch (2 mm) below the top of pavement surface; or bottom of groove for grooved pavement. Remove and discard excess or spilled sealant from the pavement by approved methods. Install the sealant in such a manner as to prevent the formation of voids

and entrapped air. In no case shall gravity methods or pouring pots be used to install the sealant material. Traffic shall not be permitted over newly sealed pavement until authorized by the RPR. When a primer is recommended by the manufacturer, apply it evenly to the joint faces in accordance with the manufacturer's instructions. Check the joints frequently to ensure that the newly installed sealant is cured to a tack-free condition within the time specified.

605-3.5 Inspection. The Contractor shall inspect the joint sealant for proper rate of cure and set, bonding to the joint walls, cohesive separation within the sealant, reversion to liquid, entrapped air and voids. Sealants exhibiting any of these deficiencies at any time prior to the final acceptance of the project shall be removed from the joint, wasted, and replaced as specified at no additional cost to the airport.

605-3.6 Clean-up. Upon completion of the project, remove all unused materials from the site and leave the pavement in a clean condition.

METHOD OF MEASUREMENT

605-4.1 Joint sealing material shall not be measured for payment, but shall be included in the overall cost of the project. ~~Joint sealing material shall be measured by the **[** gallon (liter) **][** pound (kg) **][** linear foot (meter) **]** of sealant in place, completed, and accepted.~~

BASIS OF PAYMENT

605.5 No Payment will be made.

~~**605-5.1** Payment for joint sealing material shall be made at the contract unit price per **[** gallon (liter) **][** pound (kg) **][** linear foot (meter) **].** The price shall be full compensation for furnishing all materials, for all preparation, delivering, and placing of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.~~

~~Payment will be made under:~~

~~Item P-605-5.1 Joint Sealing Filler, **[** per gallon (liter) **][** per pound (kg) **][** per linear foot (meter) **]**~~

REFERENCES

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

ASTM International (ASTM)

ASTM D789 Standard Test Method for Determination of Relative Viscosity of Polyamide (PA)

ASTM D5249 Standard Specification for Backer Material for Use with Cold- and Hot-Applied Joint Sealants in Portland-Cement Concrete and Asphalt Joints

~~**[** ASTM D5893 Standard Specification for Cold-Applied, Single-Component, Chemically-Curing Silicone Joint Sealant for Portland Cement Concrete Pavements **]**~~

[ASTM D6690 Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt]

~~**[** ASTM D7116 Standard Specification for Joint Sealants, Hot-Applied, Jet Fuel Resistant Types for Portland Cement Concrete Pavements]~~

Advisory Circulars (AC)

AC 150/5340-30 Design and Installation Details for Airport Visual Aids

END ITEM P-605

Item P-610 Concrete for Miscellaneous Structures

This specification is taken from the FAA AC 150/5370-10H as issued on 12/21/2018 and includes Errata Sheet updates up to 8/19/2020.

DESCRIPTION

610-1.1 This item shall consist of concrete and reinforcement, as shown on the plans, prepared and constructed in accordance with these specifications. This specification shall be used for all concrete other than airfield pavement which are cast-in-place.

MATERIALS

610-2.1 General. Only approved materials, conforming to the requirements of these specifications, shall be used in the work. Materials may be subject to inspection and tests at any time during their preparation or use. The source of all materials shall be approved by the Resident Project Representative (RPR) before delivery or use in the work. Representative preliminary samples of the materials shall be submitted by the Contractor, when required, for examination and test. Materials shall be stored and handled to ensure preservation of their quality and fitness for use and shall be located to facilitate prompt inspection. All equipment for handling and transporting materials and concrete must be clean before any material or concrete is placed in them.
The use of pit-run aggregates shall not be permitted unless the pit-run aggregate has been screened and washed, and all fine and coarse aggregates stored separately and kept clean. The mixing of different aggregates from different sources in one storage stockpile or alternating batches of different aggregates shall not be permitted.

a. Reactivity. Fine aggregate and coarse aggregates to be used in all concrete shall have been tested separately within six months of the project in accordance with ASTM C1260. Test results shall be submitted to the RPR. The aggregate shall be considered innocuous if the expansion of test specimens, tested in accordance with ASTM C1260, does not exceed 0.08% at 14 days (16 days from casting). If the expansion either or both test specimen is greater than 0.08% at 14 days, but less than 0.20%, a minimum of 25% of Type F fly ash, or between 40% and 55% of slag cement shall be used in the concrete mix.

If the expansion is greater than 0.20%, the aggregates shall not be used, and test results for other aggregates must be submitted for evaluation; or aggregates that meet P-501 reactivity test requirements may be utilized.

If expansion of either the coarse or fine aggregate exceeds 0.08% at 14 days, limit the alkali of the concrete to be less than or equal to 3.0 lb per cubic yard (1.8 kg per cubic meter), calculated in accordance with EB 106.

610-2.2 Coarse aggregate. The coarse aggregate for concrete shall meet the requirements of ASTM C33 and the requirements of Table 4, Class Designation 5S; and the grading requirements shown below, as required for the project.

Coarse Aggregate Grading Requirements

Maximum Aggregate Size	ASTM C33, Table 3 Grading Requirements (Size No.)
1 1/2 inch (37.5 mm)	467 or 4 and 67
1 inch (25 mm)	57
¾ inch (19 mm)	67
½ inch (12.5 mm)	7

610-2.2.1 Coarse Aggregate susceptibility to durability (D) cracking. [Not used. **]**
~~**[** Coarse aggregate may only be accepted from sources that have a 20-year service history for the same gradation to be supplied with no history of D-Cracking. Aggregates that do not have a 20-year record of service free from major repairs (less than 5% of slabs replaced) in similar conditions without D-cracking shall not be used unless the material currently being produced has a durability factor greater than or equal to 95 per ASTM C666. The Contractor shall submit a current certification and test results to verify the aggregate acceptability. Test results will only be accepted from a State Department of Transportation (DOT) materials laboratory or an accredited laboratory. Certification and test results which are not dated or which are over one (1) year old or which are for different gradations will not be accepted. Crushed granite, calcite cemented sandstone, quartzite, basalt, diabase, rhyolite or trap rock are considered to meet the D-cracking test requirements but must meet all other quality tests specified in Item P-501. **]**~~

610-2.3 Fine aggregate. The fine aggregate for concrete shall meet all fine aggregate requirements of ASTM C33.

610-2.4 Cement. Cement shall conform to the requirements of **[** ASTM C150, Types I, II, or V; ASTM C595, Types IS, IP, IL, or IT; ASTM C1157 Types GU, HS, MS, MH, or LH **].**

610-2.5 Cementitious materials.

a. Fly ash. Fly ash shall meet the requirements of ASTM C618, with the exception of loss of ignition, where the maximum shall be less than 6%. Fly ash shall have a Calcium Oxide (CaO) content of less than **[** 15% **]** and a total available alkali content less than 3% per ASTM C311. Fly ash produced in furnace operations using liming materials or soda ash (sodium carbonate) as an additive shall not be acceptable. The Contractor shall furnish the previous three most recent, consecutive ASTM C618 reports for each source of fly ash proposed in the concrete mix, and shall furnish each additional report as they become available during the project. The reports can be used for acceptance or the material may be tested independently by the RPR.

b. Slag cement (ground granulated blast furnace (GGBF)). Slag cement shall conform to ASTM C989, Grade 100 or Grade 120. Slag cement shall be used only at a rate between 25% and 55% of the total cementitious material by mass.

610-2.6 Water. Water used in mixing or curing shall be from potable water sources. Other sources shall be tested in accordance with ASTM C1602 prior to use.

610-2.7 Admixtures. The Contractor shall submit certificates indicating that the material to be furnished meets all of the requirements indicated below. In addition, the RPR may require the Contractor to submit complete test data from an approved laboratory showing that the material to be furnished meets all of the requirements of the cited specifications. Subsequent tests may be made of samples taken by the RPR from the supply of the material being furnished or proposed for use on the work to determine whether the admixture is uniform in quality with that approved.

a. Air-entraining admixtures. Air-entraining admixtures shall meet the requirements of ASTM C260 and shall consistently entrain the air content in the specified ranges under field conditions. The air-entrainment agent and any water reducer admixture shall be compatible.

b. Water-reducing admixtures. Water-reducing admixture shall meet the requirements of ASTM C494, Type A, B, or D. ASTM C494, Type F and G high range water reducing admixtures and ASTM C1017 flowable admixtures shall not be used.

c. Other chemical admixtures. The use of set retarding, and set-accelerating admixtures shall be approved by the RPR. Retarding shall meet the requirements of ASTM C494, Type A, B, or D and set-accelerating shall meet the requirements of ASTM C494, Type C. Calcium chloride and admixtures containing calcium chloride shall not be used.

610-2.8 Premolded joint material. Premolded joint material for expansion joints shall meet the requirements of ASTM **[** 1751 **].**

610-2.9 Joint filler. The filler for joints shall meet the requirements of Item P-605, unless otherwise specified.

610-2.10 Steel reinforcement. Reinforcing shall consist of **[** Reinforcing Steel **]** conforming to the requirements of

[ASTM A615, ASTM A706, ASTM A775, ASTM A934 **]**.

610-2.11 Materials for curing concrete. Curing materials shall conform to **[** White-pigmented Liquid Membrane-Forming Compound, Type 2, Class B ASTM C309 **]**.

CONSTRUCTION METHODS

610-3.1 General. The Contractor shall furnish all labor, materials, and services necessary for, and incidental to, the completion of all work as shown on the drawings and specified here. All machinery and equipment used by the Contractor on the work, shall be of sufficient size to meet the requirements of the work. All work shall be subject to the inspection and approval of the RPR.

610-3.2 Concrete Mixture. The concrete shall develop a compressive strength of **[** 4000 **]** psi **[** ~~28 MPa~~ **]** in 28 days as determined by test cylinders made in accordance with ASTM C31 and tested in accordance with ASTM C39. The concrete shall contain not less than 470 pounds of cementitious material per cubic yard (280 kg per cubic meter). The water cementitious ratio shall not exceed 0.45 by weight. The air content of the concrete shall be 5% +/- 1.2% as determined by ASTM C231 and shall have a slump of not more than 4 inches (100 mm) as determined by ASTM C143.

610-3.3 Mixing. Concrete may be mixed at the construction site, at a central point, or wholly or in part in truck mixers. The concrete shall be mixed and delivered in accordance with the requirements of ASTM C94 or ASTM C685.

The concrete shall be mixed only in quantities required for immediate use. Concrete shall not be mixed while the air temperature is below 40°F (4°C) without the RPRs approval. If approval is granted for mixing under such conditions, aggregates or water, or both, shall be heated and the concrete shall be placed at a temperature not less than 50°F (10°C) nor more than 100°F (38°C). The Contractor shall be held responsible for any defective work, resulting from freezing or injury in any manner during placing and curing, and shall replace such work at his expense.

Retempering of concrete by adding water or any other material is not permitted.

The rate of delivery of concrete to the job shall be sufficient to allow uninterrupted placement of the concrete.

610-3.4 Forms. Concrete shall not be placed until all the forms and reinforcements have been inspected and approved by the RPR. Forms shall be of suitable material and shall be of the type, size, shape, quality, and strength to build the structure as shown on the plans. The forms shall be true to line and grade and shall be mortar-tight and sufficiently rigid to prevent displacement and sagging between supports. The surfaces of forms shall be smooth and free from irregularities, dents, sags, and holes. The Contractor shall be responsible for their adequacy.

The internal form ties shall be arranged so no metal will show in the concrete surface or discolor the surface when exposed to weathering when the forms are removed. All forms shall be wetted with water or with a non-staining mineral oil, which shall be applied immediately before the concrete is placed. Forms shall be constructed so they can be removed without injuring the concrete or concrete surface.

610-3.5 Placing reinforcement. All reinforcement shall be accurately placed, as shown on the plans, and shall be firmly held in position during concrete placement. Bars shall be fastened together at intersections. The reinforcement shall be supported by approved metal chairs. Shop drawings, lists, and bending details shall be supplied by the Contractor when required.

610-3.6 Embedded items. Before placing concrete, all embedded items shall be firmly and securely fastened in place as indicated. All embedded items shall be clean and free from coating, rust, scale, oil, or any foreign matter. The concrete shall be spaded and consolidated around and against embedded items. The embedding of wood shall not be allowed.

610-3.7 Concrete Consistency. The Contractor shall monitor the consistency of the concrete delivered to the project site; collect each batch ticket; check temperature; and perform slump tests on each truck at the project site in accordance with ASTM C143.

610-3.8 Placing concrete. All concrete shall be placed during daylight hours, unless otherwise approved. The concrete shall not be placed until the depth and condition of foundations, the adequacy of forms and falsework, and the placing of the steel reinforcing have been approved by the RPR. Concrete shall be placed as soon as practical after mixing, but in no

case later than one (1) hour after water has been added to the mix. The method and manner of placing shall avoid segregation and displacement of the reinforcement. Troughs, pipes, and chutes shall be used as an aid in placing concrete when necessary. The concrete shall not be dropped from a height of more than 5 feet (1.5 m). Concrete shall be deposited as nearly as practical in its final position to avoid segregation due to rehandling or flowing. Do not subject concrete to procedures which cause segregation. Concrete shall be placed on clean, damp surfaces, free from running water, or on a properly consolidated soil foundation.

610-3.9 Vibration. Vibration shall follow the guidelines in American Concrete Institute (ACI) Committee 309R, Guide for Consolidation of Concrete.

610-3.10 Joints. Joints shall be constructed as indicated on the plans.

610-3.11 Finishing. All exposed concrete surfaces shall be true, smooth, and free from open or rough areas, depressions, or projections. All concrete horizontal plane surfaces shall be brought flush to the proper elevation with the finished top surface struck-off with a straightedge and floated.

610-3.12 Curing and protection. All concrete shall be properly cured in accordance with the recommendations in American Concrete Institute (ACI) 308R, Guide to External Curing of Concrete. The concrete shall be protected from damage until project acceptance.

610-3.13 Cold weather placing. When concrete is placed at temperatures below 40°F (4°C), follow the cold weather concreting recommendations found in ACI 306R, Cold Weather Concreting.

610-3.14 Hot weather placing. When concrete is placed in hot weather greater than 85ºF (30 ºC), follow the hot weather concreting recommendations found in ACI 305R, Hot Weather Concreting.

QUALITY ASSURANCE (QA)

610-4.1 Quality Assurance sampling and testing. Concrete for each day's placement will be accepted on the basis of the compressive strength specified in paragraph 610-3.2. The RPR will sample the concrete in accordance with ASTM C172; test the slump in accordance with ASTM C143; **[** test air content in accordance with ASTM C231; **]** make and cure compressive strength specimens in accordance with ASTM C31; and test in accordance with ASTM C39. The QA testing agency will meet the requirements of ASTM C1077.

The Contractor shall provide adequate facilities for the initial curing of cylinders.
610-4.2 Defective work. Any defective work that cannot be satisfactorily repaired as determined by the RPR, shall be removed and replaced at the Contractor's expense. Defective work includes, but is not limited to, uneven dimensions, honeycombing and other voids on the surface or edges of the concrete.

METHOD OF MEASUREMENT

610-5.1 Concrete shall be ~~**[** measured by the number of cubic yards (cubic meters) based on batch tickets of material **]** **[** measured by the number of square yards (square meters) based on the dimensions shown on the plans **]** **[** lump sum **]**~~ **[** considered incidental and no separate measurement shall be made. **]** of concrete complete in place and accepted.

BASIS OF PAYMENT

610-6.1 Payment shall be made at the contract price ~~**[** by the number of cubic yards (cubic meters) based on batch tickets of material **]** **[** by the number of square yards (square meters) **]** **[** lump sum **]**~~ **[** concrete shall be considered incidental and no separate payment shall be made. **]** This price shall be full compensation for furnishing all materials including reinforcement and embedded items and for all preparation, delivery, installation, and curing of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

~~Item P-610-1 Concrete, [per cubic yards (cubic meters)] [per square yards (square meters)] [lump sum] [incidental to other work items]~~

REFERENCES

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

ASTM International (ASTM)

ASTM A184	Standard Specification for Welded Deformed Steel Bar Mats for Concrete Reinforcement
ASTM A615	Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
ASTM A704	Standard Specification for Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement
ASTM A706	Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement
ASTM A775	Standard Specification for Epoxy-Coated Steel Reinforcing Bars
ASTM A884	Standard Specification for Epoxy-Coated Steel Wire and Welded Wire Reinforcement
ASTM A934	Standard Specification for Epoxy-Coated Prefabricated Steel Reinforcing Bars
ASTM A1064	Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete
ASTM C31	Standard Practice for Making and Curing Concrete Test Specimens in the Field
ASTM C33	Standard Specification for Concrete Aggregates
ASTM C39	Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens
ASTM C94	Standard Specification for Ready-Mixed Concrete
ASTM C136	Standard Test Method for Sieve or Screen Analysis of Fine and Coarse Aggregates
ASTM C114	Standard Test Methods for Chemical Analysis of Hydraulic Cement
ASTM C136	Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates
ASTM C143	Standard Test Method for Slump of Hydraulic-Cement Concrete
ASTM C150	Standard Specification for Portland Cement
ASTM C171	Standard Specification for Sheet Materials for Curing Concrete
ASTM C172	Standard Practice for Sampling Freshly Mixed Concrete
ASTM C231	Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method

ASTM C260 Standard Specification for Air-Entraining Admixtures for Concrete

ASTM C309 Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete

ASTM C311 Standard Test Methods for Sampling and Testing Fly Ash or Natural Pozzolans for Use in Portland-Cement Concrete

ASTM C494 Standard Specification for Chemical Admixtures for Concrete

ASTM C618 Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete

ASTM C666 Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing

ASTM C685 Standard Specification for Concrete Made by Volumetric Batching and Continuous Mixing

ASTM C989 Standard Specification for Slag Cement for Use in Concrete and Mortars

ASTM C1017 Standard Specification for Chemical Admixtures for Use in Producing Flowing Concrete

ASTM C1077 Standard Practice for Agencies Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Testing Agency Evaluation

ASTM C1157 Standard Performance Specification for Hydraulic Cement

ASTM C1260 Standard Test Method for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method)

ASTM C1365 Standard Test Method for Determination of the Proportion of Phases in Portland Cement and Portland-Cement Clinker Using X-Ray Powder Diffraction Analysis

ASTM C1602 Standard Specification for Mixing Water Used in the Production of Hydraulic Cement Concrete

ASTM D1751 Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Asphalt Types)

ASTM D1752 Standard Specification for Preformed Sponge Rubber Cork and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction

American Concrete Institute (ACI)

ACI 305R Hot Weather Concreting

ACI 306R Cold Weather Concreting

ACI 308R Guide to External Curing of Concrete

ACI 309R Guide for Consolidation of Concrete

END OF ITEM P-610

Item P-620 Runway and Taxiway Marking

This specification is taken from the FAA AC 150/5370-10H as issued on 12/21/2018 and includes Errata Sheet updates up to 8/19/2020.

DESCRIPTION

620-1.1 This item shall consist of the preparation and painting of numbers, markings, and stripes on the surface of runways, taxiways, and aprons, in accordance with these specifications and at the locations shown on the plans, or as directed by the Resident Project Representative (RPR). The terms "paint" and "marking material" as well as "painting" and "application of markings" are interchangeable throughout this specification.

MATERIALS

620-2.1 Materials acceptance. The Contractor shall furnish manufacturer's certified test reports, for materials shipped to the project. The certified test reports shall include a statement that the materials meet the specification requirements. This certification along with a copy of the paint manufacturer's surface preparation; marking materials, including adhesion, flow promoting and/or floatation additive; and application requirements must be submitted and approved by the Resident Project Representative (RPR) prior to the initial application of markings. The reports can be used for material acceptance or the RPR may perform verification testing. The reports shall not be interpreted as a basis for payment. The Contractor shall notify the RPR upon arrival of a shipment of materials to the site. All material shall arrive in sealed containers that are easily quantifiable for inspection by the RPR.

620-2.2 Marking materials.

Table 1. Marking Materials

Paint[1]				**Glass Beads[2]**	
Type	**Color**	**Fed Std. 595 Number**	**Application Rate Maximum**	**Type**	**Application Rate Minimum**
II	Yellow	33538	115 ft^2/gal	III	10 lb/gal

[1] See paragraph 620-2.2a

[2] See paragraph 620-2.2b

a. Paint. Paint shall be **[** waterborne **] [** ~~epoxy~~ **] [** ~~methacrylate~~ **] [** ~~solvent base~~ **] [** ~~and~~ **] [** ~~preformed thermoplastic~~ **]** in accordance with the requirements of this paragraph. Paint colors shall comply with Federal Standard No. 595.

Waterborne. Paint shall meet the requirements of Federal Specification TT-P-1952F, **[** ~~Type I~~ **] [** ~~Type II~~ **] [** Type III **]**. The non-volatile portion of the vehicle for all paint types shall be composed of a 100% acrylic polymer as determined by infrared spectral analysis. **[** ~~The acrylic resin used for Type III shall be 100% cross linking acrylic as evidenced by infrared peaks at wavelengths 1568, 1624, and 1672 cm-1 with intensities equal to those produced by an acrylic resin known to be 100% cross linking.~~ **]**

b. Reflective media. Glass beads for white and yellow paint shall meet the requirements for Federal Specification TT-B-1325D **[** Type I, Gradation A **] [** Type III **] [** Type IV, Gradation A **]**.

~~Glass beads for red and pink paint shall meet the requirements for **[** Type I, Gradation A **] [** Type IV, Gradation A **].~~**

Glass beads shall be treated with all compatible coupling agents recommended by the manufacturers of the paint and reflective media to ensure adhesion and embedment.

Glass beads shall not be used in black and green paint.

~~Type III glass beads shall not be used in red and pink paint.~~

c. Microbicide. White and Yellow paint shall include a mold/algae inhibitor to enhance the paint's algae and mold resistance properties. This may be in the form of a biocide, antifouling agent, or other approved algae/mold resistant formula as approved by the Engineer.

CONSTRUCTION METHODS

620-3.1 Weather limitations. Painting shall only be performed when the surface is dry, and the ambient temperature and the pavement surface temperature meet the manufacturer's recommendations in accordance with paragraph 620-2.1. Painting operations shall be discontinued when the ambient or surface temperatures does not meet the manufacturer's recommendations. Markings shall not be applied when the wind speed exceeds 10 mph unless windscreens are used to shroud the material guns. Markings shall not be applied when weather conditions are forecasts to not be within the manufacturers' recommendations for application and dry time.

620-3.2 Equipment. Equipment shall include the apparatus necessary to properly clean the existing surface, a mechanical marking machine, a bead dispensing machine, and such auxiliary hand-painting equipment as may be necessary to satisfactorily complete the job.

The mechanical marker shall be an atomizing spray-type or airless type marking machine with automatic glass bead dispensers suitable for application of traffic paint. It shall produce an even and uniform film thickness and appearance of both paint and glass beads at the required coverage and shall apply markings of uniform cross-sections and clear-cut edges without running or spattering and without over spray. The marking equipment for both paint and beads shall be calibrated daily.

620-3.3 Preparation of surfaces. Immediately before application of the paint, the surface shall be dry and free from dirt, grease, oil, laitance, or other contaminates that would reduce the bond between the paint and the pavement. Use of any chemicals or impact abrasives during surface preparation shall be approved in advance by the RPR. After the cleaning operations, sweeping, blowing, or rinsing with pressurized water shall be performed to ensure the surface is clean and free of grit or other debris left from the cleaning process.

a. Preparation of new pavement surfaces. The area to be painted shall be cleaned by broom, blower, water blasting, or by other methods approved by the RPR to remove all contaminants, including PCC curing compounds, minimizing damage to the pavement surface.

b. Preparation of pavement to remove existing markings. Existing pavement markings shall be removed by rotary grinding, water blasting, or by other methods approved by the RPR minimizing damage to the pavement surface. The removal area may need to be larger than the area of the markings to eliminate ghost markings. After removal of markings on asphalt pavements, apply a fog seal or seal coat to 'block out' the removal area to eliminate 'ghost' markings.

c. Preparation of pavement markings prior to remarking. Prior to remarking existing markings, loose existing markings must be removed minimizing damage to the pavement surface, with a method approved by the RPR. After removal, the surface shall be cleaned of all residue or debris.

Prior to the application of markings, the Contractor shall certify in writing that the surface is dry and free from dirt, grease, oil, laitance, or other foreign material that would prevent the bond of the paint to the pavement or existing markings. This certification along with a copy of the paint manufactures application and surface preparation requirements must be submitted to the RPR prior to the initial application of markings.

620-3.4 Layout of markings. The proposed markings shall be laid out in advance of the paint application. The locations of markings to receive glass beads shall be shown on the plans. ~~**[** The locations of markings to receive silica sand shall be shown on the plans. **]**~~

620-3.5 Application. A period of **[** 30 **]** days shall elapse between placement of surface course or seal coat and application of the permanent paint markings. Paint shall be applied at the locations and to the dimensions and spacing shown on the plans. Paint shall not be applied until the layout and condition of the surface has been approved by the RPR.

The edges of the markings shall not vary from a straight line more than 1/2 inch (12 mm) in 50 feet (15 m), and marking dimensions and spacing shall be within the following tolerances:

Marking Dimensions and Spacing Tolerance

Dimension and Spacing	**Tolerance**
36 inch (910 mm) or less	±1/2 inch (12 mm)
greater than 36 inch to 6 feet (910 mm to 1.85 m)	±1 inch (25 mm)
greater than 6 feet to 60 feet (1.85 m to 18.3 m)	±2 inch (50 mm)
greater than 60 feet (18.3 m)	±3 inch (76 mm)

The paint shall be mixed in accordance with the manufacturer's instructions and applied to the pavement with a marking machine at the rate shown in Table 1. The addition of thinner will not be permitted.

Glass beads shall be distributed upon the marked areas at the locations shown on the plans to receive glass beads immediately after application of the paint. A dispenser shall be furnished that is properly designed for attachment to the marking machine and suitable for dispensing glass beads. Glass beads shall be applied at the rate shown in Table 1. Glass beads shall not be applied to black paint or green paint. Glass beads shall adhere to the cured paint or all marking operations shall cease until corrections are made. Different bead types shall not be mixed. Regular monitoring of glass bead embedment and distribution should be performed.

620-3.6 Application--preformed thermoplastic airport pavement markings. [Preformed thermoplastic pavement markings not used. **]**

~~**[** To ensure minimum single-pass application time and optimum bond in the marking/substrate interface, the materials must be applied using a variable speed self-propelled mobile heater with an effective heating width of no less than 16 feet (5 m) and a free span between supporting wheels of no less than 18 feet (5.5 m). The heater must emit thermal radiation to the marking material in such a manner that the difference in temperature of 2 inches (50 mm) wide linear segments in the direction of heater travel must be within 5% of the overall average temperature of the heated thermoplastic material as it exits the heater. The material must be able to be applied at ambient and pavement temperatures down to 35°F (2°C) without any preheating of the pavement to a specific temperature. The material must be able to be applied without the use of a thermometer. The pavement shall be clean, dry, and free of debris. A non-volatile organic content (non-VOC) sealer with a maximum applied viscosity of 250 centiPoise must be applied to the pavement shortly before the markings are applied. The supplier must enclose application instructions with each box/package. **]**~~

620-3.7 Control strip. Prior to the full application of airfield markings, the Contractor shall prepare a control strip in the presence of the RPR. The Contractor shall demonstrate the surface preparation method and all striping equipment to be used on the project. The marking equipment must achieve the prescribed application rate of paint and population of glass beads (per Table 1) that are properly embedded and evenly distributed across the full width of the marking. Prior to acceptance of the control strip, markings must be evaluated during darkness to ensure a uniform appearance.

620-3.8 Retro-reflectance. [Reflectance shall be measured with a portable retro-reflectometer meeting ASTM E1710 (or equivalent). A total of 6 reading shall be taken over a 6 square foot area with 3 readings taken from each direction. The average shall be equal to or above the minimum levels of all readings which are within 30% of each other.

Minimum Retro-Reflectance Values

Material	**Retro-reflectance mcd/m^2/lux**		
	White	**Yellow**	**Red**
~~Initial Type I~~	~~300~~	~~175~~	~~35~~
Initial Type III	600	300	35
~~Initial Thermoplastic~~	~~225~~	~~100~~	~~35~~
~~All materials, remark when less than~~[1]	~~100~~	~~75~~	~~10~~

[1] 'Prior to remarking determine if removal of contaminants on markings will restore retro-reflectance]~~[not used]~~

620-3.9 Protection and cleanup. After application of the markings, all markings shall be protected from damage until dry. All surfaces shall be protected from excess moisture and/or rain and from disfiguration by spatter, splashes, spillage, or drippings. The Contractor shall remove from the work area all debris, waste, loose reflective media, and by-products generated by the surface preparation and application operations to the satisfaction of the RPR. The Contractor shall dispose of these wastes in strict compliance with all applicable state, local, and federal environmental statutes and regulations.

METHOD OF MEASUREMENT

~~**620-4.1a** The quantity of surface preparation shall be measured by **[** the number of square feet (square meters) for each type of surface preparation specified in paragraph 620-3.3 **] [** lump sum **].**~~

620-4.1b The quantity of markings shall be paid for shall be measured by the number of square feet of painting

620-4.1c The quantity of reflective media shall be paid for under the total for painting

~~**620-4.1d [** The quantity of temporary markings to be paid for shall be **[** the number of square feet (square meters) of painting **] [** lump sum price **]** performed in accordance with the specifications and accepted by the RPR. Temporary marking includes surface preparation, application and complete removal of the temporary marking. **] [** Temporary markings not required. **]**~~

~~**[620-4.1e** The quantity of preformed markings to be paid for shall be **[** the number of square feet (square meters) of preformed markings **] [** lump sum **]].**~~

BASIS OF PAYMENT

~~**620-5.1** This price shall be full compensation for furnishing all materials and for all labor, equipment, tools, and incidentals necessary to complete the item complete in place and accepted by the RPR in accordance with these specifications.~~

~~**620-5.1a** Payment for surface preparation shall be made at the contract price for **[** the number of square feet (square meters) for each type of surface preparation specified in paragraph 620-3.3 **] [** lump sum **].**~~

620-5.2b Payment for markings shall be made at the contract price for the number of square feet (square meters) of painting, including reflective media and microbicide.

620-5.3c Payment for reflective media shall be included in the cost for painting.

~~**620-5.4d** Payment for temporary markings shall be made at the contract price for **[** the number of square feet (square meters) of painting **] [** lump sum price **].** This price shall be full compensation for furnishing all materials and for all~~

~~labor, equipment, tools, and incidentals necessary to complete the item. **[** Temporary markings are not required. **]**~~

~~**[** **620-5.5c** Payment for preformed markings shall be made at the contract price for **[** the number of square feet (square meters) of preformed markings **] [** lump sum price **].** **]**~~

Payment will be made under:

Item P-620.1 Taxiway Marking and Striping, Yellow, including reflective media and microbicide per square foot

REFERENCES

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

ASTM International (ASTM)

ASTM D476	Standard Classification for Dry Pigmentary Titanium Dioxide Products
ASTM D968	Standard Test Methods for Abrasion Resistance of Organic Coatings by Falling Abrasive
ASTM D1652	Standard Test Method for Epoxy Content of Epoxy Resins
ASTM D2074	Standard Test Method for Total, Primary, Secondary, and Tertiary Amine Values of Fatty Amines by Alternative Indicator Method
ASTM D2240	Standard Test Method for Rubber Property - Durometer Hardness
ASTM D7585	Standard Practice for Evaluating Retroreflective Pavement Markings Using Portable Hand-Operated Instruments
ASTM E303	Standard Test Method for Measuring Surface Frictional Properties Using the British Pendulum Tester
ASTM E1710	Standard Test Method for Measurement of Retroreflective Pavement Marking Materials with CEN-Prescribed Geometry Using a Portable Retroreflectometer
ASTM E2302	Standard Test Method for Measurement of the Luminance Coefficient Under Diffuse Illumination of Pavement Marking Materials Using a Portable Reflectometer
ASTM G154	Standard Practice for Operating Fluorescent Ultraviolet (UV) Lamp Apparatus for Exposure of Nonmetallic Materials

Code of Federal Regulations (CFR)

40 CFR Part 60, Appendix A-7, Method 24	Determination of volatile matter content, water content, density, volume solids, and weight solids of surface coatings
29 CFR Part 1910.1200	Hazard Communication

Federal Specifications (FED SPEC)

FED SPEC TT-B-1325D	Beads (Glass Spheres) Retro-Reflective
FED SPEC TT-P-1952F	Paint, Traffic and Airfield Marking, Waterborne

FED STD 595 Colors used in Government Procurement

Commercial Item Description

A-A-2886B Paint, Traffic, Solvent Based

Advisory Circulars (AC)

AC 150/5340-1 Standards for Airport Markings

AC 150/5320-12 Measurement, Construction, and Maintenance of Skid Resistant Airport Pavement Surfaces

END OF ITEM P-620

Item T-901 Seeding

This specification is taken from the FAA AC 150/5370-10H as issued on 12/21/2018 and includes Errata Sheet updates up to 8/19/2020.

DESCRIPTION

901-1.1 This item shall consist of soil preparation, seeding **[** and fertilizing **]** the areas shown on the plans ~~or as directed by the RPR~~ in accordance with these specifications.

MATERIALS

901-2.1 Seed. The species and application rates of grass, legume, and cover-crop seed furnished shall be those stipulated herein. Seed shall conform to the requirements of Federal Specification JJJ-S-181, Federal Specification, Seeds, Agricultural.

Seed shall be furnished separately or in mixtures in standard containers labeled in conformance with the Agricultural Marketing Service (AMS) Seed Act and applicable state seed laws with the seed name, lot number, net weight, percentages of purity and of germination and hard seed, and percentage of maximum weed seed content clearly marked for each kind of seed. The Contractor shall furnish the RPR duplicate signed copies of a statement by the vendor certifying that each lot of seed has been tested by a recognized laboratory for seed testing within six (6) months of date of delivery. This statement shall include: name and address of laboratory, date of test, lot number for each kind of seed, and the results of tests as to name, percentages of purity and of germination, and percentage of weed content for each kind of seed furnished, and, in case of a mixture, the proportions of each kind of seed. Wet, moldy, or otherwise damaged seed will be rejected.

Seeds shall be applied ~~as follows:~~ at a minimum of 70% "pure live seed."

~~**Seed Properties and Rate of Application**~~

~~**Seed**~~	~~**Minimum Seed Purity (Percent)**~~	~~**Minimum Germination (Percent)**~~	~~**Rate of Application lb/acre (or lb/1,000 S.F.)**~~
*	*	*	*
*	*	*	*

Seeding shall be performed during the period ~~between **[ ]** and **[ ]** inclusive~~ shown on the seeding charts, unless otherwise approved by the RPR.

Table 6-4.1 - Temporary Cover or Companion Cover Crops

PLANT, PLANTING RATE, AND PLANTING DATE FOR TEMPORARY COVER OR COMPANION CROPS [1]

Species	Broadcast Rates		Resource Area[3]	Planting Dates by Resource Area												Remarks
				Solid lines indicate optimum dates, dotted lines indicate permissible but marginal dates.												
	Rate Per Acre[2]	*Pure Live Seed (PLS) Per 1000 sqft*		J	F	M	A	M	J	J	A	S	O	N	D	
BARLEY *Hordeum vulagre*																
alone	3 bu. (144 lbs)	3.3 lbs	M-L								---	———	———	---		14,000 seed per pound. Winter hardy. Use on productive soils.
in mixture	1/2 bu. (24lbs)	0.6 lb	P								---	———	———	———	---	
			C									---	———	———	———	
LESPEDEZA, ANNUAL *Lespedeza striata*																
alone	40 lbs	0.9 lb	M-L		---	———	———									200,000 seed per pound. May volunteer for several years. Use inoculant EL.
in mixture	10 lbs	0.2 lb	P		---	———	———									
			C	---	———	---										
LOVEGRASS, WEEPING *Eragrostis curvula*																
alone	4 lbs	0.1 lb	M-L			---	———	———	---							1,500,000 seed per pound. May last for several years. Mix with *Sericea lespedeza*.
in mixture	2 lbs	0.05 lb	P			---	———	———	---							
			C		---	———	———	———	---							
MILLET, BROWNTOP *Panicum fasciculatum*																
alone	40 lbs	0.9 lb	M-L				---	———	———	---						137,000 seed per pound. Quick dense cover. Will provide excessive competion in mixtures if seeded at high rate.
in mixture	10 lbs	0.2 lb	P				---	———	———	———	---					
			C				---	———	———	———						
MILLET, PEARL *Pennesetum glaucum*																
alone	50 lbs	1.1 lbs	M-L					---	———	———	---					88,000 seed per pound. Quick dense cover. May reach 5 feet in height. Not recommended for mixtures.
			P				---	———	———	———	---					
			C				---	———	———	———	---					
OATS *Avena sativa*																
alone	4 bu. (128 lbs)	2.9 lbs	M-L									---	———	———		13,000 seed per pound. Use on productive soils. Not as a winter hardy as rye or barley.
in mixture	1 bu. (32 lbs)	0.7 lb	P									---	———	———		
			C									---	———	———		
RYE *Secale cereale*																
alone	3 bu. (168 lbs)	3.9 lbs	M-L							---	———	———	———	---		18,000 seed per pound. Quick cover. Drought tolerant and winter hardy.
in mixture	1/2 bu. (28 lbs)	0.6 lb	P								---	———	———	———	---	
			C	---	———	---						---	———	———	———	
RYEGRASS, ANNUAL *Lolium temulentum*																
alone	40 lbs	0.9 lb	M-L	---	———	———	———				---	———	———	———	---	227,000 seed per pound. Dense cover. Very competitive and is <u>not</u> to be used in mixtures.
			P	---	———	———	---				---	———	———	———	---	
			C	---	———	———	———					---	———	———	———	
SUDANGRASS *Sorghum sudanese*																
alone	60 lbs	1.4 lbs	M-L				---	———	———	———	---					55,000 seed per pound. Good on droughty sites. <u>Not</u> recommended for mixtures.
			P				---	———	———	———	---					
			C			---	———	———	———	———						

Table 6-5.2- Permanent Cover Crops

PLANT, PLANTING RATE, AND PLANTING DATE FOR PERMANENT COVER [1]

Species	Broadcast Rates		Resource Area[3]	Planting Dates by Resource Area												Remarks
				Solid lines indicate optimum dates, dotted lines indicate permissible but marginal dates.												
	Rate Per Acre[2]	*Pure Live Seed (PLS) Per 1000 sqft*		J	F	M	A	M	J	J	A	S	O	N	D	
BAHIA, PENSACOLA *Paspalum notatum*																
alone or with temporary cover	60 lbs	1.4 lbs	P													166,000 seed per pound. Low growing. Sod forming. Slow to establish. Plant with a companion crop. Will spread nto bermuda pastures and awns. Mix with Sericea lespedeza or weeping lovegrass.
with other perennials	30 lbs	0.7 lb	C													
BAHIA, WILMINGTON *Paspalum notatum*																
alone or with temporary cover	60 lbs	1.4 lb	M-L													
with other perennials	30 lbs	0.7 lb	P													Same as above.
BERMUDA, COMMON *Cynodon dactylon*																
Hulled seed			P													
alone	10 lbs	0.2 lb	C													1,787,000 seed per pound. Quick cover. Low growing and sod forming. Full sun. Good for athletic fileds.
with other perennials	6 lbs	0.1 lb														
BERMUDA, COMMON *Cynodon dactylon*																
Unhulled seed			P													
with temporary cover	10 lbs	0.2 lb														Plant with winter annuals.
with other perennials	6 lbs	0.1 lb	C													Plant with Tall Fescue

Species	Broadcast Rates		Resource Area[3]	Planting Dates by Resource Area												Remarks
				Solid lines indicate optimum dates, dotted lines indicate permissible but marginal dates.												
	Rate Per Acre[2]	*Pure Live Seed (PLS) Per 1000 sqft*		J	F	M	A	M	J	J	A	S	O	N	D	
TRITICALE *X-Triticosecale*																
alone	3 bu. (144 lbs)	3.3 lbs	C													Use on lower part of Southern Coastal Plain and in Atlantic Coastal Flatwoods only.
in mixture	1/2 bu. (24 lbs)	0.6 lb														
WHEAT *Triticum aestivum*																
alone	3 bu. (180 lbs)	4.1 lbs	M-L													
in mixture	1/2 bu. (30 lbs)	0.7 lb	P													15,000 seed per pound. Winter hardy.
			C													

[1]Temporary cover crops are very competitive and will crowd out perennials if seeded too heavily

[2]Reduce seeding rates by 50% when drilled.

[3]M-L represents the Mountain; Blue Ridge; and Ridges and Valleys MLRAs

P represents the Southern Piedmont MLRA

C represents Southern Coastal Plan; Sand Hills; Black Lands; and Atlantic Coast Flatwoods MLRAs

Table 6-5.2- Permanent Cover Crops

PLANT, PLANTING RATE, AND PLANTING DATE FOR PERMANENT COVER [1]

Species	Broadcast Rates		Resource Area[3]	Planting Dates by Resource Area												Remarks
				Solid lines indicate optimum dates, dotted lines indicate permissible but marginal dates.												
	Rate Per Acre[2]	*Pure Live Seed (PLS) Per 1000 sqft*		J	F	M	A	M	J	J	A	S	O	N	D	
BAHIA, PENSACOLA *Paspalum notatum*																
alone or with temporary cover	60 lbs	1.4 lbs	P													166,000 seed per pound. Low growing. Sod forming. Slow to establish. Plant with a companion crop. Will spread nto bermuda pastures and awns. Mix with Sericea lespedeza or weeping lovegrass.
with other perennials	30 lbs	0.7 lb	C													
BAHIA, WILMINGTON *Paspalum notatum*																
alone or with temporary cover	60 lbs	1.4 lb	M-L													
with other perennials	30 lbs	0.7 lb	P													Same as above.
BERMUDA, COMMON *Cynodon dactylon*																
Hulled seed			P													
alone	10 lbs	0.2 lb	C													1,787,000 seed per pound. Quick cover. Low growing and sod forming. Full sun. Good for athletic fileds.
with other perennials	6 lbs	0.1 lb														
BERMUDA, COMMON *Cynodon dactylon*																
Unhulled seed																
with temporary cover	10 lbs	0.2 lb	P													Plant with winter annuals.
with other perennials	6 lbs	0.1 lb	C													Plant with Tall Fescue

Table 6-5.2- Permanent Cover Crops

PLANT, PLANTING RATE, AND PLANTING DATE FOR PERMANENT COVER [1]

Species	Broadcast Rates		Resource Area[3]	Planting Dates by Resource Area												Remarks
				Solid lines indicate optimum dates, dotted lines indicate permissible but marginal dates.												
	Rate Per Acre[2]	*Pure Live Seed (PLS) Per 1000 sqft*		J	F	M	A	M	J	J	A	S	O	N	D	
FESCUE, TALL *Festuca arundinacea*																
alone	50 lbs	1.1 lb	M-L													227,000 seed per pound. Use alone only on better sites. Mix with perennial lespededza or Crownvetch. Apply topdressing in spring following fall plantings. Not for heavy use areas or athletic fields.
with other perennials	30 lbs	0.7 lb	P													
LESPEDEZA SERICEA *Lespedeza cuneata*																
scarified	60 lbs	1.4 lb	M-L P C													350,000 seed per pound. Widely adapted. Low maintenace. Mix with Weeping lovegrass, Common bermuda, bahia, or tall fescue. Takes 2 to 3 years to become fully established. Excellent on roadbanks. Inoculate seed with EL inoculant.
unscarified	75 lbs	1.7 lb	M-L P C													Mix with Tall fesue or winter annuals.
seed- bearing hay	3 tons	1338 lbs	M-L P C													Cut when seed mixture is mature, but before, it shatters. Add Tall fescue or winter annuals.
LESPEDEZA Ambro virgata *Lespedeza virgata DC* or Appalow *Lespedeza cuneata (Dumont) G. Don)*																
scarified	60 lbs	1.4 lb	M-L P C													300,000 seed per pound. Height of growth is 18 to 24 inches. Advantageous in urban areas. Spreading-type growth. New growth has bronze coloration. Mix with weeping lovegrass, common bermuda, bahia, tall fescue or winter annuals. Do not mix with Sericea lespedeza. Slow to develop solid stands. Inoculate seed with EL inoculant.
unscarified	75 lbs	1.7 lb	M-L P C													
LESPEDEZA, SHRUB *Lespedeza bicolor* *Lespedeza thumbergii*																
plants	3' x3'		M-L P C													Provide wildlife food and cover.
LOVEGRASS, WEEPING *Eragrostis curvula*																
alone	4 lbs	0.1 lb	M-L P C													1,500,000 seed per pound. Quick cover. Drought tolerant. Grows well with Sericea lespedeza on roadbanks.
with other perennials	2 lbs	0.05 lb														

Table 6-5.2- Permanent Cover Crops

PLANT, PLANTING RATE, AND PLANTING DATE FOR PERMANENT COVER [1]

Species	Broadcast Rates		Resource Area[3]	Planting Dates by Resource Area												Remarks
				Solid lines indicate optimum dates, dotted lines indicate permissible but marginal dates.												
	Rate Per Acre[2]	*Pure Live Seed (PLS) Per 1000 sqft*		J	F	M	A	M	J	J	A	S	O	N	D	
MAIDENCANE *Panicum hemitomon*																
sprigs	2' x 3' spacing	ALL		----	———	———	--									For very wet sites. May clog channels. Dig sprigs from local sources. Use along river banks and shorelines.
PANICGRASS, ATLANTIC COASTAL *Panicum amarum var amarukum*																
	20 lbs	0.5 lb	P C		--- ---	——— ———	——— ———									Grows well on coastal sand dunes, borrow areas, and gravel pits. Provides winter cover for wildlife. Mix with Sericea lespedeza except on sand dunes.
REED CANARY GRASS *Phalaris arundinacea*																
alone	50 lbs	1.1 lb	M-L								- ———	———	-			
with other perrenials	30 lbs	0.7 lb	P								- ———	———	---			Grows similar to Tall fescue
SUNFLOWER, 'AZTEC' MAXIMILLIAN *Helianthus maximiliani*																
	10 lbs	0.2 lb	M-L P C				--- --- ———	——— ——— ———								227,000 seed per pound. Mix with Weeping lovegrass or other low-grwoing grasses or legumes.

1 Reduce seeding rates by 50% when drilled
2 PLS is an abbreviation for Pure Live Seed. Refer to Section V.E. of these specifications.
3 M-L represents to Mountain; Blue Ridge; and Ridges and Valleys MLRAs
P represents the Southern Piedmont MLRA
C represents the Souther Coastal Plain;Sand Hills;Black Lands;and Atlantic Coast Flatwoods MLRAs. See Figure 6-4.1

901-2.2 Lime. [~~Lime shall be ground limestone containing not less than 85% of total carbonates, and shall be ground to such fineness that 90% will pass through a No. 20 (850 µm) mesh sieve and 50% will pass through a No. 100 (150 µm) mesh sieve. Coarser material will be acceptable, providing the rates of application are increased to provide not less than the minimum quantities and depth specified in the special provisions on the basis of the two sieve requirements above. Dolomitic lime or a high magnesium lime shall contain at least 10% of magnesium oxide. Lime shall be applied at the rate of as indicated in results of soil survey to be performed by Contractor and submitted to Engineer for review and approval. All liming materials shall conform to the requirements of ASTM C602.~~ **] [** Not required. **]**

901-2.3 Fertilizer. **[** Fertilizer shall be standard commercial fertilizers supplied separately or in mixtures containing the percentages of total nitrogen, available phosphoric acid, and water-soluble potash. They shall be applied at the rate and to the depth specified, and shall meet the requirements of applicable state laws. They shall be furnished in standard containers with name, weight, and guaranteed analysis of contents clearly marked thereon. No cyanamide compounds or hydrated lime shall be permitted in mixed fertilizers.

The fertilizers may be supplied in one of the following forms:

a. A dry, free-flowing fertilizer suitable for application by a common fertilizer spreader;

b. A finely-ground fertilizer soluble in water, suitable for application by power sprayers; or

c. A granular or pellet form suitable for application by blower equipment.

Fertilizers shall be ~~**[ ]**~~commercial fertilizer and shall be spread at the rate of as indicated in the following Table 6-5.1 ~~chart below.**[** Not required. **]**~~

Table 6-5.1. Fertilizer Requirements

TYPE OF SPECIES	YEAR	ANALYSIS OR EQUIVALENT N-P-K	RATE	N TOP DRESSING RATE
1. Cool season grasses	First Second Maintenance	6-12-12 6-12-12 10-10-10	1500 lbs./ac. 1000 lbs./ac. 400 lbs./ac.	50-100 lbs./ac. 1/2/ — 30
2. Cool season grasses and legumes	First Second Maintenance	6-12-12 0-10-10 0-10-10	1500 lbs./ac. 1000 lbs./ac. 400 lbs./ac.	0-50 lbs./ac. 1/ — —
3. Ground covers	First Second Maintenance	10-10-10 10-10-10 10-10-10	1300 lbs./ac. 3/ 1300 lbs./ac. 3/ 1100 lbs./ac.	— — —
4. Pine seedlings	First	20-10-5	one 21-gram pellet per seedling placed in the closing hole	—
5. Shrub Lespedeza	First Maintenance	0-10-10 0-10-10	700 lbs./ac. 700 lbs./ac. 4/	—
6. Temporary cover crops seeded alone	First	10-10-10	500 lbs./ac.	30 lbs./ac. 5/
7. Warm season grasses	First Second Maintenance	6-12-12 6-12-12 10-10-10	1500 lbs./ac. 800 lbs./ac. 400 lbs./ac.	50-100 lbs./ac. 2/6/ 50-100 lbs./ac. 2/ 30 lbs./ac.
8. Warm season grasses and legumes	First Second Maintenance	6-12-12 0-10-10 0-10-10	1500 lbs./ac. 1000 lbs./ac. 400 lbs./ac.	50 lbs./ac./6/

1/ Apply in spring following seeding.
2/ Apply in split applications when high rates are used.
3/ Apply in 3 split applications.
4/ Apply when plants are pruned.
5/ Apply to grass species only.
6/ Apply when plants grow to a height of 2 to 4 inches.

901-2.4 Soil for repairs. The soil for fill and topsoiling of areas to be repaired shall be at least of equal quality to that which exists in areas adjacent to the area to be repaired. The soil shall be relatively free from large stones, roots, stumps, or other materials that will interfere with subsequent sowing of seed, compacting, and establishing turf, and shall be approved by the RPR before being placed.

CONSTRUCTION METHODS

901-3.1 Advance preparation and cleanup. After grading of areas has been completed and before applying fertilizer and ground limestone, areas to be seeded shall be raked or otherwise cleared of stones larger than 2 inches (50 mm) in any diameter, sticks, stumps, and other debris that might interfere with sowing of seed, growth of grasses, or subsequent maintenance of grass-covered areas. If any damage by erosion or other causes has occurred after the completion of

grading and before beginning the application of fertilizer and ground limestone, the Contractor shall repair such damage include filling gullies, smoothing irregularities, and repairing other incidental damage.

An area to be seeded shall be considered a satisfactory seedbed without additional treatment if it has recently been thoroughly loosened and worked to a depth of not less than 5 inches (125 mm) as a result of grading operations and, if immediately prior to seeding, the top 3 inches (75 mm) of soil is loose, friable, reasonably free from large clods, rocks, large roots, or other undesirable matter, and if shaped to the required grade.

When the area to be seeded is sparsely sodded, weedy, barren and unworked, or packed and hard, any grass and weeds shall first be cut or otherwise satisfactorily disposed of, and the soil then scarified or otherwise loosened to a depth not less than 5 inches (125 mm). Clods shall be broken and the top 3 inches (75 mm) of soil shall be worked into a satisfactory seedbed by discing, or by use of cultipackers, rollers, drags, harrows, or other appropriate means.

901-3.2 Dry application method.

a. Liming. [~~Lime shall be applied separately and prior to the application of any fertilizer or seed and only on seedbeds that have previously been prepared as described above. The lime shall then be worked into the top 3 inches (75 mm) of soil after which the seedbed shall again be properly graded and dressed to a smooth finish.~~ **] [** Not required. **]**

b. Fertilizing. [Following advance preparations and cleanup fertilizer shall be uniformly spread at the rate that will provide not less than the minimum quantity stated in paragraph 901-2.3. **]** ~~**[Not required.]**~~

c. Seeding. Grass seed shall be sown at the rate specified in paragraph 901-2.1 immediately after fertilizing. The fertilizer and seed shall be raked within the depth range stated in the special provisions. Seeds of legumes, either alone or in mixtures, shall be inoculated before mixing or sowing, in accordance with the instructions of the manufacturer of the inoculant. When seeding is required at other than the seasons shown on the plans or in the special provisions, a cover crop shall be sown by the same methods required for grass and legume seeding.

d. Rolling. After the seed has been properly covered, the seedbed shall be immediately compacted by means of an approved lawn roller, weighing 40 to 65 pounds per foot (60 to 97 kg per meter) of width for clay soil (or any soil having a tendency to pack), and weighing 150 to 200 pounds per foot (223 to 298 kg per meter) of width for sandy or light soils.

901-3.3 Wet application method.

a. General. The Contractor may elect to apply seed and fertilizer (and lime, if required) by spraying them on the previously prepared seedbed in the form of an aqueous mixture and by using the methods and equipment described herein. The rates of application shall be as specified in the special provisions.

b. Spraying equipment. The spraying equipment shall have a container or water tank equipped with a liquid level gauge calibrated to read in increments not larger than 50 gallons (190 liters) over the entire range of the tank capacity, mounted so as to be visible to the nozzle operator. The container or tank shall also be equipped with a mechanical power-driven agitator capable of keeping all the solids in the mixture in complete suspension at all times until used.

The unit shall also be equipped with a pressure pump capable of delivering 100 gallons (380 liters) per minute at a pressure of 100 lb / sq inches (690 kPa). The pump shall be mounted in a line that will recirculate the mixture through the tank whenever it is not being sprayed from the nozzle. All pump passages and pipe lines shall be capable of providing clearance for 5/8 inch (16 mm) solids. The power unit for the pump and agitator shall have controls mounted so as to be accessible to the nozzle operator. There shall be an indicating pressure gauge connected and mounted immediately at the back of the nozzle.

The nozzle pipe shall be mounted on an elevated supporting stand in such a manner that it can be rotated through 360 degrees horizontally and inclined vertically from at least 20 degrees below to at least 60 degrees above the horizontal. There shall be a quick-acting, three-way control valve connecting the recirculating line to the nozzle pipe and mounted so that the nozzle operator can control and regulate the amount of flow of mixture

delivered to the nozzle. At least three different types of nozzles shall be supplied so that mixtures may be properly sprayed over distance varying from 20 to 100 feet (6 to 30 m). One shall be a close-range ribbon nozzle, one a medium-range ribbon nozzle, and one a long-range jet nozzle. For case of removal and cleaning, all nozzles shall be connected to the nozzle pipe by means of quick-release couplings.

In order to reach areas inaccessible to the regular equipment, an extension hose at least 50 feet (15 m) in length shall be provided to which the nozzles may be connected.

c. Mixtures. Lime, if required, shall be applied separately, in the quantity specified, prior to the fertilizing and seeding operations. Not more than 220 pounds (100 kg) of lime shall be added to and mixed with each 100 gallons (380 liters) of water. Seed and fertilizer shall be mixed together in the relative proportions specified, but not more than a total of 220 pounds (100 kg) of these combined solids shall be added to and mixed with each 100 gallons (380 liters) of water.

All water used shall be obtained from fresh water sources and shall be free from injurious chemicals and other toxic substances harmful to plant life. The Contractor shall identify to the RPR all sources of water at least two (2) weeks prior to use. The RPR may take samples of the water at the source or from the tank at any time and have a laboratory test the samples for chemical and saline content. The Contractor shall not use any water from any source that is disapproved by the RPR following such tests.

All mixtures shall be constantly agitated from the time they are mixed until they are finally applied to the seedbed. All such mixtures shall be used within two (2) hours from the time they were mixed or they shall be wasted and disposed of at approved locations.

d. Spraying. Lime, if required, shall be sprayed only upon previously prepared seedbeds. After the applied lime mixture has dried, the lime shall be worked into the top 3 inches (75 mm), after which the seedbed shall again be properly graded and dressed to a smooth finish.

Mixtures of seed and fertilizer shall only be sprayed upon previously prepared seedbeds on which the lime, if required, shall already have been worked in. The mixtures shall be applied by means of a high-pressure spray that shall always be directed upward into the air so that the mixtures will fall to the ground like rain in a uniform spray. Nozzles or sprays shall never be directed toward the ground in such a manner as might produce erosion or runoff.

Particular care shall be exercised to ensure that the application is made uniformly and at the prescribed rate and to guard against misses and overlapped areas. Proper predetermined quantities of the mixture in accordance with specifications shall be used to cover specified sections of known area.

Checks on the rate and uniformity of application may be made by observing the degree of wetting of the ground or by distributing test sheets of paper or pans over the area at intervals and observing the quantity of material deposited thereon.

On surfaces that are to be mulched as indicated by the plans or designated by the RPR, seed and fertilizer applied by the spray method need not be raked into the soil or rolled. However, on surfaces on which mulch is not to be used, the raking and rolling operations will be required after the soil has dried.

901-3.4 Maintenance of seeded areas. The Contractor shall protect seeded areas against traffic or other use by warning signs or barricades, as approved by the RPR. Surfaces gullied or otherwise damaged following seeding shall be repaired by regrading and reseeding as directed. The Contractor shall mow, water as directed, and otherwise maintain seeded areas in a satisfactory condition until final inspection and acceptance of the work.

When either the dry or wet application method outlined above is used for work done out of season, it will be required that the Contractor establish a good stand of grass of uniform color and density to the satisfaction of the RPR. A grass stand shall be considered adequate when bare spots are one square foot (0.01 sq m) or less, randomly dispersed, and do not exceed 3% of the area seeded.

METHOD OF MEASUREMENT

901-4.1 The quantity of seeding to be paid for shall be the number of units ~~**[** 1,000 square feet (sq m) **]**~~ **[** acre (~~sq m)]~~ ~~measured~~ on the ground surface, completed and accepted.

BASIS OF PAYMENT

901-5.1 Payment shall be made at the contract unit price per **[** ~~1,000 square feet (sq m)]~~ **[** acre (~~sq m~~) **]** or fraction thereof, which price and payment shall be full compensation for furnishing and placing all material and for all labor, equipment, tools, and incidentals necessary to complete the work prescribed in this item.

Payment will be made under:

Item T-901-1 Seeding & Fertilizing - per acre

REFERENCES

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

ASTM International (ASTM)

ASTM C602 Standard Specification for Agricultural Liming Materials

Federal Specifications (FED SPEC)

FED SPEC JJJ-S-181, Federal Specification, Seeds, Agricultural

Advisory Circulars (AC)

AC 150/5200-33 Hazardous Wildlife Attractants on or Near Airports

FAA/United States Department of Agriculture

Wildlife Hazard Management at Airports, A Manual for Airport Personnel

END OF ITEM T-901

Item T-905 Topsoil

This specification is taken from the FAA AC 150/5370-10H as issued on 12/21/2018 and includes Errata Sheet updates up to 8/19/2020.

DESCRIPTION

905-1.1 This item shall consist of preparing the ground surface for topsoil application, removing topsoil from designated stockpiles or areas to be stripped on the site or from approved sources off the site, and placing and spreading the topsoil on prepared areas in accordance with this specification at the locations shown on the plans or as directed by the RPR.

MATERIALS

905-2.1 Topsoil. Topsoil shall be the surface layer of soil with no admixture of refuse or any material toxic to plant growth, and it shall be reasonably free from subsoil and stumps, roots, brush, stones (2 inches (50 mm) or more in diameter), and clay lumps or similar objects. Brush and other vegetation that will not be incorporated with the soil during handling operations shall be cut and removed. Ordinary sod and herbaceous growth such as grass and weeds are not to be removed, but shall be thoroughly broken up and intermixed with the soil during handling operations. Heavy sod or other cover, which cannot be incorporated into the topsoil by discing or other means, shall be removed. The topsoil or soil mixture, unless otherwise specified or approved, shall have a pH range of approximately 5.5 pH to 7.6 pH, when tested in accordance with the methods of testing of the Association of Official Agricultural Chemists in effect on the date of invitation of bids. The organic content shall be not less than 3% nor more than 20% as determined by the wet-combustion method (chromic acid reduction). There shall be not less than 20% nor more than 80% of the material passing the 200 mesh (75 µm) sieve as determined by the wash test in accordance with ASTM C117.

Natural topsoil may be amended by the Contractor with approved materials and methods to meet the above specifications.

905-2.2 Inspection and tests. Within 10 days following acceptance of the bid, the RPR shall be notified of the source of topsoil to be furnished by the Contractor. The topsoil shall be inspected to determine if the selected soil meets the requirements specified and to determine the depth to which stripping will be permitted. At this time, the Contractor may be required to take representative soil samples from several locations within the area under consideration and to the proposed stripping depths, for testing purposes as specified in paragraph 905-2.1.

CONSTRUCTION METHODS

905-3.1 General. Areas to be topsoiled shall be shown on the plans. If topsoil is available on the site, the location of the stockpiles or areas to be stripped of topsoil and the stripping depths shall be shown on the plans.

Suitable equipment necessary for proper preparation and treatment of the ground surface, stripping of topsoil, and for the handling and placing of all required materials shall be on hand, in good condition, and approved by the RPR before the various operations are started.

905-3.2 Preparing the ground surface. Immediately prior to dumping and spreading the topsoil on any area, the surface shall be loosened by discs or spike-tooth harrows, or by other means approved by the RPR, to a minimum depth of 2 inches (50 mm) to facilitate bonding of the topsoil to the covered subgrade soil. The surface of the area to be topsoiled shall be cleared of all stones larger than 2 inches (50 mm) in any diameter and all litter or other material which may be detrimental to proper bonding, the rise of capillary moisture, or the proper growth of the desired planting. Limited areas, as shown on the plans, which are too compact to respond to these operations shall receive special scarification.

Grades on the area to be topsoiled, which have been established by others as shown on the plans, shall be maintained in a true and even condition. Where grades have not been established, the areas shall be smooth-graded and the surface left at the prescribed grades in an even and compacted condition to prevent the formation of low places or pockets where water will stand.

905-3.3 Obtaining topsoil. Prior to the stripping of topsoil from designated areas, any vegetation, briars, stumps and large roots, rubbish or stones found on such areas, which may interfere with subsequent operations, shall be removed using methods approved by the RPR. Heavy sod or other cover, which cannot be incorporated into the topsoil by discing or other means shall be removed.

When suitable topsoil is available on the site, the Contractor shall remove this material from the designated areas and to the depth as directed by the RPR. The topsoil shall be spread on areas already tilled and smooth-graded, or stockpiled in areas approved by the RPR. Any topsoil stockpiled by the Contractor shall be rehandled and placed without additional compensation. Any topsoil that has been stockpiled on the site by others, and is required for topsoil purposes, shall be removed and placed by the Contractor. The sites of all stockpiles and areas adjacent thereto which have been disturbed by the Contractor shall be graded if required and put into a condition acceptable for seeding.

When suitable topsoil is secured off the airport site, the Contractor shall locate and obtain the supply, subject to the approval of the RPR. The Contractor shall notify the RPR sufficiently in advance of operations in order that necessary measurements and tests can be made. The Contractor shall remove the topsoil from approved areas and to the depth as directed. The topsoil shall be hauled to the site of the work and placed for spreading, or spread as required. Any topsoil hauled to the site of the work and stockpiled shall be rehandled and placed without additional compensation.

905-3.4 Placing topsoil. The topsoil shall be evenly spread on the prepared areas to a uniform depth of 2 inches (50 mm) after compaction, unless otherwise shown on the plans or stated in the special provisions. Spreading shall not be done when the ground or topsoil is frozen, excessively wet, or otherwise in a condition detrimental to the work. Spreading shall be carried on so that turfing operations can proceed with a minimum of soil preparation or tilling.

After spreading, any large, stiff clods and hard lumps shall be broken with a pulverizer or by other effective means, and all stones or rocks (2 inches (50 mm) or more in diameter), roots, litter, or any foreign matter shall be raked up and disposed of by the Contractor. after spreading is completed, the topsoil shall be satisfactorily compacted by rolling with a cultipacker or by other means approved by the RPR. The compacted topsoil surface shall conform to the required lines, grades, and cross-sections. Any topsoil or other dirt falling upon pavements as a result of hauling or handling of topsoil shall be promptly removed.

METHOD OF MEASUREMENT

905-4.1 Topsoil obtained on the site shall be measured by the number of cubic yards ~~(cubic meters)~~ of topsoil measured in its original position and stripped or excavated. Topsoil stockpiled by others and removed for topsoil by the Contractor shall be measured by the number of cubic yards ~~(cubic meters)~~ of topsoil measured in the stockpile. Topsoil shall be measured by volume in cubic yards ~~(cubic meters)~~ computed by the method of end areas.

905-4.2 Topsoil obtained off the site shall be measured by the number of cubic yards (cubic meters) of topsoil measured in its original position and stripped or excavated. Topsoil shall be measured by volume in cubic yards (meters) computed by the method of end areas.

BASIS OF PAYMENT

905-5.1 Payment will be made at the contract unit price per cubic yard (cubic meter) for topsoil (obtained on the site). This price shall be full compensation for furnishing all materials and for all preparation, placing, and spreading of the materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

905-5.2 Payment will be made at the contract unit price per cubic yard (cubic meter) for topsoil (obtained off the site). This price shall be full compensation for furnishing all materials and for all preparation, placing, and spreading of the materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item T-905-1 Topsoil (Furnished from Off the Site) - per cubic yard

REFERENCES

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

ASTM International (ASTM)

ASTM C117 Materials Finer than 75 μm (No. 200) Sieve in Mineral Aggregates by Washing

Advisory Circulars (AC)

AC 150/5200-33 Hazardous Wildlife Attractants on or Near Airports

FAA/United States Department of Agriculture

Wildlife Hazard Management at Airports, A Manual for Airport Personnel

END OF ITEM T-905

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Item T-908 Mulching

This specification is taken from the FAA AC 150/5370-10H as issued on 12/21/2018 and includes Errata Sheet updates up to 8/19/2020.

DESCRIPTION

908-1.1 This item shall consist of furnishing, hauling, placing, and securing mulch on surfaces indicated on the plans or designated by the RPR.

MATERIALS

908-2.1 Mulch material. Acceptable mulch shall be the materials listed below or any approved locally available material that is similar to those specified. Mulch shall be free from noxious weeds, mold, and other deleterious materials. Mulch materials, which contain matured seed of species that would volunteer and be detrimental to the proposed overseeding, or to surrounding farm land, will not be acceptable. Straw or other mulch material which is fresh and/or excessively brittle, or which is in such an advanced stage of decomposition as to smother or retard the planted grass, will not be acceptable.

a. **[Hay**. Hay shall be native hay in an air-dry condition and of proper consistency for placing with commercial mulch blowing equipment. Hay shall be sterile, containing no fertile seed.

~~**b. Straw.** Straw shall be the stalks from threshed plant residue of oats, wheat, barley, rye, or rice from which grain has been removed. Furnish in air-dry condition and of proper consistency for placing with commercial mulch blowing equipment. Straw shall contain no fertile seed.~~

~~**c. Hay mulch containing seed**. Hay mulch shall be mature hay containing viable seed of native grasses or other desirable species stated in the special provisions or as approved by the RPR. The hay shall be cut and handled so as to preserve the maximum quantity of viable seed. Hay mulch that cannot be hauled and spread immediately after cutting shall be placed in weather-resistant stacks or baled and stored in a dry location until used.~~

d. **Manufactured mulch**. Cellulose-fiber or wood-pulp mulch shall be products commercially available for use in spray applications. **]**

e. **Asphalt binder.** Asphalt binder material shall conform to the requirements of ASTM D977, Type SS-1 or RS-1

908-2.2 Inspection. The RPR shall be notified of sources and quantities of mulch materials available and the Contractor shall furnish him with representative samples of the materials to be used 30 days before delivery to the project. These samples may be used as standards with the approval of the RPR and any materials brought on the site that do not meet these standards shall be rejected.

CONSTRUCTION METHODS

908-3.1 Mulching. Before spreading mulch, all large clods, stumps, stones, brush, roots, and other foreign material shall be removed from the area to be mulched. Mulch shall be applied immediately after seeding. The spreading of the mulch may be by hand methods, blower, or other mechanical methods, provided a uniform covering is obtained.

Mulch material shall be furnished, hauled, and evenly applied on the area shown on the plans or designated by the RPR. Straw or hay shall be spread over the surface to a uniform thickness at the rate of 2 to 3 tons per acre (1800 - 2700 kg per acre) to provide a loose depth of not less than 1-1/2 inches (38 cm) nor more than 3 inches (75 mm). Other organic material shall be spread at the rate directed by the RPR. Mulch may be blown on the slopes and the use of cutters in the equipment for this purpose will be permitted to the extent that at least 95% of the mulch in place on the slope shall be 6 inches (150 mm) or more in length. When mulches applied by the blowing method are cut, the loose depth in place shall

be not less than one inch (25 mm) nor more than 2 inches (50 mm).

908-3.2 Securing mulch. The mulch shall be held in place by light discing, a very thin covering of topsoil, pins, stakes, wire mesh, asphalt binder, or other adhesive material approved by the RPR. Where mulches have been secured by either of the asphalt binder methods, it will not be permissible to walk on the slopes after the binder has been applied. When an application of asphalt binder material is used to secure the mulch, the Contractor must take every precaution to guard against damaging or disfiguring structures or property on or adjacent to the areas worked and will be held responsible for any such damage resulting from the operation.

If the "peg and string" method is used, the mulch shall be secured by the use of stakes or wire pins driven into the ground on 5-foot (1.5-m) centers or less. Binder twine shall be strung between adjacent stakes in straight lines and crisscrossed diagonally over the mulch, after which the stakes shall be firmly driven nearly flush to the ground to draw the twine down tight onto the mulch.

908-3.3 Care and repair.

a. The Contractor shall care for the mulched areas until final acceptance of the project. Care shall consist of providing protection against traffic or other use by placing warning signs, as approved by the RPR, and erecting any barricades that may be shown on the plans before or immediately after mulching has been completed on the designated areas.

b. The Contractor shall be required to repair or replace any mulch that is defective or becomes damaged until the project is finally accepted. When, in the judgment of the RPR, such defects or damages are the result of poor workmanship or failure to meet the requirements of the specifications, the cost of the necessary repairs or replacement shall be borne by the Contractor.

c. If the "asphalt spray" method is used, all mulched surfaces shall be sprayed with asphalt binder material so that the surface has a uniform appearance. The binder shall be uniformly applied to the mulch at the rate of approximately 8 gallons (32 liters) per 1,000 square feet (100 sq m), or as directed by the RPR, with a minimum of 6 gallons (24 liters) and a maximum of 10 gallons (40 liters) per 1,000 square feet (100 sq m) depending on the type of mulch and the effectiveness of the binder securing it. Asphalt binder material may be sprayed on the mulched slope areas from either the top or the bottom of the slope. An approved spray nozzle shall be used. The nozzle shall be operated at a distance of not less than 4 feet (1.2 m) from the surface of the mulch and uniform distribution of the asphalt material shall be required. A pump or an air compressor of adequate capacity shall be used to ensure uniform distribution of the asphalt material.

d. If the "asphalt mix" method is used, the mulch shall be applied by blowing, and the asphalt binder material shall be sprayed into the mulch as it leaves the blower. The binder shall be uniformly applied to the mulch at the rate of approximately 8 gallons (32 liters) per 1,000 square feet (100 sq m) or as directed by the RPR, with a minimum of 6 gallons (24 liters) and a maximum of 10 gallons (40 liters) per 1,000 square feet (100 sq m) depending on the type of mulch and the effectiveness of the binder securing it.

METHOD OF MEASUREMENT

908-4.1 Mulching shall be measured in square yards (square meters) on the basis of the actual surface area acceptably mulched.

BASIS OF PAYMENT

908-5.1 Payment will be made at the contract unit price per square yard (square meter) for mulching. The price shall be full compensation for furnishing all materials and for placing and anchoring the materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item T-908-1 Mulching - per acre

REFERENCES

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

ASTM International (ASTM)

ASTM D977 Standard Specification for Emulsified Asphalt

Advisory Circulars (AC)

AC 150/5200-33 Hazardous Wildlife Attractants on or Near Airports

FAA/United States Department of Agriculture

Wildlife Hazard Management at Airports, A Manual for Airport Personnel

END OF ITEM T-908

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Item L-108 Underground Power Cable for Airports

This specification is taken from the FAA AC 150/5370-10H as issued on 12/21/2018 and includes Errata Sheet updates up to 8/19/2020.

DESCRIPTION

108-1.1 This item shall consist of furnishing and installing power cables that are direct buried and furnishing and/or installing power cables within conduit or duct banks per these specifications at the locations shown on the plans. It includes excavation and backfill of trench for direct-buried cables only. Also included are the installation of counterpoise wires, ground wires, ground rods and connections, cable splicing, cable marking, cable testing, and all incidentals necessary to place the cable in operating condition as a completed unit to the satisfaction of the RPR. This item shall not include the installation of duct banks or conduit, trenching and backfilling for duct banks or conduit, or furnishing or installation of cable for FAA owned/operated facilities.

EQUIPMENT AND MATERIALS

108-2.1 General.

a. Airport lighting equipment and materials covered by advisory circulars (AC) shall be approved under the Airport Lighting Equipment Certification Program per AC 150/5345-53, current version.

b. All other equipment and materials covered by other referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification, when requested by the RPR.

c. Manufacturer's certifications shall not relieve the Contractor of the responsibility to provide materials per these specifications. Materials supplied and/or installed that do not comply with these specifications shall be removed (when directed by the RPR) and replaced with materials that comply with these specifications at the Contractor's cost.

d. All materials and equipment used to construct this item shall be submitted to the RPR for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify products or models applicable to this project. Indicate all optional equipment and delete any non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment to which they apply on each submittal sheet. Markings shall be made bold and clear with arrows or circles (highlighting is not acceptable). The Contractor is solely responsible for delays in the project that may accrue directly or indirectly from late submissions or resubmissions of submittals.

e. The data submitted shall be sufficient, in the opinion of the RPR, to determine compliance with the plans and specifications. **[** ~~The Contractor's submittals shall be neatly bound in a properly sized 3-ring binder, tabbed by specification section.~~ **] [** electronically submitted in pdf format. **]** The RPR reserves the right to reject any and all equipment, materials, or procedures that do not meet the system design and the standards and codes, specified in this document.

f. or procedures that do not meet the system design and the standards and codes, specified in this document.

g. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for at least **[** twelve (12) months **]** from the date of final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner. The Contractor shall maintain a minimum insulation resistance in accordance with paragraph 108-3.10e with isolation transformers connected in new circuits and new segments of existing

circuits through the end of the contract warranty period when tested in accordance with AC 150/5340-26, *Maintenance Airport Visual Aid Facilities*, paragraph 5.1.3.1, Insulation Resistance Test.

108-2.2 Cable. Underground cable for airfield lighting facilities (runway and taxiway lights and signs) shall conform to the requirements of AC 150/5345-7, Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits latest edition. Conductors for use on 6.6 ampere primary airfield lighting series circuits shall be single conductor, seven strand, #8 American wire gauge (AWG), L-824 **[** ~~Type B,~~ Type C **]**, 5,000 volts, non-shielded, with **[** ~~ethylene propylene insulation,~~ cross-linked polyethylene insulation **]**. Conductors for use on 20 ampere primary airfield lighting series circuits shall be single conductor, seven strand, #6 AWG, L-824 **[** ~~Type B~~, Type C **]**, 5,000 volts, non-shielded, with **[** ~~ethylene propylene insulation~~, cross-linked polyethylene insulation **]**. L-824 conductors for use on the L-830 secondary of airfield lighting series circuits shall be sized in accordance with the manufacturer's recommendations. All other conductors shall comply with FAA and National Electric Code (NEC) requirements. Conductor sizes noted above shall not apply to leads furnished by manufacturers on airfield lighting transformers and fixtures.

Wire for electrical circuits up to 600 volts shall comply with Specification L-824 and/or Commercial Item Description A-A-59544A and shall be type THWN-2, 75°C for installation in conduit and RHW-2, 75°C for direct burial installations. Conductors for parallel (voltage) circuits shall be type and size and installed in accordance with NFPA-70, National Electrical Code.

Unless noted otherwise, all 600-volt and less non-airfield lighting conductor sizes are based on a 75°C, THWN-2, 600-volt insulation, copper conductors, not more than three single insulated conductors, in raceway, in free air. The conduit/duct sizes are based on the use of THWN-2, 600-volt insulated conductors. The Contractor shall make the necessary increase in conduit/duct sizes for other types of wire insulation. In no case shall the conduit/duct size be reduced. The minimum power circuit wire size shall be #12 AWG.

Conductor sizes may have been adjusted due to voltage drop or other engineering considerations. Equipment provided by the Contractor shall be capable of accepting the quantity and sizes of conductors shown in the Contract Documents. All conductors, pigtails, cable step-down adapters, cable step-up adapters, terminal blocks and splicing materials necessary to complete the cable termination/splice shall be considered incidental to the respective pay items provided.

Cable type, size, number of conductors, strand and service voltage shall be as specified in the Contract Document.

108-2.3 Bare copper wire (counterpoise, bare copper wire ground and ground rods). Wire for counterpoise or ground installations for airfield lighting systems shall be No. **[** 6 **]** **[** ~~4~~ **]** **[** ~~2~~ **]** AWG bare solid copper wire for counterpoise and/or No. **[** 6 **]** **[** ~~4~~ **]** **[** ~~2~~ **]** AWG insulated stranded for grounding bond wire per ASTM B3 and ASTM B8, and shall be **[** bare copper wire **]** **[** ~~tinned copper wire per ASTM B33~~ **]**. For voltage powered circuits, the equipment grounding conductor shall comply with NEC Article 250.

Ground rods shall be **[** ~~solid stainless steel~~ **]** **[** ~~copper~~ **]** or **[** copper-clad steel **]** **[** ~~sectional copper-clad steel~~ **]**. The ground rods shall be of the length and diameter specified on the plans, but in no case be less than **[** ~~8 feet (2.4 m)~~ **]** **[** 10 feet (~~2.54 m~~) **]** long and **[** 5/8 inch (~~16 mm~~) **]** **[** ~~3/4 inch (19 mm~~) **]** in diameter.

108-2.4 Cable connections. In-line connections or splices of underground primary cables shall be of the type called for on the plans, and shall be one of the types listed below. No separate payment will be made for cable connections.

a. The cast splice. A cast splice, employing a plastic mold and using epoxy resin equivalent to that manufactured by 3M™ Company, "Scotchcast" Kit No. 82-B, or an approved equivalent, used for potting the splice is acceptable.

b. The field-attached plug-in splice. Field attached plug-in splices shall be installed as shown on the plans. The Contractor shall determine the outside diameter of the cable to be spliced and furnish appropriately sized connector kits and/or adapters. Tape or heat shrink tubing with integral sealant shall be in accordance with the manufacturer's requirements. Primary Connector Kits manufactured by Amerace, "Super Kit", Integro "Complete Kit", or approved equal is acceptable.

a. The factory-molded plug-in splice. Specification for L-823 Connectors, Factory-Molded to Individual Conductors, is acceptable.

b. The taped or heat-shrink splice. Taped splices employing field-applied rubber, or synthetic rubber tape covered with plastic tape is acceptable. The rubber tape should meet the requirements of ASTM D4388 and the plastic tape should comply with Military Specification MIL-I-24391 or Commercial Item Description A-A-55809. Heat shrinkable tubing shall be heavy-wall, self-sealing tubing rated for the voltage of the wire being spliced and suitable for direct-buried installations. The tubing shall be factory coated with a thermoplastic adhesive-sealant that will adhere to the insulation of the wire being spliced forming a moisture- and dirt-proof seal. Additionally, heat shrinkable tubing for multi-conductor cables, shielded cables, and armored cables shall be factory kits that are designed for the application. Heat shrinkable tubing and tubing kits shall be manufactured by Tyco Electronics/ Raychem Corporation, Energy Division, or approved equivalent.

In all the above cases, connections of cable conductors shall be made using crimp connectors using a crimping tool designed to make a complete crimp before the tool can be removed. All L-823/L-824 splices and terminations shall be made per the manufacturer's recommendations and listings.

All connections of counterpoise, grounding conductors and ground rods shall be made by the exothermic process or approved equivalent, except that a light base ground clamp connector shall be used for attachment to the light base. All exothermic connections shall be made per the manufacturer's recommendations and listings.

108-2.5 Splicer qualifications. Every airfield lighting cable splicer shall be qualified in making airport cable splices and terminations on cables rated at or above 5,000 volts AC. The Contractor shall submit to the RPR proof of the qualifications of each proposed cable splicer for the airport cable type and voltage level to be worked on. Cable splicing/terminating personnel shall have a minimum of three (3) years continuous experience in terminating/splicing medium voltage cable.

108-2.6 Concrete. [Concrete shall be proportioned, placed, and cured per Item P-610, Concrete for Miscellaneous Structures. **]**

108-2.7 Flowable backfill. Flowable material used to backfill trenches for power cable trenches shall conform to the requirements of Item P-153, Controlled Low Strength Material.

108-2.8 Cable identification tags. Cable identification tags shall be made from a non-corrosive material with the circuit identification stamped or etched onto the tag. The tags shall be of the type as detailed on the plans.

108-2.9 Tape. Electrical tapes shall be Scotch™ Electrical Tapes –Scotch™ 88 (1-1/2 inch (38 mm) wide) and Scotch™ 130C® linerless rubber splicing tape (2-inch (50 mm) wide), as manufactured by the Minnesota Mining and Manufacturing Company (3M™), or an approved equivalent.

108-2.10 Electrical coating. Electrical coating shall be Scotchkote™ as manufactured by 3M™, or an approved equivalent.

108-2.11 Existing circuits. Whenever the scope of work requires connection to an existing circuit, the existing circuit's insulation resistance shall be tested, in the presence of the RPR. The test shall be performed per this item and prior to any activity that will affect the respective circuit. The Contractor shall record the results on forms acceptable to the RPR. When the work affecting the circuit is complete, the circuit's insulation resistance shall be checked again, in the presence of the RPR. The Contractor shall record the results on forms acceptable to the RPR. The second reading shall be equal to or greater than the first reading or the Contractor shall make the necessary repairs to the existing circuit to bring the second reading above the first reading. All repair costs including a complete replacement of the L-823 connectors, L-830 transformers and L-824 cable, if necessary, shall be borne by the Contractor. All test results shall be submitted in the Operation and Maintenance (O&M) Manual.

108-2.12 Detectable warning tape. Plastic, detectable, American Public Works Association (APWA) Red (electrical power lines, cables, conduit and lighting cable) with continuous legend tape shall be polyethylene film with a metalized foil core and shall be 3-6 inches (75-150 mm) wide. Detectable tape is incidental to the respective bid item. Detectable warning tape for communication cables shall be orange. Detectable warning tape color code shall comply with the APWA Uniform Color Code.

CONSTRUCTION METHODS

108-3.1 General. The Contractor shall install the specified cable at the approximate locations indicated on the plans. Unless otherwise shown on the plans, all cable required to cross under pavements expected to carry aircraft loads shall be installed in concrete encased duct banks. Cable shall be run without splices, from fixture to fixture.

Cable connections between lights will be permitted only at the light locations for connecting the underground cable to the primary leads of the individual isolation transformers. The Contractor shall be responsible for providing cable in continuous lengths for home runs or other long cable runs without connections unless otherwise authorized in writing by the RPR or shown on the plans.

In addition to connectors being installed at individual isolation transformers, L-823 cable connectors for maintenance and test points shall be installed at locations shown on the plans. Cable circuit identification markers shall be installed on both sides of the L-823 connectors installed and on both sides of slack loops where a future connector would be installed.

Provide not less than ~~3~~ 5 (five) feet ~~(1 m)~~ of cable slack on each side of all connections, isolation transformers, light units, and at points where cable is connected to field equipment. Where provisions must be made for testing or for future above grade connections, provide enough slack to allow the cable to be extended at least one foot (30 cm) vertically above the top of the access structure. This requirement also applies where primary cable passes through empty light bases, junction boxes, and access structures to allow for future connections, or as designated by the RPR.

Primary airfield lighting cables installed shall have cable circuit identification markers attached on both sides of each L-823 connector and on each airport lighting cable entering or leaving cable access points, such as manholes, hand holes, pull boxes, junction boxes, etc. Markers shall be of sufficient length for imprinting the cable circuit identification legend on one line, using letters not less than 1/4 inch (6 mm) in size. The cable circuit identification shall match the circuits noted on the construction plans.

108-3.2 Installation in duct banks or conduits. This item includes the installation of the cable in duct banks or conduit per the following paragraphs. The maximum number and voltage ratings of cables installed in each single duct or conduit, and the current-carrying capacity of each cable shall be per the latest version of the National Electric Code, or the code of the local agency or authority having jurisdiction.

The Contractor shall make no connections or splices of any kind in cables installed in conduits or duct banks.
Unless otherwise designated in the plans, where ducts are in tiers, use the lowest ducts to receive the cable first, with spare ducts left in the upper levels. Check duct routes prior to construction to obtain assurance that the shortest routes are selected and that any potential interference is avoided.

Duct banks or conduits shall be installed as a separate item per Item L-110, Airport Underground Electrical Duct Banks and Conduit. The Contractor shall run a mandrel through duct banks or conduit prior to installation of cable to ensure that the duct bank or conduit is open, continuous and clear of debris. The mandrel size shall be compatible with the conduit size. The Contractor shall swab out all conduits/ducts and clean light bases, manholes, etc., interiors immediately prior to pulling cable. Once cleaned and swabbed, the light bases and all accessible points of entry to the duct/conduit system shall be kept closed except when installing cables. Cleaning of ducts, light bases, manholes, etc., is incidental to the pay item of the item being cleaned. All raceway systems left open, after initial cleaning, for any reason shall be re-cleaned at the Contractor's expense. The Contractor shall verify existing ducts proposed for use in this project as clear and open. The Contractor shall notify the RPR of any blockage in the existing ducts.

The cable shall be installed in a manner that prevents harmful stretching of the conductor, damage to the insulation, or damage to the outer protective covering. The ends of all cables shall be sealed with moisture-seal tape providing moisture-tight mechanical protection with minimum bulk, or alternately, heat shrinkable tubing before pulling into the conduit and it shall be left sealed until connections are made. Where more than one cable is to be installed in a conduit, all cable shall be pulled in the conduit at the same time. The pulling of a cable through duct banks or conduits may be accomplished by hand winch or power winch with the use of cable grips or pulling eyes. Maximum pulling tensions shall not exceed the cable manufacturer's recommendations. A non-hardening cable-pulling lubricant recommended for the type of cable being installed shall be used where required.

The Contractor shall submit the recommended pulling tension values to the RPR prior to any cable installation. If required by the RPR, pulling tension values for cable pulls shall be monitored by a dynamometer in the presence of the RPR. Cable pull tensions shall be recorded by the Contractor and reviewed by the RPR. Cables exceeding the maximum allowable pulling tension values shall be removed and replaced by the Contractor at the Contractor's expense.

The manufacturer's minimum bend radius or NEC requirements (whichever is more restrictive) shall apply. Cable installation, handling and storage shall be per manufacturer's recommendations. During cold weather, particular attention shall be paid to the manufacturer's minimum installation temperature. Cable shall not be installed when the temperature is at or below the manufacturer's minimum installation temperature. At the Contractor's option, the Contractor may submit a plan, for review by the RPR, for heated storage of the cable and maintenance of an acceptable cable temperature during installation when temperatures are below the manufacturer's minimum cable installation temperature.

Cable shall not be dragged across base can or manhole edges, pavement or earth. When cable must be coiled, lay cable out on a canvas tarp or use other appropriate means to prevent abrasion to the cable jacket.

108-3.3 Installation of direct-buried cable in trenches. Unless otherwise specified, the Contractor shall not use a cable plow for installing the cable. Cable shall be unreeled uniformly in place alongside or in the trench and shall be carefully placed along the bottom of the trench. The cable shall not be unreeled and pulled into the trench from one end. Slack cable sufficient to provide strain relief shall be placed in the trench in a series of S curves. Sharp bends or kinks in the cable shall not be permitted.

Where cables must cross over each other, a minimum of 3 inches (75 mm) vertical displacement shall be provided with the topmost cable depth at or below the minimum required depth below finished grade.

a. Trenching. Where turf is well established and the sod can be removed, it shall be carefully stripped and properly stored. Trenches for cables may be excavated manually or with mechanical trenching equipment. Walls of trenches shall be essentially vertical so that a minimum of surface is disturbed. Graders shall not be used to excavate the trench with their blades. The bottom surface of trenches shall be essentially smooth and free from coarse aggregate. Unless otherwise specified, cable trenches shall be excavated to a minimum depth of 18 inches (0.5 m) below finished grade per NEC Table 300.5, except as follows:

- When off the airport or crossing under a roadway or driveway, the minimum depth shall be 36 inches (91 cm) unless otherwise specified.
- Minimum cable depth when crossing under a railroad track, shall be 42 inches (1 m) unless otherwise specified.

The Contractor shall excavate all cable trenches to a width not less than 6 inches (150 mm). Unless otherwise specified on the plans, all cables in the same location and running in the same general direction shall be installed in the same trench.

When rock is encountered, the rock shall be removed to a depth of at least 3 inches (75 mm) below the required cable depth and it shall be replaced with bedding material of earth or sand containing no mineral aggregate particles that would be retained on a 1/4-inch (6.3 mm) sieve. Flowable backfill material may alternatively be used.

Duct bank or conduit markers temporarily removed for trench excavations shall be replaced as required.

It is the Contractor's responsibility to locate existing utilities within the work area prior to excavation. Where existing active cables cross proposed installations, the Contractor shall ensure that these cables are adequately protected. Where crossings are unavoidable, no splices will be allowed in the existing cables, except as specified on the plans. Installation of new cable where such crossings must occur shall proceed as follows:

1) Existing cables shall be located manually. Unearthed cables shall be inspected to assure absolutely no damage has occurred.

2) Trenching, etc., in cable areas shall then proceed, with approval of the RPR, with care taken to minimize possible damage or disruption of existing cable, including careful backfilling in area of cable.

In the event that any previously identified cable is damaged during the course of construction, the Contractor shall be responsible for the complete repair or replacement.

b. Backfilling. After the cable has been installed, the trench shall be backfilled. The first layer of backfill in the trench shall encompass all cables ; be 3 inches (75 mm) deep, loose measurement; and shall be either earth or sand containing no mineral aggregate particles that would be retained on a 1/4-inch (6.3 mm) sieve. This layer shall not be compacted. The second layer shall be 5 inches (125 mm) deep, loose measurement, and shall contain no particles that would be retained on a one inch (25.0 mm) sieve. The remaining third and subsequent layers of backfill shall not exceed 8 inches (20 cm) of loose measurement and be excavated or imported material and shall not contain stone or aggregate larger than 4 inches (100 mm) maximum diameter.

The second and subsequent layers shall be thoroughly tamped and compacted to at least the density of the adjacent material. If the cable is to be installed in locations or areas where other compaction requirements are specified (under pavements, embankments, etc.) the backfill compaction shall be **[** to a minimum of 95 percent of ASTM D698 **] [** ~~backfill with controlled low strength material (CLSM) in accordance with P-153~~ **]**.

Trenches shall not contain pools of water during backfilling operations. The trench shall be completely backfilled and tamped level with the adjacent surface, except that when turf is to be established over the trench, the backfilling shall be stopped at an appropriate depth consistent with the type of turfing operation to be accommodated. A proper allowance for settlement shall also be provided. Any excess excavated material shall be removed and disposed of per the plans and specifications.

Underground electrical warning (caution) tape shall be installed in the trench above all direct-buried cable. Contractor shall submit a sample of the proposed warning tape for acceptance by the RPR. If not shown on the plans, the warning tape shall be located 6 inches (150 mm) above the direct-buried cable or the counterpoise wire if present. A 3-6 inch (75 - 150 mm) wide polyethylene film detectable tape, with a metalized foil core, shall be installed above all direct buried cable or counterpoise. The tape shall be of the color and have a continuous legend as indicated on the plans. The tape shall be installed 8 inches (200 mm) minimum below finished grade.

c. Restoration. Following restoration of all trenching near airport movement surfaces, the Contractor shall visually inspect the area for foreign object debris (FOD) and remove any that is found. Where soil and sod has been removed, it shall be replaced as soon as possible after the backfilling is completed. All areas disturbed by work shall be restored to its original condition. The restoration shall include the **[** ~~sodding~~ **] [** topsoiling **] [** fertilizing **] [** ~~liming~~ **] [** seeding **] [** ~~sprigging~~ **] [** mulching **]** as shown on the plans. The Contractor shall be held responsible for maintaining all disturbed surfaces and replacements until final acceptance. When trenching is through paved areas, restoration shall be equal to existing conditions. If the cable is to be installed in locations or areas where other compaction requirements are specified (under pavements, embankments, etc.) the backfill compaction shall be **[** to a minimum of 95 percent of ASTM D1557 **] [** ~~backfill with controlled low strength material (CLSM) in accordance with P-153~~ **]**. Restoration shall be considered incidental to the pay item of which it is a component part.

108-3.4 Cable markers for direct-buried cable. The location of direct buried circuits shall be marked by a concrete slab marker, 2 feet (60 cm) square and 4-6 inch (10 - 15 cm) thick, extending approximately one inch (25 mm) above the surface. Each cable run from a line of lights and signs to the equipment vault shall be marked at approximately every 200 feet (61 m) along the cable run, with an additional marker at each change of direction of cable run. All other direct-buried cable shall be marked in the same manner. Cable markers shall be installed directly above the cable. The Contractor shall impress the word "CABLE" and directional arrows on each cable marking slab. The letters shall be approximately 4 inches (100 mm) high and 3 inches (75 mm) wide, with width of stroke 1/2 inch (12 mm) and 1/4 inch (6 mm) deep. Stencils shall be used for cable marker lettering; no hand lettering shall be permitted.

At the location of each underground cable connection/splice, except at lighting units, or isolation transformers, a concrete marker slab shall be installed to mark the location of the connection/splice. The Contractor shall impress the word "SPLICE" on each slab. The Contractor also shall impress additional circuit identification symbols on each slab as directed by the RPR. All cable markers and splice markers shall be painted international orange. Paint shall be specifically manufactured for uncured exterior concrete. After placement, all cable or splice markers shall be given one

coat of high-visibility aviation orange paint as approved by the RPR. Furnishing and installation of cable markers is incidental to the respective cable pay item.

108-3.5 Splicing. Connections of the type shown on the plans shall be made by experienced personnel regularly engaged in this type of work and shall be made as follows:

a. Cast splices. These shall be made by using crimp connectors for jointing conductors. Molds shall be assembled, and the compound shall be mixed and poured per the manufacturer's instructions and to the satisfaction of the RPR.

b. Field-attached plug-in splices. These shall be assembled per the manufacturer's instructions. These splices shall be made by plugging directly into mating connectors. The joint where the connectors come together shall be finished by one of the following methods: (1) wrapped with at least one layer of rubber or synthetic rubber tape and one layer of plastic tape, one-half lapped, extending at least 1-1/2 inches (38 mm) on each side of the joint (2) Covered with heat shrinkable tubing with integral sealant extending at least 1-1/2 inches (38 mm) on each side of the joint or (3) On connector kits equipped with water seal flap; roll-over water seal flap to sealing position on mating connector.

c. Factory-molded plug-in splices. These shall be made by plugging directly into mating connectors. The joint where the connectors come together shall be finished by one of the following methods: (1) Wrapped with at least one layer of rubber or synthetic rubber tape and one layer of plastic tape, one-half lapped, extending at least 1-1/2 inches (38 mm) on each side of the joint. (2) Covered with heat shrinkable tubing with integral sealant extending at least 1-1/2 inches (38 mm) on each side of the joint. or (3) On connector kits so equipped with water seal flap; roll-over water seal flap to sealing position on mating connector.

d. Taped or heat-shrink splices. A taped splice shall be made in the following manner:

Bring the cables to their final position and cut so that the conductors will butt. Remove insulation and jacket allowing for bare conductor of proper length to fit compression sleeve connector with 1/4 inch (6 mm) of bare conductor on each side of the connector. Prior to splicing, the two ends of the cable insulation shall be penciled using a tool designed specifically for this purpose and for cable size and type. Do not use emery paper on splicing operation since it contains metallic particles. The copper conductors shall be thoroughly cleaned. Join the conductors by inserting them equidistant into the compression connection sleeve. Crimp conductors firmly in place with crimping tool that requires a complete crimp before tool can be removed. Test the crimped connection by pulling on the cable. Scrape the insulation to assure that the entire surface over which the tape will be applied (plus 3 inches (75 mm) on each end) is clean. After scraping, wipe the entire area with a clean lint-free cloth. Do not use solvents.

Apply high-voltage rubber tape one-half lapped over bare conductor. This tape should be tensioned as recommended by the manufacturer. Voids in the connector area may be eliminated by highly elongating the tape, stretching it just short of its breaking point. The manufacturer's recommendation for stretching tape during splicing shall be followed. Always attempt to exactly half-lap to produce a uniform buildup. Continue buildup to 1-1/2 times cable diameter over the body of the splice with ends tapered a distance of approximately one inch (25 mm) over the original jacket. Cover rubber tape with two layers of vinyl pressure-sensitive tape one-half lapped. Do not use glyptol or lacquer over vinyl tape as they react as solvents to the tape. No further cable covering or splice boxes are required.

Heat shrinkable tubing shall be installed following manufacturer's instructions. Direct flame heating shall not be permitted unless recommended by the manufacturer. Cable surfaces within the limits of the heat-shrink application shall be clean and free of contaminates prior to application.

e. Assembly. Surfaces of equipment or conductors being terminated or connected shall be prepared in accordance with industry standard practice and manufacturer's recommendations. All surfaces to be connected shall be thoroughly cleaned to remove all dirt, grease, oxides, nonconductive films, or other foreign material. Paints and other nonconductive coatings shall be removed to expose base metal. Clean all surfaces at least 1/4 inch (6.4 mm) beyond all sides of the larger bonded area on all mating surfaces. Use a joint compound suitable for

the materials used in the connection. Repair painted/coated surface to original condition after completing the connection.

108-3.6 Bare counterpoise wire installation for lightning protection and grounding. If shown on the plans or included in the job specifications, bare solid **[** #6 AWG **]** copper counterpoise wire shall be installed for lightning protection of the underground cables. The RPR shall select one of two methods of lightning protection for the airfield lighting circuit based upon sound engineering practice and lightning strike density.

a. Equipotential. [The counterpoise size is as shown on the plans. The equipotential method is applicable to all airfield lighting systems; i.e. runway, taxiway, apron – touchdown zone, centerline, edge, threshold and approach lighting systems. The equipotential method is also successfully applied to provide lightning protection for power, signal and communication systems. The light bases, counterpoise, etc – all components – are bonded together and bonded to the vault power system ground loop/electrode.

Counterpoise wire shall be installed in the same trench for the entire length of buried cable, conduits and duct banks that are installed to contain airfield cables. The counterpoise is centered over the cable/conduit/duct to be protected.

The counterpoise conductor shall be installed no less than 8 inches (200 mm) minimum or 12 inches (300 mm) maximum above the raceway or cable to be protected, except as permitted below:

1) The minimum counterpoise conductor height above the raceway or cable to be protected shall be permitted to be adjusted subject to coordination with the airfield lighting and pavement designs.

2) The counterpoise conductor height above the protected raceway(s) or cable(s) shall be calculated to ensure that the raceway or cable is within a 45 degree area of protection, (45 degrees on each side of vertical creating a 90 degree angle).

The counterpoise conductor shall be bonded to each metallic light base, mounting stake, and metallic airfield lighting component.

All metallic airfield lighting components in the field circuit on the output side of the constant current regulator (CCR) or other power source shall be bonded to the airfield lighting counterpoise system.

All components rise and fall at the same potential; with no potential difference, no damaging arcing and no damaging current flow.

See AC 150/5340-30, Design and Installation Details for Airport Visual Aids and NFPA 780, Standard for the Installation of Lightning Protection Systems, Chapter 11, for a detailed description of the Equipotential Method of lightning protection.

Reference FAA-STD-019E, Lightning and Surge Protection, Grounding Bonding and Shielding Requirements for Facilities and Electronic Equipment, Part 4.1.1.7.][not used]

b. Isolation. [Counterpoise size is as shown on the plans. The isolation method is an alternate method for use only with edge lights installed in turf and stabilized soils and raceways installed parallel to and adjacent to the edge of the pavement. NFPA 780 uses 15 feet to define "adjacent to".

The counterpoise conductor shall be installed halfway between the pavement edge and the light base, mounting stake, raceway, or cable being protected.

The counterpoise conductor shall be installed 8 inches (203 mm) minimum below grade. The counterpoise is not connected to the light base or mounting stake. An additional grounding electrode is required at each light base or mounting stake. The grounding electrode is bonded to the light base or mounting stake with a 6 AWG solid copper conductor.

See AC 150/5340-30, Design and Installation Details for Airport Visual Aids and NFPA 780, Standard for the

Installation of Lightning Protection Systems, Chapter 11, for a detailed description of the Isolation Method of lightning protection.][~~not used~~]

c. Common Installation requirements. **[** When a metallic light base is used, the grounding electrode shall be bonded to the metallic light base or mounting stake with a No. 6 AWG bare, annealed or soft drawn, solid copper conductor.

When a nonmetallic light base is used, the grounding electrode shall be bonded to the metallic light fixture or metallic base plate with a No. 6 AWG bare, annealed or soft drawn, solid copper conductor. **]**

Grounding electrodes may be rods, ground dissipation plates, radials, or other electrodes listed in the NFPA 70 (NEC) or NFPA 780.

Where raceway is installed by the directional bore, jack and bore, or other drilling method, the counterpoise conductor shall be permitted to be installed concurrently with the directional bore, jack and bore, or other drilling method raceway, external to the raceway or sleeve.

The counterpoise wire shall also be exothermically welded to ground rods installed as shown on the plans but not more than 500 feet (150 m) apart around the entire circuit. The counterpoise system shall be continuous and terminate at the transformer vault or at the power source. It shall be securely attached to the vault or equipment external ground ring or other made electrode-grounding system. The connections shall be made as shown on the plans and in the specifications.

Where an existing airfield lighting system is being extended or modified, the new counterpoise conductors shall be interconnected to existing counterpoise conductors at each intersection of the new and existing airfield lighting counterpoise systems.

d. Parallel Voltage Systems. Provide grounding and bonding in accordance with NFPA 70, National Electrical Code.

108-3.7 Counterpoise installation above multiple conduits and duct banks. Counterpoise wires shall be installed above multiple conduits/duct banks for airfield lighting cables, with the intent being to provide a complete area of protection over the airfield lighting cables. When multiple conduits and/or duct banks for airfield cable are installed in the same trench, the number and location of counterpoise wires above the conduits shall be adequate to provide a complete area of protection measured 45 degrees each side of vertical.

Where duct banks pass under pavement to be constructed in the project, the counterpoise shall be placed above the duct bank. Reference details on the construction plans.

108-3.8 Counterpoise installation at existing duct banks. When airfield lighting cables are indicated on the plans to be routed through existing duct banks, the new counterpoise wiring shall be terminated at ground rods at each end of the existing duct bank where the cables being protected enter and exit the duct bank. The new counterpoise conductor shall be bonded to the existing counterpoise system.

108-3.9 Exothermic bonding. Bonding of counterpoise wire shall be by the exothermic welding process or equivalent method accepted by the RPR. Only personnel experienced in and regularly engaged in this type of work shall make these connections.

Contractor shall demonstrate to the satisfaction of the RPR, the welding kits, materials and procedures to be used for welded connections prior to any installations in the field. The installations shall comply with the manufacturer's recommendations and the following:

a. All slag shall be removed from welds.

b. Using an exothermic weld to bond the counterpoise to a lug on a galvanized light base is not recommended unless the base has been specially modified. Consult the manufacturer's installation directions for proper methods of bonding copper wire to the light base. See AC 150/5340-30 for galvanized light base exception.

c. If called for in the plans, all buried copper and weld material at weld connections shall be thoroughly coated with 6 mm of 3M™ Scotchkote™, or approved equivalent, or coated with coal tar Bitumastic® material to prevent surface exposure to corrosive soil or moisture.

108-3.10 Testing. The Contractor shall furnish all necessary equipment and appliances for testing the airport electrical systems and underground cable circuits before and after installation. The Contractor shall perform all tests in the presence of the RPR. The Contractor shall demonstrate the electrical characteristics to the satisfaction of the RPR. All costs for testing are incidental to the respective item being tested. For phased projects, the tests must be completed by phase. The Contractor must maintain the test results throughout the entire project as well as during the warranty period that meet the following:

a. Earth resistance testing methods shall be submitted to the RPR for approval. Earth resistance testing results shall be recorded on an approved form and testing shall be performed in the presence of the RPR. All such testing shall be at the sole expense of the Contractor.

b. Should the counterpoise or ground grid conductors be damaged or suspected of being damaged by construction activities the Contractor shall test the conductors for continuity with a low resistance ohmmeter. The conductors shall be isolated such that no parallel path exists and tested for continuity. The RPR shall approve of the test method selected. All such testing shall be at the sole expense of the Contractor.

After installation, the Contractor shall test and demonstrate to the satisfaction of the RPR the following:

c. That all affected lighting power and control circuits (existing and new) are continuous and free from short circuits.

d. That all affected circuits (existing and new) are free from unspecified grounds.

e. That the insulation resistance to ground of all new non-grounded high voltage series circuits or cable segments is not less than **[** 50 **]** megohms. Verify continuity of all series airfield lighting circuits prior to energization.

f. That the insulation resistance to ground of all new non-grounded conductors of new multiple circuits or circuit segments is not less than 100 megohms.

g. That all affected circuits (existing and new) are properly connected per applicable wiring diagrams.

h. That all affected circuits (existing and new) are operable. Tests shall be conducted that include operating each control not less than 10 times and the continuous operation of each lighting and power circuit for not less than 1/2 hour.

i. That the impedance to ground of each ground rod does not exceed **[** 25 **]** ohms prior to establishing connections to other ground electrodes. The fall-of-potential ground impedance test shall be used, as described by American National Standards Institute/Institute of Electrical and Electronic Engineers (ANSI/IEEE) Standard 81, to verify this requirement. As an alternate, clamp-on style ground impedance test meters may be used to satisfy the impedance testing requirement. Test equipment and its calibration sheets shall be submitted for review and approval by the RPR prior to performing the testing.

Two copies of tabulated results of all cable tests performed shall be supplied by the Contractor to the RPR. Where connecting new cable to existing cable, insulation resistance tests shall be performed on the new cable prior to connection to the existing circuit.

There are no approved "repair" procedures for items that have failed testing other than complete replacement.

METHOD OF MEASUREMENT

108-4.1 [Trenching shall be measured by the linear feet (meters) of trench, including the excavation, backfill, and restoration, completed, measured as excavated, and accepted as satisfactory. When specified, separate measurement shall

be made for trenches of various specified widths. **]**

~~**[** The cost of all excavation, backfill, dewatering and restoration regardless of the type of material encountered shall be included in the unit price bid for the work. **]**~~

108-4.2 Cable or counterpoise wire installed in trench, duct bank or conduit shall be measured by the number of linear feet (meters) installed and grounding connectors, and trench marking tape ready for operation, and accepted as satisfactory. Separate measurement shall be made for each cable or counterpoise wire installed in trench, duct bank or conduit. The measurement for this item **[** shall **]** ~~**[** shall not **]**~~ include additional quantities required for slack.

108-4.3 [No separate payment will be made for ground rods.][~~Ground rods shall be measured by each [8-foot] section installed complete.~~]

BASIS OF PAYMENT

108-5.1 Payment will be made at the contract unit price for trenching, cable and bare counterpoise wire installed in trench (direct-buried), or cable and equipment ground installed in duct bank or conduit, in place by the Contractor and accepted by the RPR. This price shall be full compensation for furnishing all materials and for all preparation and installation of these materials, and for all labor, equipment, tools, and incidentals, including ground rods and ground connectors and trench marking tape, necessary to complete this item.

Payment will be made under:

Item L-108.1	Trenching for Direct Buried Cable, 18-inch minimum depth
Item L-108.2	No. 8 AWG, 5 kV, L-824, Type C Cable, Installed in Trench, Duct Bank, or Conduit- per liner foot
Item L-108.3	No. 6 AWG, Solid, Bare Copper Counterpoise Wire, Installed In Trench, Above the Duct Bank Or Conduit, Including Connections/Terminations – per linear foot
Item L-108.4	No. 6 AWG, Insulated, Stranded "Green" Equipment Ground, Installed in Duct Bank or Conduit – per linear foot

REFERENCES

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

Advisory Circulars (AC)

AC 150/5340-26	Maintenance of Airport Visual Aid Facilities
AC 150/5340-30	Design and Installation Details for Airport Visual Aids
AC 150/5345-7	Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits
AC 150/5345-26	Specification for L-823 Plug and Receptacle, Cable Connectors
AC 150/5345-53	Airport Lighting Equipment Certification Program

Commercial Item Description

A-A-59544A Cable and Wire, Electrical (Power, Fixed Installation)

A-A-55809 Insulation Tape, Electrical, Pressure-Sensitive Adhesive, Plastic

ASTM International (ASTM)

ASTM B3 Standard Specification for Soft or Annealed Copper Wire

ASTM B8 Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft

ASTM B33 Standard Specification for Tin-Coated Soft or Annealed Copper Wire for Electrical Purposes

ASTM D4388 Standard Specification for Nonmetallic Semi-Conducting and Electrically Insulating Rubber Tapes

Mil Spec

MIL-PRF-23586F Performance Specification: Sealing Compound (with Accelerator), Silicone Rubber, Electrical

MIL-I-24391 Insulation Tape, Electrical, Plastic, Pressure Sensitive

National Fire Protection Association (NFPA)

NFPA-70 National Electrical Code (NEC)

NFPA-780 Standard for the Installation of Lightning Protection Systems

American National Standards Institute (ANSI)/Institute of Electrical and Electronics Engineers (IEEE)

ANSI/IEEE STD 81 IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System

Federal Aviation Administration Standard

FAA STD-019E Lightning and Surge Protection, Grounding Bonding and Shielding Requirements for Facilities and Electronic Equipment

END OF ITEM L-108

Item L-109 Airport Transformer Vault and Vault Equipment

This specification is taken from the FAA AC 150/5370-10H as issued on 12/21/2018 and includes Errata Sheet updates up to 8/19/2020.

DESCRIPTION

109-1.1 This item shall consist of **[** removal, salvaging and installation of electrical vault and equipment**]** ~~constructing an airport transformer vault or a prefabricated metal housing per these specifications and per the design and dimensions shown in the plans. This work shall also include the installation of conduits in the floor and foundation, painting and lighting of the vault or metal housing,~~ and the furnishing of all incidentals that are necessary to produce a completed unit. Included as a separate part under this item or as a separate item where an existing vault is to be used shall be the furnishing of all vault equipment, wiring, electrical buses, cable, conduit, potheads, and grounding systems. This work shall also include the painting of equipment and conduit; the marking and labeling of equipment and the labeling or tagging of wires; the testing of the installation; and the furnishing of all incidentals necessary to place it in operating condition as a completed unit to the satisfaction of the RPR.

EQUIPMENT AND MATERIALS

109-2.1 General.

a. Airport lighting equipment and materials covered by advisory circulars (AC) shall be certified in AC 150/5345-53, Airport Lighting Equipment Certification Program (ALECP) and listed in the ALECP Addendum.

b. All other equipment and materials covered by other referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification when requested by the RPR.

c. Manufacturer's certifications shall not relieve the Contractor of the responsibility to provide materials per these specifications. Materials supplied and/or installed that do not comply with these specifications shall be removed (when directed by the RPR) and replaced with materials that comply with these specifications at the Contractor's cost.

d. All materials and equipment used to construct this item shall be submitted to the RPR for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify products or models applicable to this project. Indicate all optional equipment and delete any non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment to which they apply on each submittal sheet. Markings shall be made bold and clear with arrows or circles (highlighting is not acceptable). The Contractor is solely responsible for delays in the project that may accrue directly or indirectly from late submissions or resubmissions of submittals.

e. The data submitted shall be sufficient, in the opinion of the RPR, to determine compliance with the plans and specifications. The Contractor's submittals shall be ~~**[** neatly bound in a properly sized 3-ring binder, tabbed by specification section. **]**~~ **[** provided in electronic pdf format, tabbed by specification section. **]** The RPR reserves the right to reject any and all equipment, materials or procedures that do not meet the system design and the standards and codes, specified in this document.

f. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least **[** twelve (12) months **]** from final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

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The Engineer should specify the form in which submittals are to be received and number of copies.

The length of time for guarantee of materials and workmanship should be as stated in the contract between the Owner and Contractor and the contract special provisions.

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CONSTRUCTION OF VAULT AND PREFABRICATED METAL HOUSING

109-3.1 Electrical vault building. Not Used ~~The electrical vault building must comply with NEC Article 110.31, Enclosure for Electrical Installations, Item (A) Electrical Vaults. Construct the building of materials having adequate structural strength for the conditions and installed location, has a minimum fire rating of two or three hours as determined by the authority having jurisdiction (AHJ), and is bullet resistant to minimum UL 752 Level 4.~~

109-3.2 Concrete. Not Used ~~**[** Concrete shall be proportioned, placed, and cured per Item P-610, Concrete for Miscellaneous Structures. **]**~~

109-3.3 Precast concrete structures. Not Used ~~Precast concrete structures shall be furnished by a plant meeting National Precast Concrete Association Plant Certification Program or another RPR approved third party certification program. Precast concrete structures shall conform to ASTM C478.~~

109-3.4 Reinforcing steel. Not Used ~~Reinforcing steel bars shall be intermediate or structural grade deformed type bars and shall be per ASTM A615.~~

109-3.5 Brick. Not Used ~~Brick shall be per ASTM C62, Grade SW.~~

109-3.6 Rigid steel conduit. Rigid steel conduit and fittings shall be per Underwriters Laboratories Standards 6 and 514B.

109-3.7 Plastic Conduit and fittings. Plastic Conduit and fittings shall conform to the requirements of UL-651 and UL-654 schedule 40 polyvinyl chloride (PVC) suitable for use above or below ground.

109-3.8 Lighting. Vault or metal-housing light fixtures shall be of a vapor-proof type.

109-3.9 Outlets. Convenience outlets shall be heavy-duty duplex units designed for industrial service.

109-3.10 Switches. Vault or metal-housing light switches shall be single-pole switches.

109-3.11 Paint. Not Used

~~**a.** Priming paint for non-galvanized metal surfaces shall be a high solids alkyd primer compatible with the manufacturer's recommendations for the intermediate or topcoat.~~

~~**b.** White paint for body and finish coats on metal and wood surfaces shall be ready-mixed paint conforming to the Master Painter's Institute (MPI), Reference #9, Exterior Alkyd, Gloss.~~

~~**c.** Priming paint for wood surfaces shall be mixed on the job by thinning the specified white paint by adding 1/2 pint (0.24 liter) of raw linseed oil to each gallon (liter).~~

~~**d.** Paint for the floor, ceiling, and inside walls shall be per Porter Paint Company 69, 71, and 79 or equivalent. Walls and ceiling shall be light gray and the floor shall be medium gray.~~

~~**e.** The roof coating shall be hot asphalt material per ASTM D2823. Asbestos-free roof coating per ASTM D4479 may be substituted if required by local codes.~~

109-3.12 Ground bus. Not Used ~~Ground bus shall be 1/8 × 3/4 inch (3 × 19 mm) minimum copper bus bar.~~

109-3.13 Square duct. Not Used ~~Duct shall be square similar to that manufactured by the Square D Company (or equivalent), or the Trumbull Electric Manufacturing Company (or equivalent). The entire front of the duct on each section shall consist of hinged or removable cover for ready access to the interior. The cross-section of the duct shall be not less than 4 × 4 inch (100 × 100 mm) except where otherwise shown in the plans.~~

109-3.14 Ground rods. Ground rods shall be in accordance with Item L-108.

109-3.15 Vault prefabricated metal housing. Not Used ~~The prefabricated metal housing shall be a commercially available unit.~~

109-3.16 FAA-approved equipment. Certain items of airport lighting equipment installed in vaults are covered by individual ACs listed below:

AC 150/5345-3 Specification for L-821, Panels for Remote Control of Airport Lighting

~~AC 150/5345-5 Circuit Selector Switch~~

AC 150/5345-7 Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits

AC 150/5345-10 Specification for Constant Current Regulators and Regulator Monitors

~~AC 150/5345-13 Specification for L-841 Auxiliary Relay Cabinet Assembly for Pilot Control of Airport Lighting Circuits.~~

~~AC 150/5345-49 Specification for L-854, Radio Control Equipment~~

~~AC 150/5345-56 Specification for L-890 Airport Lighting Control and Monitoring System (ALCMS)~~

109-3.17 Other electrical equipment. Distribution transformers, oil switches, cutouts, relays, terminal blocks, transfer relays, circuit breakers, and all other regularly used commercial items of electrical equipment not covered by FAA equipment specifications and ACs shall conform to the applicable rulings and standards of the Institute of Electrical and Electronic Engineers (IEEE) or the National Electrical Manufacturers Association (NEMA). When specified, test reports from a testing laboratory indicating that the equipment meets the specifications shall be supplied. In all cases, equipment shall be new and a first-grade product. This equipment shall be supplied in the quantities required for the specific project and shall incorporate the electrical and mechanical characteristics specified in the proposal and plans. Equipment selected and installed by the Contractor shall maintain the interrupting current rating of the existing systems or specified rating whichever is greater.

109-3.18 Wire. Wire (in conduit) rated up to 5,000 volts shall be per AC 150/5345-7, Specification for L-824 Underground Electrical Cables for Airport Lighting Circuits. For ratings up to 600 volts, moisture and heat resistant thermoplastic wire conforming to Commercial Item Description A-A-59544A Type THWN-2 shall be used. The wires shall be of the type, size, number of conductors, and voltage shown in the plans or in the proposal.

a. Control circuits. Unless otherwise indicated on the plans, wire shall be not less than No. 12 American wire gauge (AWG) and shall be insulated for 600 volts. If telephone control cable is specified, No. 19 AWG telephone cable per ANSI/Insulated Cable Engineers Association (ICEA) S-85-625 specifications shall be used.

b. Power circuits.

1) 600 volts maximum – Wire shall be No. 6 AWG or larger and insulated for at least 600 volts.

2) 3,000 volts maximum – Wire shall be No. 6 AWG or larger and insulated for at least 3,000 volts.

3) Over 3,000 volts-Wire shall be No. 6 AWG or larger and insulated for at least the circuit voltage.

109-3.19 Short circuit / coordination / device evaluation / arc flash analysis. The Contractor shall, based upon the equipment provided, include as a part of the submittal process the electrical system "Short Circuit / Coordination / Device evaluation / Arc Flash Analysis". The analysis shall be performed by the equipment manufacturer and submitted in a written report. The analysis shall be signed and sealed by a registered professional Engineer from the state in which the project is located. The analysis shall comply with NFPA-70E and IEEE 1584.

The analysis will include: one line diagrams, short circuit analysis, coordination analysis, equipment evaluation, arc flash analysis and arc flash labels containing at a minimum, equipment name, voltage/current rating, available incident energy and flash protection boundary.

The selected firms field service Engineer shall perform data gathering for analysis completion and device settings, perform device setting as recommended by the analysis and will furnish and install the arc flash labels. The components worst case incident energy will be considered the available arc flash energy at that specific point in the system. Submit three written copies and one electronic copy of the report.

CONSTRUCTION METHODS

CONSTRUCTION OF VAULT AND PREFABRICATED METAL HOUSING

109-4.1 General. Not Used ~~The Contractor shall construct the transformer vault or prefabricated metal housing at the location indicated in the plans. Vault construction shall be reinforced concrete, concrete masonry, or brick wall as specified. The metal housing shall be prefabricated equipment enclosure to be supplied in the size specified. The mounting pad or floor details, installation methods, and equipment placement are shown in the plans. Precast concrete structures shall be furnished by a plant meeting National Precast Concrete Association Plant Certification Program or another engineer approved third party certification program.~~

~~The Contractor shall clear, grade, and seed the area around the vault or metal housing for a minimum distance of 10 feet (3 m) on all sides. The slope shall be not less than 1/2 inch per foot (12 mm per 0.3 m) away from the vault or metal housing in all directions.~~

~~The vault shall provide adequate protection against weather elements, including rain, wind-driven dust, snow, ice and excessive heat. The vault shall have sufficient filtered ventilation, to assure that the interior room temperatures and conditions do not exceed the recommended limits of the electrical equipment to be installed in the vault. The Contractor is responsible for contacting the manufacturer of the equipment to be installed to obtain environmental limitations of the equipment to be installed. [Refer to the electrical vault detail plan sheets for construction requirements. The prefabricated building shall include roof, walls and floor in accordance with the details and these specifications.]~~

109-4.2 Foundation and walls. Not Used

~~a.~~ Reinforced concrete construction. ~~The Contractor shall construct the foundation and walls per the details shown in the plans. Unless otherwise specified, internal ties shall be of the mechanical type so that when the forms are removed the ends of the ties shall be at least one inch (25 mm) beneath the concrete surface; the holes shall be plugged and finished to prevent discoloration. Reinforcing steel shall be placed, as shown in the drawings, and secured in position to prevent displacement during the concrete placement.~~

~~The external surfaces of the concrete shall be thoroughly worked during the placing operation to force all coarse aggregate from the surface. Thoroughly work the mortar against the forms to produce a smooth finish free from air pockets and honeycomb.~~

~~The surface film of all pointed surfaces shall be removed before setting occurs. As soon as the pointing has set sufficiently, the entire surface inside and outside of the vault shall be thoroughly wet with water and rubbed with a No. 16 carborundum stone, or equivalent quality abrasive, bringing the surface to a paste. All form marks and projections shall be removed. The surface produced shall be smooth and dense without pits or~~

irregularities. The materials which have been ground into a paste during the rubbing process shall be spread or brushed uniformly over the entire surface (except the interior surfaces that are to be painted shall have all paste removed by washing before painting) and permitted to reset. Final exterior finish shall be obtained by rubbing with No. 30 carborundum stone, or an equivalent quality abrasive. The surface shall be rubbed until the entire surface is smooth and uniform in color.

b. Brick and concrete construction. Not Used When this type of construction is specified, the foundation shall be concrete conforming to the details shown in the plans. The outer edge of the foundation at the floor level shall be beveled 1-1/2 inches (38 mm) at 45 degrees. Brick walls shall be 8 inches (200 mm) thick, laid in running bond with every sixth course a header course. Brick shall be laid in cement mortar (one part masonry cement and 3 parts sand) with full mortar bed and shoved joints. All joints shall be completely filled with mortar, and facing brick shall be back-parged with mortar as work progresses. All joints shall be 3/8 inch (9 mm) thick, exterior joints tooled concave, and interior joints struck flush. Both interior and exterior brick surfaces shall be cleaned and nail holes, cracks and other defects filled with mortar. When specified, a nonfading mineral pigment mortar coloring shall be added to the mortar. Steel reinforcing bars, 3/8 inch (9 mm) in diameter and 12 inches (300 mm) long, shall be set vertically in the center of the brick wall on not more than 2 feet (60 cm) centers to project 2-1/2 inches (60 mm) into the concrete roof slab. Lintels for supporting the brickwork over doors, windows, and louvers shall consist of two 4 × 3 × 3/8 inch (100 × 75 × 9 mm) steel angles. Lintels shall be painted with one coat of corrosion-inhibiting primer before installation, and all exposed parts shall be painted similar to doors and window sash after installation.

Window sills may be concrete poured in place or precast concrete as indicated in the plans. All exposed surfaces shall have a rubbed finish as specified under reinforced concrete construction. After completion, all interior and exterior faces of walls shall be scrubbed with a solution of muriatic acid and water in the proportions of not less than one part acid to 10 parts of water. All traces of efflorescence, loose mortar, and mortar stain shall be removed, and the walls washed down with clear water.

c. Concrete masonry construction. Not Used When this type of construction is specified, the foundation shall be concrete conforming to the details shown in the plans. The concrete masonry units shall be standard sizes and shapes and shall conform to ASTM C90 and shall include the closures, jambs, and other shapes required by the construction as shown in the plans. Standard construction practice shall be followed for this type of work including mortar, joints, reinforcing steel for extensions into roof slab, etc. Plaster for interior walls, if specified, shall be Portland cement plaster.

109-4.3 Roof. Not Used The roof shall be reinforced concrete as shown in the plans. Reinforcing steel shall be placed as shown in the drawing and secured in position to prevent displacement during the pouring of the concrete. The concrete shall be poured monolithically and shall be free of honeycombs and voids. The surface shall have a steel-troweled finish and shall be sloped as shown in the drawing. The underside of the roof slab shall be finished in the same manner as specified for walls.

One brush or mop coat of hot asphalt roof coating shall be applied to the top surface of the roof slab. The asphalt material shall be heated to within the range specified by the manufacturer and immediately applied to the roof. The finished coat shall be continuous over the roof surface and free from holidays and blisters. Smears and dribbles of asphalt on the roof edges and building walls shall be removed.

109-4.4 Floor. Not Used Construct building foundation in accordance with the details shown in the plans. The floor shall be reinforced concrete as shown in the drawings. When present, all sod, roots, refuse, and other perishable material shall be removed from the area under the floor to a depth of 8 inches (200 mm), unless a greater depth is specified in the invitation for bids. This area shall be backfilled with materials consisting of sand, cinders, gravel, or stone. Fill shall be placed in layers not to exceed 4 inches (100 mm) and shall be thoroughly compacted by tamping or rolling. A layer of building paper shall be placed over the fill prior to placing concrete. The floor surfaces shall have a steel-troweled finish. The floor shall be level unless a drain is specified, in which case the floor shall be pitched 1/4 inch (6 mm) per foot downward toward the drain. A 1/4-inch (6-mm) asphalt felt expansion joint shall be placed between floor and foundation walls. The floor shall be poured monolithically and shall be free of honeycombs and voids.

109-4.5 Floor drain. Not Used If shown in the plans, a floor drain and dry well shall be installed in the center of the

~~floor of the equipment room. The dry well shall be excavated 4 × 4 feet (1.2 × 1.2 m) square and to a depth of 4 feet (1.2 m) below the finished floor elevation and shall be backfilled to the elevation of the underside of the floor with gravel which shall all pass a 2-inch (50 mm) mesh sieve and shall all be retained on a 1/4-inch (6.3 mm) mesh sieve. The gravel backfill shall be placed in 6 inch (150 mm) maximum layers, and the entire surface of each layer shall be tamped either with a mechanical tamper or with a hand tamper weighing not less than 25 pounds (11 kg) and having a face area of not more than 36 square inches (232 square cm) nor less than 16 square inches (103 square cm). The drain inlet shall be set flush in the concrete floor. The drain shall have a clear opening of not less than 8 inches (200 mm) in diameter.~~

109-4.6 Conduits in floor and foundation. Not Used ~~Conduits shall be installed in the floor and through the foundation walls per the details shown in the plans. All underground conduit shall be painted with an asphalt compound. Conduit shall be installed with a coupling or metal conduit adapter flush with the top of the floor. All incoming conduit shall be closed with a pipe plug to prevent the entrance of foreign material during construction. Space conduit entrances shall be left closed.~~

109-4.7 Doors. Not Used ~~Doors shall be metal-clad fireproof Class A (three (3) hour rated) doors conforming to requirements of the National Electrical Code (NEC) and local electrical codes. Panic bar exit hardware shall be installed per NEC requirements. Refer to the new electrical vault detail plan sheets for construction requirements.~~

109-4.8 Painting. Not Used ~~The floor, ceiling, and inside walls of concrete construction shall first be given a hardening treatment, after which the Contractor shall apply two coats of paint as specified below, except that interior face brick walls need not be painted. The hardening treatment shall consist of applying two coats of either a commercial floor hardener or a solution made by dissolving 2 pounds (0.9 kg) of magnesium fluorosilicate or zinc sulfate crystals in one gallon (liter) of water. Each coat shall be allowed to dry at least 48 hours before the next application. After the second treating coat has dried, the surfaces shall be brushed clean of all crystals and thoroughly washed with clear water. Paint for walls and ceiling shall be a light gray color approved by the RPR. The floor paint shall be a medium gray color approved by the RPR. Before painting, the surfaces shall be dry and clean. The first coat shall be thinned by adding 2/3 quart (0.63 liters) of spar varnish and 1/3 quart (0.31 liters) of turpentine to each gallon (liter) of paint. The second coat shall be applied without thinning. All doors, lintels, and windows shall be cleaned to remove any rust or foreign material and shall be given one body and one finish coat of white paint. Bare metal surfaces shall be given a prime coat of corrosion inhibiting primer prior to the body and finish coats.~~

109-4.9 Lights and switches. Not Used ~~The Contractor shall furnish and install a minimum of two duplex convenience outlets in the vault room. Where a control room is specified, at least two duplex outlets shall be installed.~~

INSTALLATION OF EQUIPMENT IN VAULT OR PREFABRICATED METAL HOUSING

109-5.1 General. The Contractor shall furnish, install, and connect all equipment, equipment accessories, conduit, cables, wires, buses, grounds, and support necessary to ensure a complete and operable electrical distribution center for the airport lighting system as specified herein and shown in the plans. When specified, an emergency power supply and transfer switch shall be provided and installed.

The equipment installation and mounting shall comply with the requirements of the National Electrical Code and local code agency having jurisdiction. All electrical work shall comply with the NEC and local code agency having jurisdiction including the separation of under 600V work from 5,000V work."

109-5.2 Power supply equipment. Transformers, regulators, booster transformers, and other power supply equipment items shall be furnished and installed at the location shown in the plans or as directed by the RPR. The power supply equipment shall be set on steel "H" sections, "I" beams, channels, or concrete blocks to provide a minimum space of 1-1/2 inch ~~(38 mm)~~ between the equipment and the floor. The equipment shall be placed so as not to obstruct the oil-sampling plugs of the oil-filled units; and name-plates shall, so far as possible, not be obscured.

If specified in the plans and specifications, equipment for an alternate power source or an emergency power generator shall be furnished and installed. The alternate power supply installation shall include all equipment, accessories, an automatic changeover switch, and all necessary wiring and connections. The emergency power generator set shall be the size and type specified.

109-5.3 Switchgear and panels. Oil switches, fused cutouts, relays, transfer switches, panels, panel boards, and other similar items shall be furnished and installed at the location shown in the plans or as directed by the RPR. Wall or ceiling mounted items shall be attached to the wall or ceiling with galvanized bolts of not less than 3/8-inch ~~(9 mm)~~ diameter engaging metal expansion shields or anchors in masonry or concrete vaults.

109-5.4 Duct and conduit. The Contractor shall furnish and install square-type exposed metallic ducts with hinged covers for the control circuits in the vault. These shall be mounted along the walls behind all floor-mounted equipment and immediately below all wall-mounted equipment. The hinged covers shall be placed to open from the front side with the hinges at the front bottom.

Wall brackets for square ducts shall be installed at all joints 2 feet ~~(60 cm)~~ or more apart with intermediate brackets as specified. Conduit shall be used between square ducts and equipment or between different items of equipment when the equipment is designed for conduit connection. When the equipment is not designed for conduit connection, conductors shall enter the square-type control duct through insulating bushings in the duct or on the conduit risers.

109-5.5 Wiring and connections. The Contractor shall make all necessary electrical connections in the vault per the wiring diagrams furnished and as directed by the RPR. In wiring to the terminal blocks, the Contractor shall leave sufficient extra length on each control lead to make future changes in connections at the terminal block. This shall be accomplished by running each control lead the longest way around the box to the proper terminal. Leads shall be neatly laced in place.

109-5.6 Marking and labeling. All equipment, control wires, terminal blocks, etc., shall be tagged, marked, or labeled as specified below:

a. Wire identification. The Contractor shall furnish and install self-sticking wire labels or identifying tags on all control wires at the point where they connect to the control equipment or to the terminal blocks. Wire labels, if used, shall be of the self-sticking preprinted type and of the manufacturer's recommended size for the wire involved. Identification -markings designated in the plans shall be followed. Tags, if used, shall be of fiber not less than 3/4 inch ~~(19 mm)~~ in diameter and not less than 1/32 inch ~~(1 mm)~~ thick. Identification markings designated in the plans shall be stamped on tags by means of small tool dies. Each tag shall be securely tied to the proper wire by a nonmetallic cord.

b. Labels. The Contractor shall stencil identifying labels on the cases of regulators, breakers, and distribution and control relay cases with white oil paint as designated by the RPR. The letters and numerals shall be not less than one inch ~~(25 mm)~~ in height and shall be of proportionate width. The Contractor shall also mark the correct circuit designations per the wiring diagram on the terminal marking strips, which are a part of each terminal block.

METHOD OF MEASUREMENT

109-6.1 Not Used ~~The quantity of vaults to be paid for under this item shall consist of the number of vaults constructed in place and accepted as a complete unit.~~

109-6.2 Not Used ~~The quantity of prefabricated metal housings to be paid for under this item shall consist of the number of housings constructed in place and accepted as a complete unit.~~

109-6.3 The quantity of equipment to be paid for under this item shall consist of all equipment installed, connected and accepted as a complete unit ready for operation within an existing vault or prefabricated metal housing.

109-6.4 All work within and directly pertaining to installing new regulator equipment for the taxiway electrical circuit shall be installed in place and accepted as a complete, fully functioning system.

BASIS OF PAYMENT

109-7.1 Payment will be made at the contract unit price for each completed and accepted vault or prefabricated metal housing equipment installation. This price shall be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

~~Item L-109-1 Construction of Airport Transformer Vault in Place - per unit~~

~~Item L-109-2 Installation of Airport Transformer Vault Equipment in Place - per unit~~

~~Item L-109-3 Construction of [Prefabricated Metal Housing] [Prefabricated Concrete Building] and Foundation in Place - per unit~~

~~Item L-109-4 Installation of Equipment with in existing vault or prefabricated metal housing in Place - per unit~~

Item L-109.1 Electrical Vault Work - per lump sum

Item L-109.2 Install New L-829 15 kW Constant Current Regulator (Taxiway) – per each

REFERENCES

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

Advisory Circulars (AC)

AC 150/5340-30 Design and Installation Details for Airport Visual Aids

AC 150/5345-3 Specification for L-821, Panels for Remote Control of Airport Lighting

AC 150/5345-5 Circuit Selector Switch

AC 150/5345-7 Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits

AC 150/5345-10 Specification for Constant Current Regulators and Regulator Monitors

AC 150/5345-13 Specification for L-841 Auxiliary Relay Cabinet Assembly for Pilot Control of Airport Lighting Circuits

AC 150/5345-49 Specification L-854, Radio Control Equipment;

AC 150/5345-53 Airport Lighting Equipment Certification Program

American National Standards Institute / Insulated Cable Engineers Association (ANSI/ICEA)

ANSI/ICEA S-85-625 Standard for Telecommunications Cable Aircore, Polyolefin Insulated, Copper Conductor Technical Requirements

ASTM International (ASTM)

ASTM A615 Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement

ASTM C62 Standard Specification for Building Brick (Solid Masonry Units Made from Clay or Shale)

ASTM C90 Standard Specification for Loadbearing Concrete Masonry Units

ASTM D2823 Standard Specification for Asphalt Roof Coatings, Asbestos Containing

ASTM D4479 Standard Specification for Asphalt Roof Coatings – Asbestos-Free

Commercial Item Description (CID)

A-A 59544 Cable and Wire, Electrical (Power, Fixed Installation)
Institute of Electrical and Electronic Engineers (IEEE)

IEEE 1584 Guide for Performing Arc-Flash Hazard Calculations

Master Painter's Institute (MPI)

MPI Reference #9 Alkyd, Exterior, Gloss (MPI Gloss Level 6)

Underwriters Laboratories (UL)

UL Standard 6 Electrical Rigid Metal Conduit – Steel

UL Standard 514B Conduit, Tubing, and Cable Fittings

UL Standard 514C Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers

UL Standard 651 Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings

UL Standard 651A Type EB and A Rigid PVC Conduit and HDPE Conduit

National Fire Protection Association (NFPA)

NFPA-70 National Electrical Code (NEC)

NFPA-70E Standard for Electrical Safety in the Workplace

NFPA-780 Standard for the Installation of Lightning Protection Systems

END OF ITEM L-109

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Item L-110 Airport Underground Electrical Duct Banks and Conduits

This specification is taken from the FAA AC 150/5370-10H as issued on 12/21/2018 and includes Errata Sheet updates up to 8/19/2020.

DESCRIPTION

110-1.1 This item shall consist of underground electrical conduits and duct banks (single or multiple conduits encased in concrete or buried in sand) installed per this specification at the locations and per the dimensions, designs, and details shown on the plans. This item shall include furnishing and installing of all underground electrical duct banks and individual and multiple underground conduits **[** and removal of existing duct banks **]**. It shall also include all turfing trenching, backfilling, removal, and restoration of any paved or turfed areas; concrete encasement, mandrelling, pulling lines, duct markers, plugging of conduits, and the testing of the installation as a completed system ready for installation of cables per the plans and specifications. This item shall also include furnishing and installing conduits and all incidentals for providing positive drainage of the system. Verification of existing ducts is incidental to the pay items provided in this specification.

EQUIPMENT AND MATERIALS

110-2.1 General.

a. All equipment and materials covered by referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification when requested by the RPR.

b. Manufacturer's certifications shall not relieve the Contractor of the responsibility to provide materials per these specifications and acceptable to the RPR. Materials supplied and/or installed that do not comply with these specifications shall be removed, when directed by the RPR and replaced with materials, that comply with these specifications, at the Contractor's cost.

c. All materials and equipment used to construct this item shall be submitted to the RPR for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify products or models applicable to this project. Indicate all optional equipment and delete non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment for which they apply on each submittal sheet. Markings shall be made bold and clear with arrows or circles (highlighting is not acceptable). The Contractor is solely responsible for delays in project that accrue directly or indirectly from late submissions or resubmissions of submittals.

d. The data submitted shall be sufficient, in the opinion of the RPR, to determine compliance with the plans and specifications. The Contractor's submittals shall be **[** ~~neatly bound in a properly sized 3-ring binder, tabbed by specification section.~~ **] [** electronically submitted in pdf format, tabbed by specification section. **]** The RPR reserves the right to reject any and all equipment, materials or procedures that do not meet the system design and the standards and codes specified in this document.

e. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least **[** twelve (12) months **]** from final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

110-2.2 Steel conduit. Rigid galvanized steel (RGS) conduit and fittings shall be hot dipped galvanized inside and out and conform to the requirements of Underwriters Laboratories Standards 6, 514B, and 1242. All RGS conduits or RGS elbows installed below grade, in concrete, permanently wet locations or other similar environments shall be painted with

a 10-mil thick coat of asphaltum sealer or shall have a factory-bonded polyvinyl chloride (PVC) cover. Any exposed galvanizing or steel shall be coated with 10 mils of asphaltum sealer. When using PVC coated RGS conduit, care shall be exercised not to damage the factory PVC coating. Damaged PVC coating shall be repaired per the manufacturer's written instructions. In lieu of PVC coated RGS, corrosion wrap tape shall be permitted to be used where RGS is in contact with direct earth."

110-2.3 Plastic conduit. Plastic conduit and fittings-shall conform to the following requirements:

- UL 514B covers W-C-1094-Conduit fittings all types, classes 1 thru 3 and 6 thru 10.
- UL 514C covers W-C-1094- all types, Class 5 junction box and cover in plastic (PVC).
- UL 651 covers W-C-1094-Rigid PVC Conduit, types I and II, Class 4.
- UL 651A covers W-C-1094-Rigid PVC Conduit and high-density polyethylene (HDPE) Conduit type III and Class 4.

Underwriters Laboratories Standards UL-651 and Article 352 of the current National Electrical Code shall be one of the following, as shown on the plans:

a. Type I–Schedule 40 and Schedule 80 PVC suitable for underground use either direct-buried or encased in concrete.

b. Type II–Schedule 40 PVC suitable for either above ground or underground use.

c. Type III – Schedule 80 PVC suitable for either above ground or underground use either direct-buried or encased in concrete.

d. Type III –HDPE pipe, minimum standard dimensional ratio (SDR) 11, suitable for placement with directional boring under pavement.

The type of solvent cement shall be as recommended by the conduit/fitting manufacturer.

110-2.4 Split conduit. Split conduit shall be pre-manufactured for the intended purpose and shall be made of steel or plastic.

110-2.5 Conduit spacers. Conduit spacers shall be prefabricated interlocking units manufactured for the intended purpose. They shall be of double wall construction made of high grade, high density polyethylene complete with interlocking cap and base pads. They shall be designed to accept No. 4 reinforcing bars installed vertically.

110-2.6 Concrete. [Concrete shall be proportioned, placed, and cured per Item P-610, Concrete for Miscellaneous Structures. **]**

110-2.7 Precast concrete structures. Precast concrete structures shall be furnished by a plant meeting National Precast Concrete Association Plant Certification Program or another RPR approved third party certification program. Precast concrete structures shall conform to ASTM C478.

110-2.8 Flowable backfill. Flowable material used to back fill conduit and duct bank trenches shall conform to the requirements of Item P-153, Controlled Low Strength Material.

110-2.9 Detectable warning tape. Plastic, detectable, American Public Works Association (APWA) red (electrical power lines, cables, conduit and lighting cable), ~~orange (telephone/fiber optic cabling)~~ with continuous legend magnetic tape shall be polyethylene film with a metallized foil core and shall be 3-6 inches ~~(75-150 mm)~~ wide. Detectable tape is incidental to the respective bid item.

CONSTRUCTION METHODS

110-3.1 General. The Contractor shall install underground duct banks and conduits at the approximate locations indicated on the plans. The RPR shall indicate specific locations as the work progresses, if required to differ from the plans. Duct banks and conduits shall be of the size, material, and type indicated on the plans or specifications. Where no size is indicated on the plans or in the specifications, conduits shall be not less than 2 inches (50 mm) inside diameter or comply with the National Electrical Code based on cable to be installed, whichever is larger. All duct bank and conduit lines shall be laid so as to grade toward access points and duct or conduit ends for drainage. Unless shown otherwise on the plans, grades shall be at least 3 inches (75 mm) per 100 feet (30 m). On runs where it is not practicable to maintain the grade all one way, the duct bank and conduit lines shall be graded from the center in both directions toward access points or conduit ends, with a drain into the storm drainage system. Pockets or traps where moisture may accumulate shall be avoided. Under pavement, the top of the duct bank shall not be less than 18 inches (0.5 m) below the subgrade; in other locations, the top of the duct bank or underground conduit shall be be not less than 18 inches (0.5 m) below finished grade.

The Contractor shall mandrel each individual conduit whether the conduit is direct-buried or part of a duct bank. An iron-shod mandrel, not more than 1/4 inch (6 mm) smaller than the bore of the conduit shall be pulled or pushed through each conduit. The mandrel shall have a leather or rubber gasket slightly larger than the conduit hole.

The Contractor shall swab out all conduits/ducts and clean base can, manhole, pull boxes, etc., interiors immediately prior to pulling cable. Once cleaned and swabbed the light bases, manholes, pull boxes, etc., and all accessible points of entry to the duct/conduit system shall be kept closed except when installing cables. Cleaning of ducts, base cans, manholes, etc., is incidental to the pay item of the item being cleaned. All raceway systems left open, after initial cleaning, for any reason shall be recleaned at the Contractor's expense. All accessible points shall be kept closed when not installing cable. The Contractor shall verify existing ducts proposed for use in this project as clear and open. The Contractor shall notify the RPR of any blockage in the existing ducts.

For pulling the permanent wiring, each individual conduit, whether the conduit is direct-buried or part of a duct bank, shall be provided with a 200-pound (90 kg) test polypropylene pull rope. The ends shall be secured and sufficient length shall be left in access points to prevent it from slipping back into the conduit. Where spare conduits are installed, as indicated on the plans, the open ends shall be plugged with removable tapered plugs, designed for this purpose.

All conduits shall be securely fastened in place during construction and shall be plugged to prevent contaminants from entering the conduits. Any conduit section having a defective joint shall not be installed. Ducts shall be supported and spaced apart using approved spacers at intervals not to exceed 5 feet (1.5 m).

Unless otherwise shown on the plans, concrete encased duct banks shall be used when crossing under pavements expected to carry aircraft loads, such as runways, taxiways, taxilanes, ramps and aprons. When under paved shoulders and other paved areas, conduit and duct banks shall be encased using flowable fill for protection.

All conduits within concrete encasement of the duct banks shall terminate with female ends for ease in current and future use. Install factory plugs in all unused ends. Do not cover the ends or plugs with concrete.

Where turf is well established and the sod can be removed, it shall be carefully stripped and properly stored.

Trenches for conduits and duct banks may be excavated manually or with mechanical trenching equipment unless in pavement, in which case they shall be excavated with mechanical trenching equipment. Walls of trenches shall be essentially vertical so that a minimum of shoulder surface is disturbed. Blades of graders shall not be used to excavate the trench.

When rock is encountered, the rock shall be removed to a depth of at least 3 inches (75 mm) below the required conduit or duct bank depth and it shall be replaced with bedding material of earth or sand containing no mineral aggregate particles that would be retained on a 1/4-inch (6.3 mm) sieve. Flowable backfill may alternatively be used
Underground electrical warning (Caution) tape shall be installed in the trench above all underground duct banks and conduits in unpaved areas. Contractor shall submit a sample of the proposed warning tape for approval by the RPR. If not shown on the plans, the warning tape shall be located 6 inches above the duct/conduit or the counterpoise wire if

present.

Joints in plastic conduit shall be prepared per the manufacturer's recommendations for the particular type of conduit. Plastic conduit shall be prepared by application of a plastic cleaner and brushing a plastic solvent on the outside of the conduit ends and on the inside of the couplings. The conduit fitting shall then be slipped together with a quick one-quarter turn twist to set the joint tightly. Where more than one conduit is placed in a single trench, or in duct banks, joints in the conduit shall be staggered a minimum of 2 feet (60 cm).

Changes in direction of runs exceeding 10 degrees, either vertical or horizontal, shall be accomplished using manufactured sweep bends.

Whether or not specifically indicated on the drawings, where the soil encountered at established duct bank grade is an unsuitable material, as determined by the RPR, the unsuitable material shall be removed per Item P-152 and replaced with suitable material. Additional duct bank supports shall be installed, as approved by the RPR.

All excavation shall be unclassified and shall be considered incidental to Item L-110. Dewatering necessary for duct installation, and erosion per federal, state, and local requirements is incidental to Item L-110.

Unless otherwise specified, excavated materials that are deemed by the RPR to be unsuitable for use in backfill or embankments shall be removed and disposed of offsite.

Any excess excavation shall be filled with suitable material approved by the RPR and compacted per Item P-152.

It is the Contractor's responsibility to locate existing utilities within the work area prior to excavation. Where existing active cables) cross proposed installations, the Contractor shall ensure that these cables are adequately protected. Where crossings are unavoidable, no splices will be allowed in the existing cables, except as specified on the plans. Installation of new cable where such crossings must occur shall proceed as follows:

a. Existing cables shall be located manually. Unearthed cables shall be inspected to assure absolutely no damage has occurred

b. Trenching, etc., in cable areas shall then proceed with approval of the RPR, with care taken to minimize possible damage or disruption of existing cable, including careful backfilling in area of cable.

In the event that any previously identified cable is damaged during the course of construction, the Contractor shall be responsible for the complete repair.

110-3.2 Duct banks. Unless otherwise shown in the plans, duct banks shall be installed so that the top of the concrete envelope is not less than 18 inches (0.5 m) below the bottom of the base or stabilized base course layers where installed under runways, taxiways, aprons, or other paved areas, and not less than 18 inches (0.5 m) below finished grade where installed in unpaved areas.

Unless otherwise shown on the plans, duct banks under paved areas shall extend at least 3 feet (1 m) beyond the edges of the pavement or 3 feet (1 m) beyond any under drains that may be installed alongside the paved area. Trenches for duct banks shall be opened the complete length before concrete is placed so that if any obstructions are encountered, provisions can be made to avoid them. Unless otherwise shown on the plans, all duct banks shall be placed on a layer of concrete not less than 3 inches (75 mm) thick prior to its initial set. The Contractor shall space the conduits not less than 3 inches (75 mm) apart (measured from outside wall to outside wall). All such multiple conduits shall be placed using conduit spacers applicable to the type of conduit. As the conduit laying progresses, concrete shall be placed around and on top of the conduits not less than 3 inches (75 mm) thick unless otherwise shown on the plans. All conduits shall terminate with female ends for ease of access in current and future use. Install factory plugs in all unused ends. Do not cover the ends or plugs with concrete.

Conduits forming the duct bank shall be installed using conduit spacers. No. 4 reinforcing bars shall be driven vertically into the soil a minimum of 6 inches (150 mm) to anchor the assembly into the earth prior to placing the concrete encasement. For this purpose, the spacers shall be fastened down with locking collars attached to the vertical bars. Spacers shall be installed at 5-foot (1.5-m) intervals. Spacers shall be in the proper sizes and configurations to fit the

conduits. Locking collars and spacers shall be submitted to the RPR for review prior to use.

When specified, the Contractor shall reinforce the bottom side and top of encasements with steel reinforcing mesh or fabric or other approved metal reinforcement. When directed, the Contractor shall supply additional supports where the ground is soft and boggy, where ducts cross under roadways, or where shown on the plans. Under such conditions, the complete duct structure shall be supported on reinforced concrete footings, piers, or piles located at approximately 5-foot (1.5-m) intervals.

All pavement surfaces that are to have ducts installed therein shall be neatly saw cut to form a vertical face. All excavation shall be included in the contract with price for the duct.

Install a plastic, detectable, color as noted, 3 to 6 inches (75 to 150 mm) wide tape, 8 inches (200 mm) minimum below grade above all underground conduit or duct lines not installed under pavement. Utilize the 3-inch (75-mm) wide tape only for single conduit runs. Utilize the 6-inch (150-mm) wide tape for multiple conduits and duct banks. For duct banks equal to or greater than 24 inches (600 mm) in width, utilize more than one tape for sufficient coverage and identification of the duct bank as required.

When existing cables are to be placed in split duct, encased in concrete, the cable shall be carefully located and exposed by hand tools. Prior to being placed in duct, the RPR shall be notified so that he may inspect the cable and determine that it is in good condition. Where required, split duct shall be installed as shown on the drawings or as required by the RPR.

110-3.3 Conduits without concrete encasement. Trenches for single-conduit lines shall be not less than 6 inches (150 mm) nor more than 12 inches (300 mm) wide. The trench for 2 or more conduits installed at the same level shall be proportionately wider. Trench bottoms for conduits without concrete encasement shall be made to conform accurately to grade so as to provide uniform support for the conduit along its entire length.

Unless otherwise shown on the plans, a layer of fine earth material, at least 4 inches (100 mm) thick (loose measurement) shall be placed in the bottom of the trench as bedding for the conduit. The bedding material shall consist of soft dirt, sand or other fine fill, and it shall contain no particles that would be retained on a 1/4-inch (6.3 mm) sieve. The bedding material shall be tamped until firm. Flowable backfill may alternatively be used.

Unless otherwise shown on plans, conduits shall be installed so that the tops of all conduits within the Airport's secured area where trespassing is prohibited are at least 18 inches (0.5 m) below the finished grade. Conduits outside the Airport's secured area shall be installed so that the tops of the conduits are at least 24 inches (60 cm) below the finished grade per National Electric Code (NEC), Table 300.5.

When two or more individual conduits intended to carry conductors of equivalent voltage insulation rating are installed in the same trench without concrete encasement, they shall be spaced not less than 3 inches (75 mm) apart (measured from outside wall to outside wall) in a horizontal direction and not less than 6 inches (150 mm) apart in a vertical direction. Where two or more individual conduits intended to carry conductors of differing voltage insulation rating are installed in the same trench without concrete encasement, they shall be placed not less than 3 inches (75 mm) apart (measured from outside wall to outside wall) in a horizontal direction and lot less than 6 inches (150 mm) apart in a vertical direction.

Trenches shall be opened the complete length between normal termination points before conduit is installed so that if any unforeseen obstructions are encountered, proper provisions can be made to avoid them.

Conduits shall be installed using conduit spacers. No. 4 reinforcing bars shall be driven vertically into the soil a minimum of 6 inches (150 mm) to anchor the assembly into the earth while backfilling. For this purpose, the spacers shall be fastened down with locking collars attached to the vertical bars. Spacers shall be installed at 5-foot (1.5-m) intervals. Spacers shall be in the proper sizes and configurations to fit the conduits. Locking collars and spacers shall be submitted to the RPR for review prior to use.

110-3.4 Markers. The location of each end and of each change of direction of conduits and duct banks shall be marked by a concrete slab marker 2 feet (60 cm) square and 4 - 6 inches (100 - 150 mm) thick extending approximately one inch (25 mm) above the surface. The markers shall also be located directly above the ends of all conduits or duct banks,

except where they terminate in a junction/access structure or building. Each cable or duct run from a line of lights and signs to the equipment vault must be marked at approximately every 200 feet (61 m) along the cable or duct run, with an additional marker at each change of direction of cable or duct run.

The Contractor shall impress the word "DUCT" or "CONDUIT" on each marker slab. Impression of letters shall be done in a manner, approved by the RPR, for a neat, professional appearance. All letters and words must be neatly stenciled. After placement, all markers shall be given one coat of high-visibility orange paint, as approved by the RPR. The Contractor shall also impress on the slab the number and size of conduits beneath the marker along with all other necessary information as determined by the RPR. The letters shall be 4 inches (100 mm) high and 3 inches (75 mm) wide with width of stroke 1/2 inch (12 mm) and 1/4 inch (6 mm) deep or as large as the available space permits. Furnishing and installation of duct markers is incidental to the respective duct pay item.

110-3.5 Backfilling for conduits. For conduits, 8 inches (200 mm) of sand, soft earth, or other fine fill (loose measurement) shall be placed around the conduits ducts and carefully tamped around and over them with hand tampers. The remaining trench shall then be backfilled and compacted per Item P-152 except that material used for back fill shall be select material not larger than 4 inches (100 mm) in diameter.

Flowable backfill may alternatively be used.

Trenches shall not contain pools of water during back filling operations.

The trench shall be completely backfilled and tamped level with the adjacent surface; except that, where sod is to be placed over the trench, the backfilling shall be stopped at a depth equal to the thickness of the sod to be used, with proper allowance for settlement.

Any excess excavated material shall be removed and disposed of per instructions issued by the RPR.

110-3.6 Backfilling for duct banks. After the concrete has cured, the remaining trench shall be backfilled and compacted per Item P-152 "Excavation and Embankment" except that the material used for backfill shall be select material not larger than 4 inches (100 mm) in diameter. In addition to the requirements of Item P-152, where duct banks are installed under pavement, one moisture/density test per lift shall be made for each 250 linear feet (76 m) of duct bank or one work period's construction, whichever is less.

Flowable backfill may alternatively be used.

Trenches shall not contain pools of water during backfilling operations.

The trench shall be completely backfilled and tamped level with the adjacent surface; except that, where sod is to be placed over the trench, the backfilling shall be stopped at a depth equal to the thickness of the sod to be used, with proper allowance for settlement.

Any excess excavated material shall be removed and disposed of per instructions issued by the RPR.

110-3.7 Restoration. Where sod has been removed, it shall be replaced as soon as possible after the backfilling is completed. All areas disturbed by the work shall be restored to its original condition. The restoration shall include **[** ~~sodding~~ **] [** topsoiling **] [** fertilizing **] [** ~~liming~~ **] [** seeding **] [** ~~sprigging~~ **] [** mulching **]** shown on the plans. The Contractor shall be held responsible for maintaining all disturbed surfaces and replacements until final acceptance. All restoration shall be considered incidental to the respective L-110 pay item. Following restoration of all trenching near airport movement surfaces, the Contractor shall thoroughly visually inspect the area for foreign object debris (FOD), and remove any such FOD that is found. This FOD inspection and removal shall be considered incidental to the pay item of which it is a component part.

110-3.8 Ownership of removed cable. Existing cable to be abandoned in place.

METHOD OF MEASUREMENT

110-4.1 Underground conduits and duct banks shall be measured by the linear feet (meter) of conduits and duct banks installed, including encasement, locator tape, trenching and backfill with designated material, and restoration, and for drain lines, the termination at the drainage structure, all measured in place, completed, and accepted. Separate measurement shall be made for the various types and sizes.

BASIS OF PAYMENT

110-5.1 Payment will be made at the contract unit price per linear foot for each type and size of conduit and duct bank completed and accepted, including trench and backfill with the designated material, and, for drain lines, the termination at the drainage structure. This price shall be full compensation for removal and disposal of existing duct banks and conduits as shown on the plans, furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete this item per the provisions and intent of the plans and specifications.

Payment will be made under:

Item L-110.1 Non-Encased, Electrical Conduit, 1-Way 2-inch (50 mm) C, Sch 80, Directional Bore – per Linear Foot

REFERENCES

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

Advisory Circular (AC)

AC 150/5340-30 Design and Installation Details for Airport Visual Aids

AC 150/5345-53 Airport Lighting Equipment Certification Program

ASTM International (ASTM)

ASTM A615 Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement

National Fire Protection Association (NFPA)

NFPA-70 National Electrical Code (NEC)

Underwriters Laboratories (UL)

UL Standard 6 Electrical Rigid Metal Conduit - Steel

UL Standard 514B Conduit, Tubing, and Cable Fittings

UL Standard 514C Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers

UL Standard 1242 Electrical Intermediate Metal Conduit Steel

UL Standard 651 Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings

UL Standard 651A Type EB and A Rigid PVC Conduit and HDPE Conduit

END OF ITEM L-110

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Item L-115 Electrical Manholes and Junction Structures

This specification is taken from the FAA AC 150/5370-10H as issued on 12/21/2018 and includes Errata Sheet updates up to 8/19/2020.

DESCRIPTION

115-1.1 This item shall consist of electrical manholes and junction structures (hand holes, pull boxes, junction cans, etc.) installed per this specification, at the indicated locations and conforming to the lines, grades and dimensions shown on the plans or as required by the RPR. This item shall include the installation of each electrical manhole and/or junction structures with all associated excavation, backfilling, sheeting and bracing, concrete, reinforcing steel, ladders, appurtenances, testing, dewatering and restoration of surfaces to the satisfaction of the RPR **[** including removal of existing manholes and junction structures as shown on the plans **]**. Existing manholes and junction structures to be removed shall be disposed of off airport property.

EQUIPMENT AND MATERIALS

115-2.1 General.

a. All equipment and materials covered by referenced specifications shall be subject to acceptance through manufacturer's certification of compliance with the applicable specification when so requested by the RPR.

b. Manufacturer's certifications shall not relieve the Contractor of the responsibility to provide materials per these specifications. Materials supplied and/or installed that do not comply with these specifications shall be removed (when directed by the RPR) and replaced with materials that comply with these specifications at the Contractor's cost.

c. All materials and equipment used to construct this item shall be submitted to the RPR for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Submittal data shall be presented in a clear, precise and thorough manner. Original catalog sheets are preferred. Photocopies are acceptable provided they are as good a quality as the original. Clearly and boldly mark each copy to identify products or models applicable to this project. Indicate all optional equipment and delete any non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment to which they apply on each submittal sheet. Markings shall be made bold and clear with arrows or circles (highlighting is not acceptable). The Contractor is solely responsible for delays in the project that may accrue directly or indirectly from late submissions or resubmissions of submittals.

d. The data submitted shall be sufficient, in the opinion of the RPR, to determine compliance with the plans and specifications**.** The Contractor's submittals shall be ~~**[** neatly bound in a properly sized 3-ring binder, tabbed by specification section. **]**~~**[** electronically-submitted in pdf format, tabbed by specification section. **]** The RPR reserves the right to reject any and all equipment, materials or procedures that do not meet the system design and the standards and codes, specified in this document.

e. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least **[** twelve (12) months **]** from the date of final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

115-2.2 Concrete structures. Concrete shall be proportioned, placed, and cured per [Item P-610, Concrete for Miscellaneous Structures]. Cast-in-place concrete structures shall be as shown on the plans.

115-2.3 Precast concrete structures. Precast concrete structures shall be furnished by a plant meeting National Precast Concrete Association Plant Certification Program or another engineer approved third party certification program. Provide precast concrete structures where shown on the plans.

Precast concrete structures shall be an approved standard design of the manufacturer. Precast units shall have mortar or bitumastic sealer placed between all joints to make them watertight. The structure shall be designed to withstand **[** 60,000 lb aircraft **]** loads, unless otherwise shown on the plans. Openings or knockouts shall be provided in the structure as detailed on the plans.
Threaded inserts and pulling eyes shall be cast in as shown on the plans.

If the Contractor chooses to propose a different structural design, signed and sealed shop drawings, design calculations, and other information requested by the RPR shall be submitted by the Contractor to allow for a full evaluation by the RPR. The RPR shall review per the process defined in the General Provisions.

115-2.4 Junction boxes. Junction boxes shall be L-867 Class 1 (non-load bearing) or L-868 Class 1 (load bearing) airport light bases that are encased in concrete. The light bases shall have a L-894 blank cover, gasket, and stainless steel hardware. All bolts, studs, nuts, lock washers, and other similar fasteners used for the light fixture assemblies must be fabricated from 316L (equivalent to EN 1.4404), 18-8, 410, or 416 stainless steel. If 18-8, 410, or 416 stainless steel is utilized it shall be passivated and be free from any discoloration. Covers shall be 3/8-inch (9-mm) thickness for L-867 and 3/4-inch (19-mm) thickness for L-868. All junction boxes shall be provided with both internal and external ground lugs.

115-2.5 Mortar. The mortar shall be composed of one part of cement and two parts of mortar sand, by volume. The cement shall be per the requirements in ASTM C150, Type I. The sand shall be per the requirements in ASTM C144. Hydrated lime may be added to the mixture of sand and cement in an amount not to exceed 15% of the weight of cement used. The hydrated lime shall meet the requirements of ASTM C206. Water shall be potable, reasonably clean and free of oil, salt, acid, alkali, sugar, vegetable, or other substances injurious to the finished product.

115-2.6 Concrete. [Concrete shall be proportioned, placed, and cured per Item P-610, Concrete for Miscellaneous Structures. **]**

115-2.7 Frames and covers. The frames shall conform to one of the following requirements:

a.	ASTM A48	Gray iron castings
b.	ASTM A47	Malleable iron castings
c.	ASTM A27	Steel castings
d.	ASTM A283, Grade D	Structural steel for grates and frames
e.	ASTM A536	Ductile iron castings
f.	ASTM A897	Austempered ductile iron castings

~~All castings specified shall withstand a maximum tire pressure of **[ ]** psi and maximum load of **[ ]** lbs.~~

All castings or structural steel units shall conform to the dimensions shown on the plans and shall be designed to support the loadings specified.

Each frame and cover unit shall be provided with fastening members to prevent it from being dislodged by traffic, but which will allow easy removal for access to the structure.

All castings shall be thoroughly cleaned. After fabrication, structural steel units shall be galvanized to meet the requirements of ASTM A123.

Each cover shall have the word "ELECTRIC" or other approved designation cast on it. Each frame and cover shall be as shown on the plans or approved equivalent. No cable notches are required.

Each manhole shall be provided with a "DANGER -- PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER" safety warning sign as detailed in the Contract Documents and in accordance with OSHA 1910.146 (c)(2).

115-2.8 Ladders. Ladders, if specified, shall be galvanized steel or as shown on the plans.

115-2.9 Reinforcing steel. All reinforcing steel shall be deformed bars of new billet steel meeting the requirements of ASTM A615, Grade 60.

115-2.10 Bedding/special backfill. Bedding or special backfill shall be as shown on the plans.

115-2.11 Flowable backfill. Flowable material used to backfill shall conform to the requirements of Item P-153, Controlled Low Strength Material.

115-2.12 Cable trays. Not used. ~~Cable trays shall be of **[** galvanized steel **][** plastic **][** aluminum **].** Cable trays shall be located as shown on the plans.~~

115-2.13 Plastic conduit. Plastic conduit shall comply with Item L-110, Airport Underground Electrical Duct Banks and Conduits.

115-2.14 Conduit terminators. Conduit terminators shall be pre-manufactured for the specific purpose and sized as required or as shown on the plans.

115-2.15 Pulling-in irons. Not used. ~~Pulling-in irons shall be manufactured with 7/8-inch (22 mm) diameter hot-dipped galvanized steel or stress-relieved carbon steel roping designed for concrete applications (7-strand, 1/2-inch (12 mm) diameter with an ultimate strength of 270,000 psi (1862 MPa)). Where stress-relieved carbon steel roping is used, a rustproof sleeve shall be installed at the hooking point and all exposed surfaces shall be encapsulated with a polyester coating to prevent corrosion.~~

115-2.16 Ground rods. Ground rods shall be one piece, ~~**[** solid stainless steel **][** copper **]** or~~ **[** copper clad steel **].** The ground rods shall be of the length and diameter specified on the plans, but in no case shall they be less than 8 feet (2.4 m) long nor less than 5/8 inch (16 mm) in diameter.

CONSTRUCTION METHODS

115-3.1 Unclassified excavation. It is the Contractor's responsibility to locate existing utilities within the work area prior to excavation. Damage to utility lines, through lack of care in excavating, shall be repaired or replaced to the satisfaction of the RPR without additional expense to the Owner.

The Contractor shall perform excavation for structures and structure footings to the lines and grades or elevations shown on the plans or as staked by the RPR. The excavation shall be of sufficient size to permit the placing of the full width and length of the structure or structure footings shown.

All excavation shall be unclassified and shall be considered incidental to Item L-115. Dewatering necessary for structure installation and erosion per federal, state, and local requirements is incidental to Item L-115.

Boulders, logs and all other objectionable material encountered in excavation shall be removed. All rock and other hard foundation material shall be cleaned of all loose material and cut to a firm surface either level, stepped or serrated, as directed by the RPR. All seams, crevices, disintegrated rock and thin strata shall be removed. When concrete is to rest on a surface other than rock, special care shall be taken not to disturb the bottom of the excavation. Excavation to final grade shall not be made until just before the concrete or reinforcing is to be placed.

The Contractor shall provide all bracing, sheeting and shoring necessary to implement and protect the excavation and the structure as required for safety or conformance to governing laws. The cost of bracing, sheeting and shoring shall be included in the unit price bid for the structure.

Unless otherwise provided, bracing, sheeting and shoring involved in the construction of this item shall be removed by the Contractor after the completion of the structure. Removal shall be effected in a manner that will not disturb or mar finished masonry. The cost of removal shall be included in the unit price bid for the structure.

After each excavation is completed, the Contractor shall notify the RPR. Structures shall be placed after the RPR has approved the depth of the excavation and the suitability of the foundation material.

Prior to installation the Contractor shall provide a minimum of 6 inches (150 mm) of sand or a material approved by the RPR as a suitable base to receive the structure. The base material shall be compacted and graded level and at proper elevation to receive the structure in proper relation to the conduit grade or ground cover requirements, as indicated on the plans.

115-3.2 Concrete structures. Concrete structures shall be built on prepared foundations conforming to the dimensions and form indicated on the plans. The concrete and construction methods shall conform to the requirements specified in Item P-610. Any reinforcement required shall be placed as indicated on the plans and shall be approved by the RPR before the concrete is placed.

115-3.3 Precast unit installations. Precast units shall be installed plumb and true. Joints shall be made watertight by use of sealant at each tongue-and-groove joint and at roof of manhole. Excess sealant shall be removed and severe surface projections on exterior of neck shall be removed.

115-3.4 Placement and treatment of castings, frames and fittings. All castings, frames and fittings shall be placed in the positions indicated on the Plans or as directed by the RPR and shall be set true to line and to correct elevation. If frames or fittings are to be set in concrete or cement mortar, all anchors or bolts shall be in place and position before the concrete or mortar is placed. The unit shall not be disturbed until the mortar or concrete has set.

Field connections shall be made with bolts, unless indicated otherwise. Welding will not be permitted unless shown otherwise on the approved shop drawings and written approval is granted by the casting manufacturer. Erection equipment shall be suitable and safe for the workman. Errors in shop fabrication or deformation resulting from handling and transportation that prevent the proper assembly and fitting of parts shall be reported immediately to the RPR and approval of the method of correction shall be obtained. Approved corrections shall be made at Contractor's expense. Anchor bolts and anchors shall be properly located and built into connection work. Bolts and anchors shall be preset by the use of templates or such other methods as may be required to locate the anchors and anchor bolts accurately.

Pulling-in irons shall be located opposite all conduit entrances into structures to provide a strong, convenient attachment for pulling-in blocks when installing cables. Pulling-in irons shall be set directly into the concrete walls of the structure.
115-3.5 Installation of ladders. Ladders shall be installed such that they may be removed if necessary. Mounting brackets shall be supplied top and bottom and shall be cast in place during fabrication of the structure or drilled and grouted in place after erection of the structure.

115-3.6 Removal of sheeting and bracing. In general, all sheeting and bracing used to support the sides of trenches or other open excavations shall be withdrawn as the trenches or other open excavations are being refilled. That portion of the sheeting extending below the top of a structure shall be withdrawn, unless otherwise directed, before more than 6 inches (150 mm) of material is placed above the top of the structure and before any bracing is removed. Voids left by the sheeting shall be carefully refilled with selected material and rammed tight with tools especially adapted for the purpose or otherwise as may be approved.

The RPR may direct the Contractor to delay the removal of sheeting and bracing if, in his judgment, the installed work has not attained the necessary strength to permit placing of backfill.

115-3.7 Backfilling. After a structure has been completed, the area around it shall be backfilled in horizontal layers not to exceed 6 inches (150 mm) in thickness measured after compaction to the density requirements in Item P-152. Each layer shall be deposited all around the structure to approximately the same elevation. The top of the fill shall meet the elevation shown on the plans or as directed by the RPR.

Backfill shall not be placed against any structure until approval is given by the RPR. In the case of concrete, such approval shall not be given until tests made by the laboratory under supervision of the RPR establish that the concrete has attained sufficient strength to provide a factor of safety against damage or strain in withstanding any pressure created by the backfill or the methods used in placing it.

Where required, the RPR may direct the Contractor to add, at his own expense, sufficient water during compaction to assure a complete consolidation of the backfill. The Contractor shall be responsible for all damage or injury done to conduits, duct banks, structures, property or persons due to improper placing or compacting of backfill.

115-3.8 Connection of duct banks. To relieve stress of joint between concrete-encased duct banks and structure walls, reinforcement rods shall be placed in the structure wall and shall be formed and tied into duct bank reinforcement at the time the duct bank is installed.

115-3.9 Grounding. A ground rod shall be installed in the floor of all concrete structures so that the top of rod extends 6 inches (150 mm) above the floor. The ground rod shall be installed within one foot (30 cm) of a corner of the concrete structure. Ground rods shall be installed prior to casting the bottom slab. Where the soil condition does not permit driving the ground rod into the earth without damage to the ground rod, the Contractor shall drill a 4-inch (100 mm) diameter hole into the earth to receive the ground rod. The hole around the ground rod shall be filled throughout its length, below slab, with Portland cement grout. Ground rods shall be installed in precast bottom slab of structures by drilling a hole through bottom slab and installing the ground rod. Bottom slab penetration shall be sealed watertight with Portland cement grout around the ground rod.

A grounding bus of 4/0 bare stranded copper shall be exothermically bonded to the ground rod and loop the concrete structure walls. The ground bus shall be a minimum of one foot (30 cm) above the floor of the structure and separate from other cables. No. 2 American wire gauge (AWG) bare copper pigtails shall bond the grounding bus to all cable trays and other metal hardware within the concrete structure. Connections to the grounding bus shall be exothermic. If an exothermic weld is not possible, connections to the grounding bus shall be made by using connectors approved for direct burial in soil or concrete per UL 467. Hardware connections may be mechanical, using a lug designed for that purpose.

115-3.10 Cleanup and repair. After erection of all galvanized items, damaged areas shall be repaired by applying a liquid cold-galvanizing compound per MIL-P-21035. Surfaces shall be prepared and compound applied per the manufacturer's recommendations.

Prior to acceptance, the entire structure shall be cleaned of all dirt and debris.

115-3.11 Restoration. After the backfill is completed, the Contractor shall dispose of all surplus material, dirt and rubbish from the site. The Contractor shall restore all disturbed areas equivalent to or better than their original condition. All sodding, grading and restoration shall be considered incidental to the respective Item L-115 pay item.

The Contractor shall grade around structures as required to provide positive drainage away from the structure.

Areas with special surface treatment, such as roads, sidewalks, or other paved areas shall have backfill compacted to match surrounding areas, and surfaces shall be repaired using materials comparable to original materials.

Following restoration of all trenching near airport movement surfaces, the Contractor shall thoroughly visually inspect the area for foreign object debris (FOD), and remove any such FOD that is found. This FOD inspection and removal shall be considered incidental to the pay item of which it is a component part.

After all work is completed, the Contractor shall remove all tools and other equipment, leaving the entire site free, clear and in good condition.

115-3.12 Inspection. Prior to final approval, the electrical structures shall be thoroughly inspected for conformance with the plans and this specification. Any indication of defects in materials or workmanship shall be further investigated and corrected. The earth resistance to ground of each ground rod shall not exceed 25 ohms. Each ground rod shall be tested using the fall-of-potential ground impedance test per American National Standards Institute / Institute of Electrical and Electronic Engineers (ANSI/IEEE) Standard 81. This test shall be performed prior to establishing connections to other

ground electrodes.

115-3.13 Manhole elevation adjustments. The Contractor shall adjust the tops of existing manholes in areas designated in the Contract Documents to the new elevations shown. The Contractor shall be responsible for determining the exact height adjustment required to raise or lower the top of each manhole to the new elevations. The existing top elevation of each manhole to be adjusted shall be determined in the field and subtracted/added from the proposed top elevation. The Contractor shall remove/extend the existing top section or ring and cover on the manhole structure or manhole access. The Contractor shall install precast concrete sections or grade rings of the required dimensions to adjust the manhole top to the new proposed elevation or shall cut the existing manhole walls to shorten the existing structure, as required by final grades. The Contractor shall reinstall the manhole top section or ring and cover on top and check the new top elevation.

The Contractor shall construct a concrete slab around the top of adjusted structures located in graded areas that are not to be paved. The concrete slab shall conform to the dimensions shown on the plans.

115-3.14 Duct extension to existing ducts. Where existing concrete encased ducts are to be extended, the duct extension shall be concrete encased plastic conduit. The fittings to connect the ducts together shall be standard manufactured connectors designed and approved for the purpose. The duct extensions shall be installed according to the concrete encased duct detail and as shown on the plans.

METHOD OF MEASUREMENT

115-4.1 Electrical manholes and junction structures shall be measured by each unit completed in place and accepted. The following items shall be included in the price of each unit: All required excavation and dewatering:; sheeting and bracing; all required backfilling with on-site materials; restoration of all surfaces and finished grading and turfing; all required connections; temporary cables and connections; and ground rod testing

115-4.2 Manhole elevation adjustments shall be measured by the completed unit installed, in place, completed, and accepted. Separate measurement shall not be made for the various types and sizes.

BASIS OF PAYMENT

115-5.1 The accepted quantity of electrical manholes and junction structures will be paid for at the Contract unit price per each, complete and in place. This price shall be full compensation for furnishing all materials and for all preparation, excavation, backfilling and placing of the materials, furnishing and installation of appurtenances and connections to duct banks and other structures as may be required to complete the item as shown on the plans and for all labor, equipment, tools and incidentals necessary to complete the structure.

115-5.2 Payment shall be made at the contract unit price for manhole elevation adjustments. This price shall be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary, including but not limited to, spacers, concrete, rebar, dewatering, excavating, backfill, topsoil, sodding and pavement restoration, where required, to complete this item as shown in the plans and to the satisfaction of the RPR.

Payment will be made under:

Item L-115 Electrical Handhole, L-867 Size B, With Blank Cover – Per Each

REFERENCES

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

American National Standards Institute / Insulated Cable Engineers Association (ANSI/ICEA)

ANSI/IEEE STD 81	IEEE Guide for Measuring Earth Resistivity, Ground Impedance, and Earth Surface Potentials of a Ground System

Advisory Circular (AC)

AC 150/5345-7	Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits
AC 150/5345-26	Specification for L-823 Plug and Receptacle, Cable Connectors
AC 150/5345-42	Specification for Airport Light Bases, Transformer Housings, Junction Boxes, and Accessories
AC 150/5340-30	Design and Installation Details for Airport Visual Aids
AC 150/5345-53	Airport Lighting Equipment Certification Program

Commercial Item Description (CID)

A-A 59544	Cable and Wire, Electrical (Power, Fixed Installation)

ASTM International (ASTM)

ASTM A27	Standard Specification for Steel Castings, Carbon, for General Application
ASTM A47	Standard Specification for Ferritic Malleable Iron Castings
ASTM A48	Standard Specification for Gray Iron Castings
ASTM A123	Standard Specification for Zinc (Hot Dip Galvanized) Coatings on Iron and Steel Products
ASTM A283	Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates
ASTM A536	Standard Specification for Ductile Iron Castings
ASTM A615	Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
ASTM A897	Standard Specification for Austempered Ductile Iron Castings
ASTM C144	Standard Specification for Aggregate for Masonry Mortar
ASTM C150	Standard Specification for Portland Cement
ASTM C206	Standard Specification for Finishing Hydrated Lime

FAA Engineering Brief (EB)

EB #83	In Pavement Light Fixture Bolts

Mil Spec

MIL-P-21035	Paint High Zinc Dust Content, Galvanizing Repair

National Fire Protection Association (NFPA)

NFPA-70 National Electrical Code (NEC)

END OF ITEM L-115

Item L-125 Installation of Airport Lighting Systems

This specification is taken from the FAA AC 150/5370-10H as issued on 12/21/2018 and includes Errata Sheet updates up to 8/19/2020.

DESCRIPTION

125-1.1 This item shall consist of airport lighting systems furnished and installed in accordance with this specification, the referenced specifications, and the applicable advisory circulars (ACs). The systems shall be installed at the locations and in accordance with the dimensions, design, and details shown in the plans. This item shall include the furnishing of all equipment, materials, services, and incidentals necessary to place the systems in operation as completed units to the satisfaction of the RPR.

EQUIPMENT AND MATERIALS

125-2.1 General.

a. Airport lighting equipment and materials covered by Federal Aviation Administration (FAA) specifications shall be certified under the Airport Lighting Equipment Certification Program in accordance with AC 150/5345-53, current version. FAA certified airfield lighting shall be compatible with each other to perform in compliance with FAA criteria and the intended operation. If the Contractor provides equipment that does not performs as intended because of incompatibility with the system, the Contractor assumes all costs to correct the system for to operate properly.

b. Manufacturer's certifications shall not relieve the Contractor of their responsibility to provide materials in accordance with these specifications and acceptable to the RPR. Materials supplied and/or installed that do not comply with these specifications shall be removed, when directed by the RPR and replaced with materials, which do comply with these specifications, at the sole cost of the Contractor.

c. All materials and equipment used shall be submitted to the RPR for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Clearly mark each copy to identify pertinent products or models applicable to this project. Indicate all optional equipment and delete non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment for which they apply on each submittal sheet. Markings shall be clearly made with arrows or circles (highlighting is not acceptable). The Contractor shall be responsible for delays in the project accruing directly or indirectly from late submissions or resubmissions of submittals.

d. The data submitted shall be sufficient, in the opinion of the RPR, to determine compliance with the plans and specifications. The Contractor's submittals shall be submitted in **[** ~~a neatly bound, properly sized 3-ring binder, tabbed by specification section.~~ **] [** electronic PDF format, tabbed by specification section. **]** The RPR reserves the right to reject any or all equipment, materials or procedures, which, in the RPR's opinion, does not meet the system design and the standards and codes, specified herein.

e. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least **[** twelve (12) months **]** from final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

EQUIPMENT AND MATERIALS

125-2.2 Conduit/Duct. Conduit shall conform to Specification Item L-110 Airport Underground Electrical Duct Banks and Conduits.

125-2.3 Cable and Counterpoise. Cable and Counterpoise shall conform to Item L-108 Underground Power Cable for

Airports.

125-2.4 Tape. Rubber and plastic electrical tapes shall be Scotch Electrical Tape Numbers 23 and 88 respectively, as manufactured by 3M Company or an approved equal.

125-2.5 Cable Connections. Cable Connections shall conform to Item L-108 Installation of Underground Cable for Airports.

125-2.6 Retroreflective Markers. [~~Retroreflective markers shall be type L-853 and shall conform to the requirements of AC 150/5345-39.~~ **] [** Not required. **]**

125-2.7 Runway and Taxiway Lights. Runway and taxiway lights shall conform to the requirements of AC 150/5345-46. Lamps shall be of size and type indicated, or as required by fixture manufacturer for each lighting fixture required under this contract. Filters shall be of colors conforming to the specification for the light concerned or to the standard referenced.

Lights

Type	Class	Mode	Style	Option	Base	Filter	Transformer	Notes
[Taxiway Edge Light]	[1]	[1]	[N/A]	[4]	[L-867 Size B (14" Height)]	[Blue]	[L-830]	[LED 14" High Fixture, Stake Mounted]
[Taxiway Edge Light]	[2]	[1]	[N/A]	[4]	[L-867 Size B (14" Height)]	[Blue]	[L-830]	[LED 14" High Fixture, Base Mounted]

125-2.8 Runway and Taxiway Signs. Runway and Taxiway Guidance Signs should conform to the requirements of AC 150/5345-44.

Signs

Type	Size	Style	Class	Mode	Notes
[L-858(L) LED]	[2]	[2]	[2]	[2]	[1, 2 & 3 module]

125-2.9 Runway End Identifier Light (REIL). [~~The REIL fixtures shall meet the requirements of AC 150/5345-51, Type [L-849V][L-849I], Style [A][B][C][D][E][F].]~~ **[** Not required. **]**

125-2.10 Precision Approach Path Indicator (PAPI). [~~The light units for the PAPI shall meet the requirements of AC 150/5345-28, Type [L-880][L-881], Style [A][B], Class [I][II].]~~ **[** Not required. **]**

125-2.11 Circuit Selector Cabinet. Not Used. ~~The circuit selector cabinet shall meet the requirements of AC 150/5345-5, Type L-847, [one][two][three][four] circuit control [as indicated], Class [A, indoor][B, outdoor], Rating [1, for 6.6 amperes][2, for 20 amperes].~~

125-2.12 Light Base and Transformer Housings. Light Base and Transformer Housings should conform to the requirements of AC 150/5345-42. Light bases shall be Type **[** L-867 **] [** L-868 **]**, Class **[** 1A **] [** 1B **]** ~~**[** 2A **] [** 2B **]**~~, Size **[** A **] [** B **] [** C **]** shall be provided as indicated or as required to accommodate the fixture or device installed thereon. Base plates, cover plates, and adapter plates shall be provided to accommodate various sizes of fixtures.

125-2.13 Isolation Transformers. Isolation Transformers shall be Type **[** L-830 **]** ~~**[** L-831 **]**~~, size as required for each installation. Transformer shall conform to AC 150/5345-47.

INSTALLATION

125-3.1 Installation. The Contractor shall furnish, install, connect and test all equipment, accessories, conduit, cables, wires, buses, grounds and support items necessary to ensure a complete and operable airport lighting system as specified here and shown in the plans.

The equipment installation and mounting shall comply with the requirements of the National Electrical Code and state and local code agencies having jurisdiction.

The Contractor shall install the specified equipment in accordance with the applicable advisory circulars and the details shown on the plans.

The lights and signs shall be properly leveled and aligned to present a uniform appearance and all filters shall be properly positioned. All electrical and mechanical connections shall be tight and secure.

All light and sign assemblies shall have frangible couplings properly installed.

125-3.2 Testing. All lights shall be fully tested by continuous operation for not less than 24 hours as a completed system prior to acceptance. The test shall include operating the constant current regulator in each step not less than 10 times at the beginning and end of the 24-hour test. The fixtures shall illuminate properly during each portion of the test.

125-3.3 Shipping and Storage. Equipment shall be shipped in suitable packing material to prevent damage during shipping. Store and maintain equipment and materials in areas protected from weather and physical damage. Any equipment and materials, in the opinion of the RPR, damaged during construction or storage shall be replaced by the Contractor at no additional cost to the owner. Painted or galvanized surfaces that are damaged shall be repaired in accordance with the manufacturer's recommendations.

125-3.4 Elevated and In-pavement Lights. Water, debris, and other foreign substances shall be removed prior to installing fixture base and light.

A jig or holding device shall be used when installing each light fixture to ensure positioning to the proper elevation, alignment, level control, and azimuth control. Light fixtures shall be oriented with the light beams parallel to the runway or taxiway centerline and facing in the required direction. The outermost edge of fixture shall be level with the surrounding pavement. Surplus sealant or flexible embedding material shall be removed. The holding device shall remain in place until sealant has reached its initial set.

METHOD OF MEASUREMENT

125-4.1 Reflective markers will be measured by the number installed as completed units in place, ready for operation, and accepted by the RPR. Runway and taxiway lights will be measured by the number of each type installed as completed units in place, ready for operation, and accepted by the RPR. Guidance signs will be measured by the number of each type and size installed as completed units, in place, ready for operation, and accepted by the RPR. Runway End Identifier Lights shall be measured by each system installed as a completed unit in place, ready for operation, and accepted by the RPR.

Precision Approach Path Indicator shall be measured by each system installed as a completed unit, in place, ready for operation, and accepted by the RPR. Abbreviated Precision Approach Path Indicator shall be measured by each system installed as a completed unit, in place, ready for operation, and accepted by the RPR.

BASIS OF PAYMENT

125-5.1 Payment will be made at the Contract unit price for each complete runway or taxiway light, guidance sign, reflective marker, runway end identification light, precision approach path indicator, or abbreviated precision approach path indicator installed by the Contractor and accepted by the RPR. This payment will be full compensation for

furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools and incidentals necessary to complete this item.
Payment will be made under:

Item L-125.1	Medium Intensity, LED, Taxiway Edge Light, L-861T(L), Blue Filter, Class 1, Mode 1, Option 4, Stake Mounted – Each
Item L-125.2	Medium Intensity, LED, Taxiway Edge Light, L-861T(L), Blue Filter, Class 2, Mode 1, Option 4, Base Mounted – Each
Item L-125.3	1 Module Mandatory Guidance Sign, L-858R, LED, Size 2, Style 2, Mode 1, Complete – Each
Item L-125.4	2 Module Mandatory Guidance Sign, L-858R, LED, Size 2, Style 2, Mode 1, Complete - Each
Item L-125.5	3 Module Mandatory Guidance Sign, L-858R, LED, Size 2, Style 2, Mode 1, Complete - Each
Item L-125.6	Remove Base Mounted Sign, Including Foundation, Complete
Item L-125.7	Remove Existing Taxiway Sign and Reuse Foundation
Item L-125.8	Remove Base Mounted Taxiway Edge Light
Item L-125.9	Remove Stake Mounted Taxiway Edge Light

REFERENCES

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

Advisory Circulars (AC)

AC 150/5340-18	Standards for Airport Sign Systems
AC 150/5340-26	Maintenance of Airport Visual Aid Facilities
AC 150/5340-30	Design and Installation Details for Airport Visual Aids
AC 150/5345-5	Circuit Selector Switch
AC 150/5345-7	Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits
AC 150/5345-26	Specification for L-823 Plug and Receptacle, Cable Connectors
AC 150/5345-28	Precision Approach Path Indicator (PAPI) Systems
AC 150/5345-39	Specification for L-853, Runway and Taxiway Retroreflective Markers
AC 150/5345-42	Specification for Airport Light Bases, Transformer Housings, Junction Boxes, and Accessories
AC 150/5345-44	Specification for Runway and Taxiway Signs

AC 150/5345-46 Specification for Runway and Taxiway Light Fixtures

AC 150/5345-47 Specification for Series to Series Isolation Transformers for Airport Lighting Systems

AC 150/5345-51 Specification for Discharge-Type Flashing Light Equipment

AC 150/5345-53 Airport Lighting Equipment Certification Program Engineering Brief (EB)

EB No. 67 Light Sources Other than Incandescent and Xenon for Airport and Obstruction Lighting Fixtures

END OF ITEM L-125

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APPENDIX 2

CONSTRUCTION SAFETY AND PHASING PLAN (CSPP)

benesch

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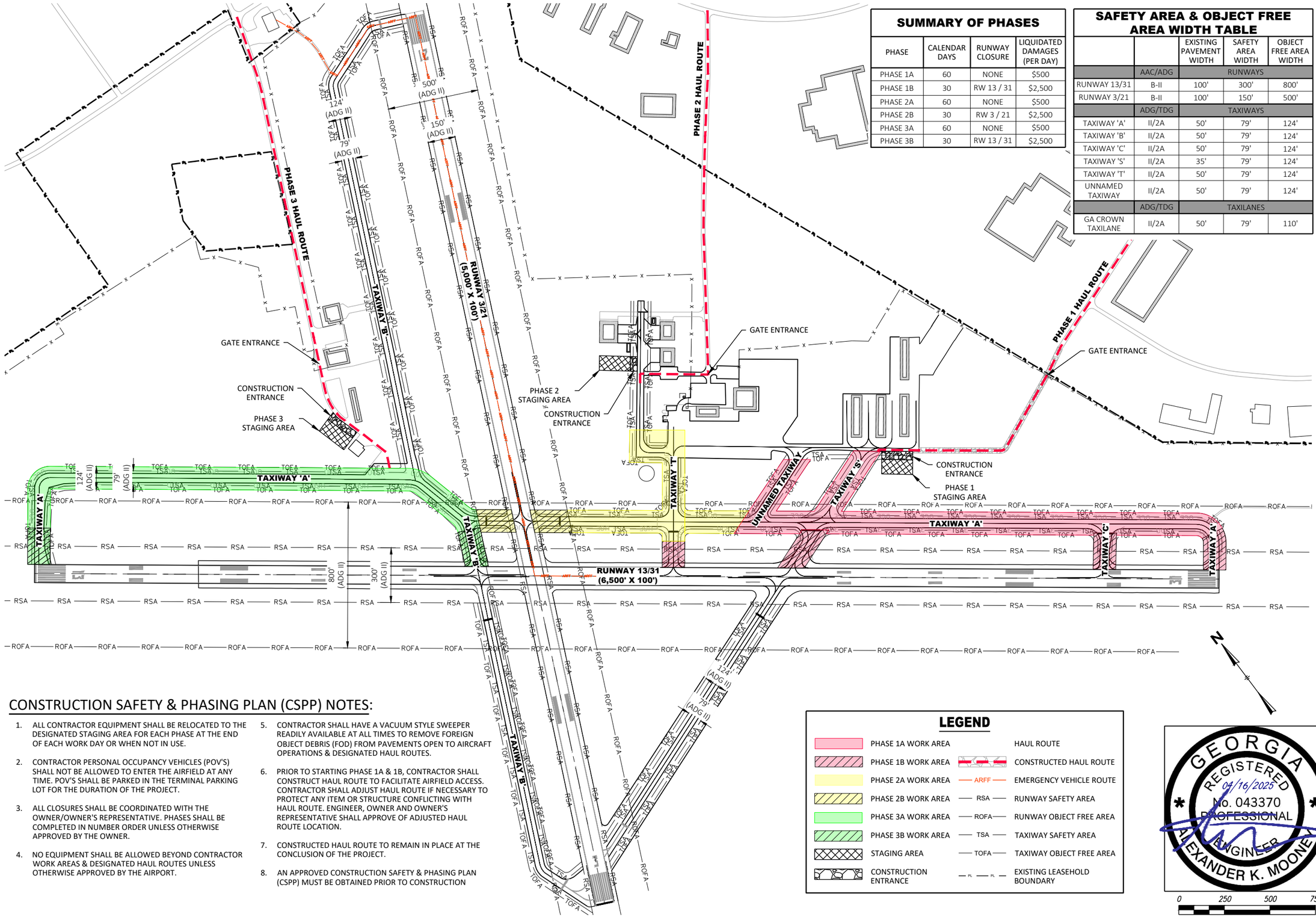
NOT FOR CONSTRUCTION



SUMMARY OF PHASES

PHASE	CALENDAR DAYS	RUNWAY CLOSURE	LIQUIDATED DAMAGES (PER DAY)
PHASE 1A	60	NONE	$500
PHASE 1B	30	RW 13 / 31	$2,500
PHASE 2A	60	NONE	$500
PHASE 2B	30	RW 3 / 21	$2,500
PHASE 3A	60	NONE	$500
PHASE 3B	30	RW 13 / 31	$2,500

SAFETY AREA & OBJECT FREE AREA WIDTH TABLE

		EXISTING PAVEMENT WIDTH	SAFETY AREA WIDTH	OBJECT FREE AREA WIDTH
	AAC/ADG	RUNWAYS		
RUNWAY 13/31	B-II	100'	300'	800'
RUNWAY 3/21	B-II	100'	150'	500'
	ADG/TDG	TAXIWAYS		
TAXIWAY 'A'	II/2A	50'	79'	124'
TAXIWAY 'B'	II/2A	50'	79'	124'
TAXIWAY 'C'	II/2A	50'	79'	124'
TAXIWAY 'S'	II/2A	35'	79'	124'
TAXIWAY 'T'	II/2A	50'	79'	124'
UNNAMED TAXIWAY	II/2A	50'	79'	124'
	ADG/TDG	TAXILANES		
GA CROWN TAXILANE	II/2A	50'	79'	110'

CONSTRUCTION SAFETY & PHASING PLAN (CSPP) NOTES:

1. ALL CONTRACTOR EQUIPMENT SHALL BE RELOCATED TO THE DESIGNATED STAGING AREA FOR EACH PHASE AT THE END OF EACH WORK DAY OR WHEN NOT IN USE.
2. CONTRACTOR PERSONAL OCCUPANCY VEHICLES (POV'S) SHALL NOT BE ALLOWED TO ENTER THE AIRFIELD AT ANY TIME. POV'S SHALL BE PARKED IN THE TERMINAL PARKING LOT FOR THE DURATION OF THE PROJECT.
3. ALL CLOSURES SHALL BE COORDINATED WITH THE OWNER/OWNER'S REPRESENTATIVE. PHASES SHALL BE COMPLETED IN NUMBER ORDER UNLESS OTHERWISE APPROVED BY THE OWNER.
4. NO EQUIPMENT SHALL BE ALLOWED BEYOND CONTRACTOR WORK AREAS & DESIGNATED HAUL ROUTES UNLESS OTHERWISE APPROVED BY THE AIRPORT.
5. CONTRACTOR SHALL HAVE A VACUUM STYLE SWEEPER READILY AVAILABLE AT ALL TIMES TO REMOVE FOREIGN OBJECT DEBRIS (FOD) FROM PAVEMENTS OPEN TO AIRCRAFT OPERATIONS & DESIGNATED HAUL ROUTES.
6. PRIOR TO STARTING PHASE 1A & 1B, CONTRACTOR SHALL CONSTRUCT HAUL ROUTE TO FACILITATE AIRFIELD ACCESS. CONTRACTOR SHALL ADJUST HAUL ROUTE IF NECESSARY TO PROTECT ANY ITEM OR STRUCTURE CONFLICTING WITH HAUL ROUTE. ENGINEER, OWNER AND OWNER'S REPRESENTATIVE SHALL APPROVE OF ADJUSTED HAUL ROUTE LOCATION.
7. CONSTRUCTED HAUL ROUTE TO REMAIN IN PLACE AT THE CONCLUSION OF THE PROJECT.
8. AN APPROVED CONSTRUCTION SAFETY & PHASING PLAN (CSPP) MUST BE OBTAINED PRIOR TO CONSTRUCTION

LEGEND

PHASE 1A WORK AREA	HAUL ROUTE
PHASE 1B WORK AREA	CONSTRUCTED HAUL ROUTE
PHASE 2A WORK AREA	ARFF — EMERGENCY VEHICLE ROUTE
PHASE 2B WORK AREA	RSA — RUNWAY SAFETY AREA
PHASE 3A WORK AREA	ROFA — RUNWAY OBJECT FREE AREA
PHASE 3B WORK AREA	TSA — TAXIWAY SAFETY AREA
STAGING AREA	TOFA — TAXIWAY OBJECT FREE AREA
CONSTRUCTION ENTRANCE	EXISTING LEASEHOLD BOUNDARY

GEORGIA REGISTERED 04/16/2025 No. 043370 PROFESSIONAL ENGINEER ALEXANDER K. MOONE

0 250 500 750
HORIZONTAL SCALE IN FEET

NO.	REVISIONS	DATE
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95% CDOT SUBMITAL	-	7/1/2024

PROJECT: TAXIWAY 'A' PAVEMENT REHAB & LIGHTING
DATE: APRIL 2025

CONSTRUCTION SAFETY & PHASING PLAN (CSPP) - OVERALL

LAGRANGE - CALLAWAY AIRPORT (LGC) LAGRANGE, GA

benesch
Alfred Benesch & Company
600 Peachtree Street NE - Suite 2410
Atlanta, Georgia 30308
706-722-4114

Job No. - 19024029.01

DRAWN BY: D.JL | DESIGNED BY: KRT | REVIEWED BY: AWB | QUANTITIES CHECKED BY: AKM

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NOT FOR CONSTRUCTION

ENLARGEMENT 'A'

0 100 200 300

HORIZONTAL SCALE IN FEET

ENLARGEMENT 'B'

0 100 200 300

HORIZONTAL SCALE IN FEET

RUNWAY 3/21 (5,000' X 100')

RUNWAY 13/31 (6,500' X 100')

TAXIWAY 'A'

TAXIWAY 'B'

TAXIWAY 'C'

TAXIWAY 'S'

TAXIWAY 'UNNAMED'

REFER TO ENLARGEMENT 'B' (THIS SHEET)

REFER TO ENLARGEMENT 'A' (THIS SHEET)

NOTES: (#)

1. EXISTING AIRFIELD GUIDANCE SIGN CONFIGURATION FOR INFORMATION ONLY.
2. REFER TO SHEET CSPP-8 FOR PHASE 1A & 1B SIGN ADJUSTMENT PLAN.
3. REFER TO SHEET CSPP-11 FOR PHASE 2A & 2B SIGN ADJUSTMENT PLAN.
4. REFER TO SHEET CSPP-14 FOR PHASE 3A & 3B SIGN ADJUSTMENT PLAN.

GEORGIA REGISTERED 04/16/2025 No. 043370 PROFESSIONAL ENGINEER ALEXANDER K. MOONE

0 250 500 750

HORIZONTAL SCALE IN FEET

NO.	REVISIONS	95% CDOT SUBMITAL	DATE
-	-	-	7/1/2024

PROJECT: TAXIWAY 'A' PAVEMENT REHAB & LIGHTING

DATE: APRIL 2025

CONSTRUCTION SAFETY & PHASING PLAN (CSPP) - SIGN LOCATIONS

LAGRANGE - CALLAWAY AIRPORT (LGC) LAGRANGE, GA

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706-722-4114 Job No. - 19024029.01

DRAWN BY: DJL | DESIGNED BY: KRT | REVIEWED BY: SMV | QUANTITIES CHECKED BY: AKM

SHEET 15/96

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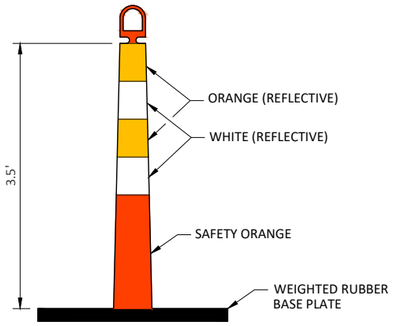


TYPE I BARRICADE (WARNING MARKER) DETAIL
No Scale

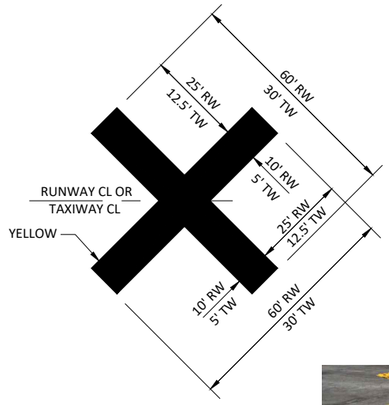
NOTE:

CONTRACTOR SHALL PLACE/MAINTAIN/REMOVE TYPE I BARRICADES **(ESTIMATED 20 REQUIRED)** TO MARK STAGING AREA AND AS DIRECTED BY THE OWNER/ENGINEER. NO SEPARATE MEASUREMENT OR PAYMENT FOR "AIRPORT SAFETY MEASURES". COST TO BE INCLUDED IN THE LINE ITEM FOR FAA SPECIFICATION C-105 "MOBILIZATION". TYPE I BARRICADES SHALL NOT BE USED IN ACTIVE AIRCRAFT MOVEMENT AREAS.

TYPICAL SIGN COVER DETAIL
No Scale

NOTE:

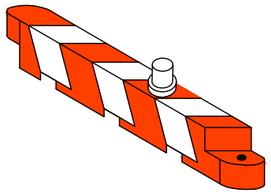
TO MAKE SIGN ADJUSTMENTS, CONTRACTOR SHALL WRAP SIGNS WITH GEOTEXTILE FILTER FABRIC AND WIRE AS APPROVED BY THE AIRPORT. SIGNS SHALL BE COVERED TO ENSURE THAT NO SIGNAGE LIGHTING IS VISIBLE THROUGH THE GEOTEXTILE SIGN COVERING.



TEMPORARY X DETAIL
No Scale

NOTES:

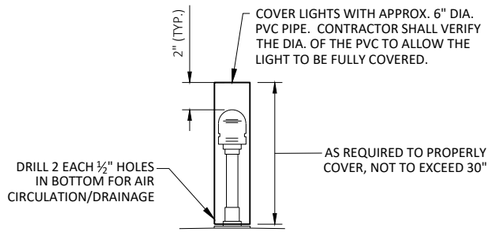
1. CONTRACTOR FURNISHED RUNWAY X'S (2 EACH) AND TAXIWAY X'S (3 EACH). EACH X SHALL CONSIST OF TWO (2) PIECES OF FABRIC AS SHOWN IN TEMPORARY X DETAIL. FABRIC SHALL BE MADE OF YELLOW VINYL COATED MESH. FABRIC SHALL BE SCREEN GUARD.
2. ALL TEMPORARY X'S SHALL BE FURNISHED BY THE CONTRACTOR AND SHALL REMAIN THE CONTRACTOR'S PROPERTY UPON COMPLETION OF THE PROJECT.
3. X'S SHALL BE PLACED AT LOCATIONS DESIGNATED BY THE FIELD ENGINEER/OWNER AS REQUIRED. X'S SHALL BE SECURED WITH TYPE I BARRICADE RUBBER BASE PAINTED AVIATION YELLOW (FURNISHED BY CONTRACTOR). REFER TO SAMPLE PHOTO. SAND BAGS ARE NOT ALLOWED. FURNISHING, PLACING, MAINTAINING AND REMOVAL OF TEMPORARY X'S SHALL BE INCLUDED IN THE LINE ITEM FOR FAA SPECIFICATION C-105 "MOBILIZATION". NO SEPARATE MEASUREMENT OR PAYMENT FOR "AIRPORT SAFETY MEASURES".



TYPE II AIRPORT BARRICADE DETAIL
No Scale

NOTES:

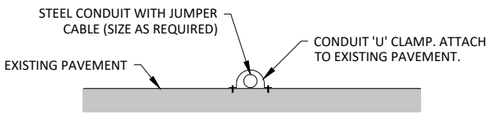
1. CONTRACTOR SHALL FURNISH **(165 ESTIMATED - MAXIMUM PHASE)** TYPE II LOW PROFILE PLASTIC WATER FILLED BARRICADES. BARRICADES SHALL BE RRM SAFETY ORANGE MODEL 4202S0-25 10" X 96" UV-RESISTANT POLYETHYLENE LOW PROFILE PLASTIC AIRPORT BARRICADES MEETING THE REQUIREMENTS OF AC 150/5370-2 (CURRENT EDITION) WITH ONE (1) SCREW-IN 601 (360 DEGREE) RED FLASHING SOLAR LIGHT AND HIGH INTENSITY SHEETING ON BOTH SIDES (ORANGE AND WHITE STRIPES).
2. CONTRACTOR SHALL FURNISH/PLACE/MAINTAIN/REMOVE TYPE II BARRICADES AS REQUIRED BY INDIVIDUAL 'PHASES'. NO SEPARATE MEASUREMENT OR PAYMENT FOR "AIRPORT SAFETY MEASURES". COST TO BE INCLUDED IN THE LINE ITEM FOR FAA SPECIFICATION C-105 "MOBILIZATION".
3. ALL BARRICADES SHALL BE LINKED TOGETHER AT EACH LOCATION AND FILLED WITH ENOUGH WATER TO PREVENT THE STRING OF BARRICADES FROM MOVING FROM WIND, JET BLAST AND PROP WASH.
4. ALL BARRICADE LOCATIONS SHALL BE PLACED OUTSIDE OF ACTIVE RUNWAY RSA'S AND TAXIWAY TOFA'S. ENGINEER WILL RESOLVE ANY QUESTIONS REGARDING EXACT PLACEMENT LOCATIONS.



TYPICAL LIGHT COVER DETAIL
No Scale

NOTES:

1. AS REQUIRED **(76 ESTIMATED - MAXIMUM PHASE)**, FURNISHING, PLACEMENT AND REMOVAL OF LIGHT COVERS SHALL BE INCLUDED IN THE LINE ITEM FOR FAA SPECIFICATION C-105 "MOBILIZATION". NO SEPARATE MEASUREMENT OR PAYMENT FOR "AIRPORT SAFETY MEASURES".
2. OTHER COVERING METHODS MAY BE CONSIDERED BY OWNER/ENGINEER. CONTRACTORS SHALL SUBMIT PROPOSED COVERING METHOD FOR REVIEW/APPROVAL.
3. THE CONTRACTOR SHALL VERIFY THE LIGHT HEIGHT BEFORE INSTALLING LIGHT COVERS.



CIRCUIT JUMPERING DETAIL
No Scale

NOTE:

AS REQUIRED BY THE CSPP INDIVIDUAL PHASES, THE CONTRACTOR SHALL JUMPER EXISTING CIRCUITS AS REQUIRED TO DEACTIVATE LIGHTS IN CLOSED PAVEMENT AREAS. ALL JUMPERS SHALL BE MADE IN EXISTING LIGHT BASE CANS (OR AT AN EXISTING STAKE MOUNTED LIGHT, IF NO BASE EXISTS). ANY JUMPERS ACROSS EXISTING PAVEMENTS SHALL BE IN A STEEL CONDUIT RUNNING FROM LIGHT TO LIGHT. THE STEEL CONDUIT SHALL BE SECURED TO THE PAVEMENT WITH 'U' CLAMPS. STEEL CONDUITS ABOVE PAVEMENTS NOT ALLOWED IN AREAS OPEN TO AIRCRAFT TRAFFIC. ENGINEER TO APPROVE ALL JUMPER LOCATIONS.

GEORGIA REGISTERED 04/16/2025 No. 043370 PROFESSIONAL ENGINEER ALEXANDER K. MOONE

NO.	REVISIONS	DATE
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-	95% CDOT SUBMITAL	7/1/2024

PROJECT: TAXIWAY 'A' PAVEMENT REHAB & LIGHTING
DATE: APRIL 2025

CONSTRUCTION SAFETY & PHASING PLAN (CSPP) - DETAILS

LAGRANGE - CALLAWAY AIRPORT (LGC) LAGRANGE, GA

benesch
Alfred Benesch & Company
600 Peachtree Street NE - Suite 2410
Atlanta, Georgia 30308
706-722-4114 Job No. - 190240251.01

DRAWN BY: DJL | DESIGNED BY: KRT | REVIEWED BY: AWB | QUANTITIES CHECKED BY: MKM

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NOT FOR CONSTRUCTION

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NOT FOR CONSTRUCTION

CONSTRUCTION SAFETY AND PHASING PLAN (CSPP)

THIS CSPP WAS PREPARED IN ACCORDANCE WITH FAA ADVISORY CIRCULAR (AC) 150/5370-2G "OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION" (DATED 12/13/2017). THE NUMBERED ITEMS BELOW FOLLOW THE LIST CONTAINED IN AC 150/5370-2G SECTION 2.4. THE CONTRACTOR SHALL COMPLY WITH ALL CONTRACT SAFETY REQUIREMENTS, THE OWNER'S SECURITY PROGRAM REQUIREMENTS, OSHA SAFETY REQUIREMENTS, AND OTHER LOCAL/STATE/FEDERAL LAWS GOVERNING THE SAFETY OF WORK AND THE GENERAL PUBLIC.

ANY CONTRACTOR CHANGES TO THE BELOW CSPP DOCUMENT (INCLUDING DRAWINGS) MUST BE COORDINATED WITH THE OWNER PRIOR TO IMPLEMENTATION.

SAFETY PLAN COMPLIANCE DOCUMENT (BY CONTRACTOR)

IN ACCORDANCE WITH AC 150/5370-2G, SECTION 1.4.3, THE CONTRACTOR SHALL PREPARE AND SUBMIT TO THE OWNER A SAFETY PLAN COMPLIANCE DOCUMENT (SPCD) FOR REVIEW BY THE OWNER. A SAMPLE SPCD IS INCLUDED IN APPENDIX 3 OF THE SPECIFICATION BOOKLET. THE SAMPLE SPCD IS INCLUDED SOLELY TO AID IN THE CONTRACTOR'S PREPARATION OF THE DOCUMENT. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE PREPARATION OF THEIR DOCUMENT AND INFORMATION CONTAINED IN THEIR SPCD. UTILIZATION OF THE SAMPLE SPCD DOES NOT RELIEVE THE CONTRACTOR OF THIS OBLIGATION.

THE CONTRACTOR SHALL PROVIDE THE SPCD A MINIMUM OF TEN (10) WORKING DAYS PRIOR TO THE PRE-CONSTRUCTION CONFERENCE. THE SPCD SHOULD INCLUDE A GENERAL STATEMENT, BY THE CONTRACTOR, THAT HE/SHE HAS READ AND WILL ABIDE BY THE CSPP. THE SPCD SHOULD NOT DUPLICATE INFORMATION IN THIS CSPP. IF NO SUPPLEMENTAL INFORMATION IS NECESSARY FOR A SECTION BELOW, THE STATEMENT "NO SUPPLEMENTAL INFORMATION" SHOULD BE WRITTEN.

1. COORDINATION (AC 150/5370-2G, SECTION 2.5)

A. PRE-CONSTRUCTION CONFERENCE: A PRE-CONSTRUCTION CONFERENCE WILL BE HELD TO INTRODUCE AND DISCUSS AIRPORT OPERATIONAL SAFETY DURING CONSTRUCTION AS IT RELATES TO THIS PROJECT. THE PRE-CONSTRUCTION CONFERENCE WILL BE SCHEDULED AFTER THE CONTRACT IS AWARDED. THE PRE-CONSTRUCTION CONFERENCE WILL INCLUDE THE OWNER, CONTRACTORS, SUB-CONTRACTORS, UTILITY COMPANIES, SUPPLIERS, FBO'S, AIRPORT TENANTS, FAA, GDOT AND OTHER INTERESTED/AFFECTED PARTIES. THE ENGINEER WILL COORDINATE THE MEETING DATE AND TIME AND WILL NOTIFY INTERESTED PARTIES. THE OWNER'S REPRESENTATIVE WILL CONDUCT THE MEETING.

B. PROGRESS & SAFETY MEETINGS: PROGRESS MEETINGS/SAFETY MEETINGS WILL BE HELD BY THE OWNER DURING THE CONSTRUCTION PROJECT. UNLESS OTHERWISE DIRECTED BY THE OWNER, PROGRESS MEETINGS/SAFETY MEETINGS WILL BE HELD ON A **BI-WEEKLY BASIS** AND **PRIOR TO A NEW MAJOR CONSTRUCTION OPERATION CHANGE**. THE PRIME CONTRACTOR IS REQUIRED TO HAVE AN APPROPRIATE REPRESENTATIVE IN ATTENDANCE AT ALL MEETINGS. THE CONTRACTOR'S EMPLOYEES, SUBCONTRACTOR'S EMPLOYEES, AND SUPPLIER'S EMPLOYEES ARE ALL ENCOURAGED TO ATTEND. AT EACH PROGRESS MEETING/SAFETY MEETING, PROJECT SAFETY AND OPERATIONAL SAFETY WILL BE DISCUSSED. A SAFETY ORIENTATION MEETING IS ALSO REQUIRED PRIOR TO EACH PHASE CHANGE FOR ALL PROJECT SITE PERSONNEL.

C. SCOPE OR SCHEDULE CHANGES: THE CONTRACTOR SHALL PREPARE AND **PRESENT AN UPDATED SCHEDULE AT EVERY PROGRESS MEETING/SAFETY MEETING**. THE OWNER WILL REVIEW THE SCHEDULE, AND AS REQUIRED, WILL COORDINATE ANY NECESSARY REVISIONS TO THE CSPP, BASED ON CONTRACTOR SCHEDULE, WITH THE FAA.

D. FAA AIR TRAFFIC ORGANIZATION (ATO) COORDINATION: COORDINATION WITH FAA ATO IS THE RESPONSIBILITY OF THE OWNER THROUGH THE ISSUANCE OF NOTAMS. THE CONTRACTOR IS REQUIRED TO PROVIDE THE OWNER'S REPRESENTATIVE A MINIMUM OF 72 HOURS NOTICE PRIOR TO BEGINNING CONSTRUCTION, PHASE CHANGES OR AN ACTIVITY THAT CAUSES A CHANGE TO AIRPORT OPERATIONS.

2. PHASING (AC 150/5370-2G, SECTION 2.6)

A. PHASE ELEMENTS: REFER TO CSPP DRAWINGS FOR WORK TO BE COMPLETED PER INDIVIDUAL PHASE. THE CSPP DRAWINGS SHALL BE CONSIDERED PART OF THIS "CONSTRUCTION SAFETY & PHASING PLAN".

B. CONSTRUCTION SAFETY DRAWINGS: ALL CONSTRUCTION SAFETY DRAWINGS WILL BE INCLUDED AS PART OF THE FINAL ISSUED CONSTRUCTION PLAN SET. THE CSPP DRAWINGS SHALL BE CONSIDERED PART OF THIS "CONSTRUCTION SAFETY & PHASING PLAN".

3. AREAS & OPERATIONS AFFECTED BY CONSTRUCTION ACTIVITY (AC 150/5370-2G, 2.7)

A. IDENTIFICATION OF AFFECTED AREAS

1. CLOSING, OR PARTIAL CLOSING, OF APRON, RUNWAY, OR TAXIWAY:
   - REFER TO CSPP DRAWINGS FOR CLOSURES DURING CONSTRUCTION.
   - OWNER TO ISSUE NOTAMS PRIOR TO EACH CONSTRUCTION PHASE THAT INCLUDES A PARTIAL APRON OR TAXIWAY CLOSURE.
2. CLOSING OF AIRCRAFT RESCUE AND FIRE FIGHTING (ARFF)/EMERGENCY VEHICLE ROUTES.
   - REFER TO CSPP DRAWINGS FOR ARFF/EMERGENCY VEHICLE ROUTE(S) DURING CONSTRUCTION. THE ARFF/EMERGENCY VEHICLE ROUTE SHALL NOT BE OBSTRUCTED BY ANY CONTRACTOR EQUIPMENT, OPEN HOLES, ETC. WHICH WOULD HINDER THE ARFF/EMERGENCY VEHICLES FROM UTILIZING THE DESIGNATED ACCESS ROUTE. THE ACCESS ROUTE, THROUGH ANY CONTRACTOR WORK AREAS, SHALL BE SWEPT AND KEPT CLEAN BY THE CONTRACTOR AT ALL TIMES TO PREVENT FOD FROM BEING TRACKED ONTO ACTIVE AIRFIELD PAVEMENTS BY ARFF/EMERGENCY VEHICLES.
   - CONTRACTORS SHALL ALWAYS YIELD TO ANY ARFF/EMERGENCY VEHICLES UTILIZING THE ACCESS ROUTE.
3. CLOSING OF ACCESS ROUTES USED BY AIRPORT SUPPORT VEHICLES.
   - AS DIRECTED BY THE OWNER, THE CONTRACTOR SHALL MAINTAIN ADEQUATE ACCESS ROUTES FOR AIRPORT FUEL TRUCK DELIVERIES AND AIRLINE GSE (GENERAL SERVICE EQUIPMENT) AS REQUIRED.
   - CONTRACTOR SHALL ALWAYS YIELD TO ANY FUEL TRUCKS AND GSE UTILIZING THE ACCESS ROUTE.
4. INTERRUPTION OF UTILITIES, INCLUDING WATER SUPPLIES FOR FIRE FIGHTING.
   - THE CONTRACTOR IS REQUIRED TO PROVIDE THE OWNER'S REPRESENTATIVE A MINIMUM OF 72 HOURS NOTICE PRIOR TO ANY UTILITY INTERRUPTIONS. SHOULD THERE BE AN ACCIDENTAL INTERUPTION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE AND TAKE EFFORTS TO IMMEDIATELY RESTORE THE UTILITY SERVICE.
5. APPROACH/DEPARTURE SURFACES AFFECTED BY HEIGHTS OF OBJECTS.
   - THE CONTRACTOR SHALL LIMIT THEIR ACTIVITIES TO CLOSED PAVEMENTS FOR CONSTRUCTION, AND SHALL ONLY PARK EQUIPMENT AND STOCKPILE SUPPLIES IN THE STAGING AREA LOCATIONS DESIGNATED ON THE PLANS. APPROACH/DEPARTURE SURFACES WILL NOT BE AFFECTED DURING THE CONSTRUCTION OF THIS PROJECT.
6. CONSTRUCTION AREAS.
   - REFER TO CSPP DRAWINGS FOR ALLOWED CONSTRUCTION AREAS.
7. PROHIBITED CONSTRUCTION ACTIVITY
   - NO CONSTRUCTION ACTIVITY IS ALLOWED WITHIN ANY ACTIVE AIRPORT OPERATION AREA (AOA), WHETHER THAT BE WITHIN ANY APRON MOVEMENT AREA, A RUNWAY SAFETY AREA (RSA) OR A TAXIWAY SAFETY AREA (TSA).

B. MITIGATION OF EFFECTS

1. TEMPORARY CHANGES TO RUNWAY, TAXIWAY AND APRON OPERATIONS:
   - APRON, RUNWAY, AND TAXIWAY OPERATIONS WILL BE AFFECTED DURING CONSTRUCTION OF THIS PROJECT. REFER TO CSPP PHASING DRAWINGS FOR USABLE APRON AND TAXIWAYS DURING CONSTRUCTION. ANY REQUIRED SPECIAL TAXIING ROUTES ARE DESIGNATED ON THE INDIVIDUAL PHASING PLANS.
2. DETOURS FOR ARFF/EMERGENCY VEHICLES AND OTHER AIRPORT VEHICLES
   - REFER TO CSPP DRAWINGS FOR ARFF/EMERGENCY VEHICLE DETOUR ROUTES (IF ANY) DURING CONSTRUCTION.
3. MAINTENANCE OF ESSENTIAL UTILITIES
   - NO IMPACT TO ANY ESSENTIAL UTILITIES IS ANTICIPATED.
4. TEMPORARY CHANGES TO AIR TRAFFIC CONTROL PROCEDURES
   - NO TEMPORARY AIR TRAFFIC CONTROL (ATC) PROCEDURES ARE REQUIRED.

4. PROTECTION OF NAVIGATION AIDS (NAVAIDS) (AC 150/5370-2G, SECTION 2.8)

NO IMPACTS TO VISUAL OR INSTRUMENT NAVAIDS ARE ANTICIPATED WITH THIS PROJECT.

5. CONTRACTOR ACCESS (AC 150/5370-2G, SECTION 2.9)

A. LOCATION OF STOCKPILED CONSTRUCTION MATERIALS

- REFER TO CSPP DRAWINGS FOR STOCKPILE LOCATIONS. NO OTHER STOCKPILE LOCATIONS ARE ALLOWED UNLESS OTHERWISE APPROVED BY THE OWNER. NO STOCKPILES SHALL BE PLACED INSIDE RSAS, OFAS, OR OFZS UNLESS OTHERWISE APPROVED BY THE OWNER AND FAA. STOCKPILES LOCATED IN AN ACTIVE ROFA MUST BE APPROVED BY THE FAA.
- THE CONTRACTOR SHALL LIMIT THEIR STOCKPILE HEIGHTS TO 25 FEET.
- REFER TO SECTION 16 OF THIS CSPP FOR STOCKPILE LIGHTING REQUIREMENTS.

B. VEHICLE AND PEDESTRIAN OPERATIONS

1. CONSTRUCTION SITE PARKING
   - REFER TO CSPP DRAWINGS FOR CONSTRUCTION SITE PARKING (STAGING AREA). NO PERSONAL OCCUPANCY VEHICLES (POV'S) SHALL BE ALLOWED INSIDE THE PERIMETER SECURITY FENCE. POV SITE PARKING SHALL BE LIMITED TO AVAILABLE PUBLIC USE PARKING.
   - IF PARKING CAPACITY BECOMES AND ISSUE IN PUBLIC PARKING LOT, CONTRACTOR MUST UTILIZE LANDSIDE STAGING AREA FOR ALL POV'S.
2. CONSTRUCTION EQUIPMENT PARKING
   - CONTRACTORS MUST PARK AND SERVICE ALL CONSTRUCTION VEHICLES IN THE DESIGNATED STAGING AREA. INACTIVE EQUIPMENT MUST NOT BE PARKED IN AIRPORT PARKING LOTS. ALL EQUIPMENT SHALL BE RETURNED TO STAGING AREAS WHEN NOT BEING USED (ESPECIALLY AT NIGHT), UNLESS OTHERWISE APPROVED BY THE OWNER.
   - ANY CONTRACTOR EQUIPMENT ALLOWED BY THE OWNER TO BE PARKED IN THE CURRENT CONTRACTOR WORK AREA SHALL BE PARKED AS FAR AWAY AS POSSIBLE FROM ANY ACTIVE AOA PAVEMENTS.
   - ALL VEHICLES/EQUIPMENT PARKING ADJACENT TO AIRFIELD PERIMETER FENCING SHALL BE PARKED A MINIMUM OF 10 FEET AWAY FROM THE FENCE.
3. ACCESS AND HAUL ROUTES
   - ACCESS POINTS
     - GATE(S): THE CONTRACTOR SHALL USE EXISTING AIRFIELD GATES FOR ACCESS. GATES SHALL BE LOCKED WHEN NOT IN USE. OWNER TO FACILITATE CONTRACTOR ACCESS AND PROVIDE GATE KEYS AS REQUIRED.
     - ACCESS TO THE STORAGE, STOCKPILING AND CONSTRUCTION SITES BY THE CONTRACTOR SHALL BE AS SHOWN ON THE PLANS UNLESS OTHERWISE AUTHORIZED BY THE OWNER IN WRITING.
   - HAUL ROUTES
     - REFER TO CSPP DRAWINGS FOR HAUL ROUTE LOCATIONS. THE CONTRACTORS/SUBCONTRACTORS/DELIVERY VEHICLES SHALL USE ONLY THE HAUL ROUTES SHOWN ON THE PLANS, UNLESS THE OWNER HAS GRANTED PRIOR APPROVAL FOR AN ALTERNATE ROUTE IN WRITING.
     - THE CONTRACTOR SHALL MARK HAUL ROUTES TO BE USED WITH SIGNS OR CONES AS REQUIRED BY THE OWNER. THE MARKING IS SUBJECT TO OWNER/ENGINEER'S REVIEW AND THE OWNER'S APPROVAL.
     - THE CONTRACTOR SHALL PROVIDE ADEQUATE SIGNAGE TO WARN TRAFFIC OF TURNING TRUCKS, DETOURS AND OTHER SIGNAGE REQUIRED FOR THE PROJECT. THE CONTRACTOR SHALL COORDINATE ALL SIGNAGE PLACEMENT AND CHANGES WITH THE OWNER AND ENGINEER AT LEAST 72 HOURS PRIOR TO IMPLEMENTING ANY CHANGES.
     - THE CONTRACTOR SHALL WET (OR CLEAN) HAUL ROUTES AND CONSTRUCTION TRAFFIC AREAS AS REQUIRED TO PREVENT EXCESSIVE DUST.
     - 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.
4. MARKING AND LIGHTING OF VEHICLES
   - ALL VEHICLES OR EQUIPMENT BELONGING TO THE CONTRACTOR, SUBCONTRACTORS, AND SUPPLIERS, WHICH GO WITHIN AIRSIDE OPERATIONS AREA (AOA) FOR ANY REASON SHALL DISPLAY AN APPROVED AMBER FLASHING BEACON OR STROBE UNLESS SPECIFICALLY EXEMPTED FROM THIS REQUIREMENT BY THE OWNER. ALL BEACONS AND STROBES SHALL BE VISIBLE FROM 360 DEGREES AND OF SUCH BRILLIANCE THAT THEY ARE READILY VISIBLE UNDER NORMAL DAYLIGHT CONDITIONS. IN LIEU OF AN OPERABLE BEACON OR STROBE, AN ORANGE AND WHITE-CHECKERED FLAG, AT LEAST THREE (3) FEET BY THREE (3) FEET IN SIZE, MAY BE DISPLAYED ON AN APPROPRIATE STAFF ATTACHED TO THE VEHICLE AND EQUIPMENT AS TO BE READILY VISIBLE. THIS OPTION IS APPROVED FOR DAYLIGHT/VFR OPERATIONS ONLY AND SUBJECT TO THE DISCRETION OF THE OWNER. VEHICLES AND EQUIPMENT NOT IN COMPLIANCE WITH THE LIGHTING OR FLAGGING REQUIREMENTS OF THIS PARAGRAPH SHALL NOT ACCESS PROPERTY WITHIN THE AOA UNLESS ESCORTED BY AN OWNER APPROVED ESCORT VEHICLE. ALL VEHICLES AND EQUIPMENT SHALL PROMINENTLY DISPLAY THE APPROPRIATE COMPANY/ORGANIZATIONAL NAME/LOGO IN A MANNER APPROVED BY THE OWNER.
   - MARKING AND LIGHTING OF VEHICLES SHALL COMPLY WITH AC 150/5210-5, PAINTING, MARKING AND LIGHTING OF VEHICLES USED ON AN AIRPORT.
5. DESCRIPTION OF PROPER VEHICLE OPERATIONS: ALL CONSTRUCTION EQUIPMENT AND VEHICLES SHALL YIELD TO AIRCRAFT AT ALL TIMES. DURING AN EMERGENCY SITUATION, ALL CONSTRUCTION EQUIPMENT AND VEHICLES SHALL BE MOVED TO ALLOW FOR ARFF AND OTHER EMERGENCY RESPONDER VEHICLES TO ACCESS THE SITE.
6. REQUIRED ESCORTS: AS NEEDED IN THE AOA, THE CONTRACTOR SHALL USE OWNER-TRAINED, CONTRACTOR FURNISHED ESCORTS.
7. AIRPORT TRAINING & I.D. BADGE REQUIREMENTS: OFFICIAL AIRPORT TRAINING AND I.D. BADGES ARE NOT REQUIRED. A SAFETY ORIENTATION MEETING WILL BE CONDUCTED FOR ALL NEW PROJECT SITE PERSONNEL, INCLUDING AOA DRIVING SAFETY, AS REQUIRED BY THE OWNER.
8. SITUATIONAL AWARENESS: ALL VEHICLE DRIVERS MUST CONFIRM BY PERSONAL OBSERVATIONS THAT NO AIRCRAFT IS APPROACHING THEIR POSITION (ON THE GROUND) WHEN GIVEN CLEARANCE TO ACCESS THE APRON OPEN TO AIRPORT OPERATIONS.
9. TWO-WAY RADIO COMMUNICATIONS: THE CONTRACTOR WILL NOT BE REQUIRED TO MONITOR AN AIRPORT RADIO.
10. AIRPORT SECURITY
    - CONTRACTOR MUST MAINTAIN SECURITY DURING CONSTRUCTION WHEN ACCESSING ACTIVE APRON AREAS.
    - DURING CONSTRUCTION OF THE PROJECT, THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURITY OF HIS/HER EQUIPMENT, SUPPLIES, ETC. AT ALL TIMES.
    - CONTRACTOR SHALL REPORT SUSPICIOUS PERSONS TO AIRPORT STAFF.

6. WILDLIFE MANAGEMENT (AC 150/5370-2G, SECTION 2.10)

A. TRASH: ALL TRASH AND DEBRIS SHALL BE KEPT PICKED UP AT ALL TIMES TO PREVENT TRASH FROM BLOWING ACROSS THE AIRPORT, ADJACENT PROPERTY, OR ACTIVE AIRCRAFT PAVEMENTS. ALL TRASH SHALL BE PLACED IN APPROPRIATE CONTRACTOR FURNISHED RECEPTACLES WITH APPROPRIATE COVERS TO KEEP TRASH FROM BLOWING OUT OF THE RECEPTACLES.

B. STANDING WATER: NO STANDING WATER, CAUSED BY CONTRACTOR CONSTRUCTION OPERATIONS, SHALL BE ALLOWED ON THE AIRPORT PROPERTY. ALL SOIL OR PAVEMENT VOIDS CREATED BY THE CONTRACTOR SHALL PROMPTLY BE PUMPED OF ALL WATER FOLLOWING RAIN EVENTS OR CONSTRUCTION OPERATIONS THAT GENERATE STANDING WATER.

C. TALL GRASS AND SEEDS

- AS REQUIRED, CONTRACTORS SHALL MOVE EQUIPMENT AND VEHICLES TO ALLOW THE OWNER TO MOW AIRPORT GRASSED AREAS TO PREVENT EXCESSIVELY TALL GRASS.
- THE CONTRACTOR SHALL STORE ALL GRASS SEED IN ENCLOSED CONTAINERS.
- THE CONTRACTOR SHALL DRILL SEED (WHEN REQUIRED OR FEASIBLE), IN LIEU OF BROADCASTING SEED, TO HELP ELIMINATE POTENTIAL WILDLIFE ATTRACTANTS.

D. POORLY MAINTAINED FENCING AND GATES

- CONTRACTORS SHALL CLOSE ALL GATES WHEN NOT IN USE TO PREVENT WILDLIFE FROM ENTERING THE AIRPORT.
- AS REQUIRED, THE CONTRACTOR SHALL MAINTAIN TEMPORARY AND/OR PERMANENT PERIMETER FENCING TO PREVENT WILDLIFE FROM ENTERING THE AIRPORT.

E. DISRUPTION OF EXISTING WILDLIFE HABITAT: THE CONTRACTOR SHALL NOTIFY THE OWNER OF ANY NOTABLE OR HAZARDOUS WILDLIFE SIGHTINGS.

GEORGIA REGISTERED 04/16/2025 No. 043370 PROFESSIONAL ENGINEER ALEXANDER K. MOONEY

NO.	REVISIONS	DATE
1	-	-
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5	-	-
6	-	-
7	95% GDOT SUBMITAL	7/1/2024

PROJECT: TAXIWAY 'A' PAVEMENT REHAB & LIGHTING
DATE: APRIL 2025

CONSTRUCTION SAFETY & PHASING PLAN (CSPP) - NOTES - SHEET 1

LAGRANGE - CALLAWAY AIRPORT (LGC) LAGRANGE, GA

benesch
Alfred Benesch & Company
600 Peachtree Street NE - Suite 2410
Atlanta, Georgia 30308
706-722-4114

Job No. - 19024029.01

DRAWN BY:	DESIGNED BY:	REVIEWED BY:	CHECKED BY:
DJL	KRT	AWB	AKM

QUANTITIES

SHEET 17/96 | DRAWING NO. CSPP-4

Last Saved: 4/9/2025, 12:15:39 PM Saved By: ELEONI Plotted: 4/10/2025 12:03 PM
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NOT FOR CONSTRUCTION

7. FOREIGN OBJECT DEBRIS (FOD) MANAGEMENT (AC 150/5370-2G, SECTION 2.11)

THE CONTRACTOR SHALL TAKE PRECAUTIONS TO KEEP FOREIGN OBJECT DEBRIS (FOD) OFF ALL OPEN RUNWAYS, TAXIWAYS, AND APRONS. THE CONTRACTOR SHALL REMOVE ANY DEBRIS THAT MAY BE DEPOSITED ON OPEN PAVEMENT SO THAT IT WILL NOT DAMAGE AIRCRAFT UTILIZING THE PAVEMENT. FOD INCLUDES BUT IS NOT LIMITED TO MUD, TRASH, CONSTRUCTION DEBRIS, ETC. THE CONTRACTOR SHALL KEEP ALL ARFF/EMERGENCY RESPONSE, GSE, AND FUEL TRUCK ACCESS ROUTES ACROSS THE CONTRACTOR WORK AREAS CLEAN TO PREVENT THE VEHICLES FROM TRACKING FOD ONTO ACTIVE APRON PAVEMENTS.

AS REQUIRED BY PLAN DRAWING GENERAL NOTES, THE CONTRACTOR SHALL HAVE SUFFICIENT PAVEMENT CLEANING EQUIPMENT TO EFFECTIVELY CLEAN PAVEMENTS IN A TIMELY MANNER.

PRIOR TO RE-OPENING CLOSED AIRFIELD PAVEMENTS, THE OWNER AND ENGINEER WILL CONDUCT A FINAL FOD INSPECTION. THE CONTRACTOR SHALL CLEAN FOD TO THE SATISFACTION OF THE OWNER. THE OWNER'S DETERMINATION SHALL BE FINAL.

8. HAZARDOUS MATERIALS (HAZMAT) MANAGEMENT (AC 150/5370-2G, SECTION 2.12)

A. THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS NECESSARY TO PREVENT HAZARDOUS WASTE AT THE CONSTRUCTION SITE INCLUDING FUEL, OIL, HYDRAULIC FLUID OR CHEMICAL SPILLS. IN THE CASE OF SPILLS THE CONTRACTOR SHALL CLEAN ALL CONTAMINATION IN ACCORDANCE WITH LOCAL/STATE/FEDERAL REGULATIONS. ALL FUELING/RE-FUELING OPERATIONS SHALL BE CONFINED TO THE STAGING AREA.

B. FUEL, DIESEL FUEL OR OTHER CONTAMINATES SHALL NOT BE ALLOWED TO ENTER THE STORM SEWER SYSTEM. IF, IN THE EVENT SUCH CONTAMINATES DO ENTER THE STORM SEWER SYSTEM, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER/ENGINEER OF THE SPILL. THE CONTRACTOR WILL BE RESPONSIBLE FOR ALL COSTS INCURRED FOR REHABILITATION OF THE STORM SEWER, MONITORING EQUIPMENT, AND RELATED FACILITIES.

9. NOTIFICATION OF CONSTRUCTION ACTIVITIES (AC 150/5370-2G, SECTION 2.13)

A. MAINTENANCE OF LIST OF RESPONSIBLE REPRESENTATIVES/POINTS OF CONTACT
- **AIRPORT MANAGER:** TROY ANDERSON | 706-616-1553 | tanderson@troupco.org
- **AIRPORT MAINTENANCE/OPERATIONS:** TROY ANDERSON | 706-616-1553 | tanderson@troupco.org
- CONTRACTOR POINT OF CONTACT SHALL BE PROVIDED WITH THE SPCD. CONTRACTOR SHALL PROVIDE IN THE SPCD AN EMERGENCY POINT OF CONTACT THAT CAN BE REACHED 24 HOURS A DAY FOR EMERGENCY MAINTENANCE OF CONSTRUCTION HAZARD LIGHTING AND BARRICADES.

B. NOTICES TO AIRMEN (NOTAM): THE CONTRACTOR SHALL NOTIFY THE LAGRANGE CALLAWAY AIRPORT AT LEAST 72 HOURS IN ADVANCE OF ANY APRON, RUNWAY, OR TAXIWAY CLOSURES TO ALLOW AIRPORT TIME TO ISSUE/COORDINATE APPROPRIATE NOTAMS FOR THE SPECIFIC SITUATION. THE APRON, RUNWAY, OR TAXIWAY MAY NOT BE CLOSED UNTIL THE CONTRACTOR HAS BEEN NOTIFIED BY THE OWNER THAT THE PROPER NOTAMS HAVE BEEN ISSUED AND THE PAVEMENT IS CLEARED TO BE CLOSED. THE CONTRACTOR SHALL PROVIDE AT LEAST 72 HOURS ADVANCE NOTICE OF ANY APRON, RUNWAY, OR TAXIWAY OPENING.

C. EMERGENCY NOTIFICATION PROCEDURES
- THE CONTRACTOR SHALL CONTACT MR. TROY ANDERSON IMMEDIATELY IN CASE OF ANY INTERRUPTION IN AIRPORT UTILITIES OR FACILITIES. THE AIRPORT SHALL TAKE THE NECESSARY ACTION TO CLOSE AIRFIELD PAVEMENTS, INFORM ARFF/EMERGENCY RESPONSE PERSONNEL OF INTERRUPTIONS, AND/OR ISSUE NOTAMS IF INTERRUPTIONS AFFECT AIRCRAFT/AIRPORT OPERATIONS. REFER TO SECTION 9.A FOR CONTACT INFORMATION.
- IN CASE OF EMERGENCY, THE CONTRACTOR SHALL TAKE APPROPRIATE ACTIONS TO CONTACT FIRE, MEDICAL OR POLICE RESPONSE. THE EMERGENCY NOTIFICATION NUMBER IS 911.

D. COORDINATION WITH ARFF/EMERGENCY RESPONSE PERSONNEL
- THE OWNER WILL COORDINATE ALL AIRFIELD CLOSURES (AS NECESSARY) WITH AIRCRAFT RESCUE & FIRE FIGHTING (ARFF)/EMERGENCY RESPONSE PERSONNEL.
- THE CONTRACTOR SHALL AT ALL TIMES GIVE RIGHT-OF-WAY TO AIRCRAFT RESCUE AND FIRE FIGHTING (ARFF)/EMERGENCY RESPONSE VEHICLES.

E. NOTIFICATION TO THE FAA: THE OWNER WILL SUBMIT FAA FORM 7460-1, NOTIFICATION OF PROPOSED CONSTRUCTION ALTERATION, FOR ANY EQUIPMENT OVER 25' TALL.

10. INSPECTION REQUIREMENTS (AC 150/5370-2G, SECTION 2.14)

A. DAILY (OR MORE FREQUENT) INSPECTIONS
- THE CONTRACTOR SHALL COMPLETE DAILY INSPECTIONS TO ENSURE CONFORMANCE TO THE CSPP AND SPCD. ANY DEFICIENCIES FOUND WHETHER CAUSED BY NEGLIGENCE, OVERSIGHT, OR PROJECT SCOPE CHANGE SHALL BE IMMEDIATELY REMEDIED. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR INITIATING, MAINTAINING AND SUPERVISING ALL SAFETY MEASURES & PROGRAMS IN CONNECTION WITH THE WORK.
- THE CONTRACTORS/SUBCONTRACTORS ARE ENCOURAGED TO HOLD PERIODIC MEETINGS IN ADDITION TO THE OWNER'S BI-WEEKLY MEETINGS, PRIOR TO STARTING WORK AND PRIOR TO A NEW CONSTRUCTION OPERATION TO BRIEF EMPLOYEES & WORKERS ON PROJECT SAFETY REQUIREMENTS.

B. INTERIM INSPECTIONS
- PRIOR TO RE-OPENING ANY APRON OR TAXIWAY AREAS, THE AREAS SHALL BE INSPECTED BY THE OWNER/ENGINEER TO ENSURE, AS APPLICABLE, PROPER OPERATION OF LIGHTS AND SIGNS, CORRECT MARKINGS, AND ABSENCE OF FOD. ALL DEFICIENCIES FOUND SHALL BE REMEDIED BY THE CONTRACTOR TO THE APPROVAL OF THE OWNER PRIOR TO OPENING THE AREA TO AIRCRAFT TRAFFIC. THE CONTRACTOR SHOULD RETAIN SUITABLE WORKFORCE AND EQUIPMENT ON-SITE TO COMPLETE ANY LAST-MINUTE CLEANUP OR CORRECTIONS REQUIRED BY THE OWNER.
- REFER TO SECTION 7 "FOREIGN OBJECT DEBRIS MANAGEMENT".

C. FINAL INSPECTIONS: AFTER SUBSTANTIAL COMPLETION OF ALL PHASES OF THE WORK, OR PRIOR TO A TEMPORARY SHUTDOWN, THE OWNER/ENGINEER SHALL COMPLETE A FINAL INSPECTION COVERING ALL AREAS AFFECTED BY OR OPERATED WITHIN DURING THE WORK.

11. UNDERGROUND UTILITIES (AC 150-5370-2G, SECTION 2.15)

A. EXISTING UNDERGROUND AND OVERHEAD UTILITIES AND DRAINAGE STRUCTURES HAVE BEEN PLOTTED FROM AVAILABLE INFORMATION AND THEREFORE THEIR LOCATIONS MUST BE CONSIDERED APPROXIMATE ONLY. IT IS THE RESPONSIBILITY OF INDIVIDUAL CONTRACTORS TO EXACTLY LOCATE AND PROTECT EACH EXISTING UTILITY BEFORE AND DURING ACTUAL CONSTRUCTION. PRIOR TO BEGINNING ANY WORK, THE CONTRACTOR SHALL HAVE CONTACTED GEORGIA'S 811 AND COMPLETED PRIVATE UTILITY LOCATES FOR MARKING AND CLEARING OF ELECTRIC, TELEPHONE, GAS, WATER, SEWER, COMMUNICATIONS, LIGHTING LINES, FUEL TANKS AND OTHER CABLES/UTILITIES WITHIN THE CONSTRUCTION SITE, STAGING AREA, AND HAUL ROUTE LOCATIONS.

12. PENALTIES (AC 150/5730-2G, SECTION 2.16)

AT THE DISCRETION OF THE OWNER, FAILURE OF PERSONNEL TO COMPLY WITH ANY OR ALL SAFETY REQUIREMENTS MAY RESULT IN REMOVAL FROM THE PROJECT, REMOVAL FROM AIRPORT PROPERTY OR SUSPENSION/TERMINATION OF WORK, OTHER PENALTIES OR FINES.

13. SPECIAL CONDITIONS (AC 150/5370-2G, SECTION 2.17)

NO OTHER SPECIAL CONDITIONS ARE REQUIRED FOR THIS PROJECT.

14. RUNWAY AND TAXIWAY VISUAL AIDS (AC 150/5370-2G, SECTION 2.18)

A. GENERAL
- ALL AIRPORT MARKING, LIGHTING, SIGNS AND VISUAL NAVAIDS MUST BE CLEARLY VISIBLE, NOT MISLEADING, CONFUSING OR DECEPTIVE TO PILOTS AND MUST BE ADEQUATELY SECURED TO PREVENT UNINTENDED RELOCATION. CONTRACTORS SHALL CLEAN ALL SAFETY MEASURES AS REQUIRED TO ENSURE THE SAFETY MEASURES ARE FULLY VISIBLE (ESPECIALLY REFLECTIVE MARKINGS) AT ALL TIMES.
- AS REQUIRED BY THE CSPP DRAWINGS AND AS DIRECTED BY THE OWNER, THE CONTRACTOR SHALL FURNISH (UNLESS OTHERWISE SPECIFIED TO BE OWNER-FURNISHED)/INSTALL/MAINTAIN/REMOVE ALL TEMPORARY PROJECT SAFETY MEASURES. THE CONTRACTOR SHALL BE RESPONSIBLE TO ADEQUATELY SECURE AND MAINTAIN ALL SAFETY MEASURES ASSOCIATED WITH THE PROJECT WORK. THIS INCLUDES, BUT IS NOT LIMITED TO, FILLING/RE-FILLING WATER FILLED BARRICADES WITH SUFFICIENT WATER TO ADEQUATELY WEIGH DOWN BARRICADES; CLEANING OFF BARRICADES/SIGNAGE TO ENSURE ALL ELEMENTS ARE READILY VISIBLE, REPLACING/FIXING DEFECTIVE BARRICADES SO THAT THEY ARE FULLY OPERATIONAL; TOUCHING UP AIRFIELD MARKINGS DAMAGED OR FADED BY CONTRACTOR CONSTRUCTION OPERATIONS; ERECTING AND REMOVING SIGNAGE TO DIRECT TRAFFIC AROUND CONSTRUCTION ACTIVITIES.

B. MARKINGS: ALL PERMANENT AND TEMPORARY MARKING MUST BE IN COMPLIANCE WITH THE STANDARDS OF *AC 150/5340-1 (CURRENT EDITION) STANDARDS FOR AIRPORT MARKINGS AND PROJECT SPECIFICATIONS*. ITEMS USED TO SECURE NON-PAINT MARKINGS (FABRIC, PLASTIC, PLYWOOD) SHALL BE OF A SIMILAR COLOR TO THE MARKING.

C. LIGHTING AND VISUAL NAVAIDS
- ALL AIRFIELD LIGHTING ADJUSTMENTS MUST BE COORDINATED WITH AND APPROVED BY THE OWNER PRIOR TO DEACTIVATION OR REACTIVATION.
- AIRFIELD LIGHTING MUST CONFORM WITH *AC 150/5340-30 (CURRENT EDITION) DESIGN AND INSTALLATION DETAILS FOR AIRPORT VISUAL AIDS* AND *AC 150/5345-53 (CURRENT EDITION) AIRPORT LIGHTING CERTIFICATION PROGRAM*. REFER TO *AC 150/5340-26 (CURRENT EDITION) MAINTENANCE OF AIRPORT VISUAL AID FACILITIES* FOR DISCONNECT PROCEDURES AND SAFETY PRECAUTIONS.

D. SIGNS: THE CONTRACTOR SHALL INSTALL TEMPORARY SIGNAGE AS REQUIRED ON THE CSPP DRAWINGS. LANDSIDE (ROADWAY TYPE) SIGNAGE SHALL ADHERE TO ALL MUTCD REQUIREMENTS.

15. MARKING AND SIGNS FOR ACCESS ROUTES (AC 150/5370-2G, SECTION 2.19)

A. PAVEMENT MARKING AND SIGNS FOR CONSTRUCTION PERSONNEL WILL CONFORM TO *AC 150/5340-18 (CURRENT EDITION) STANDARDS FOR AIRPORT SIGN SYSTEMS* AND WITH THE APPLICABLE SECTIONS OF THE FEDERAL HIGHWAY ADMINISTRATION (FHWA) MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).

B. REFER TO SECTION 5.B.3 FOR MORE INFORMATION ON ACCESS ROUTES/HAUL ROUTES.

16. HAZARD MARKING AND LIGHTING (AC 150/5370-2G, SECTION 2.20)

A. PURPOSE
- HAZARD MARKING AND LIGHTING SHALL BE USED TO PREVENT PILOTS FROM ENTERING AREAS CLOSED TO AIRCRAFT AND PREVENT CONSTRUCTION PERSONAL FROM ENTERING AREAS OPEN TO AIRCRAFT.
- REFER TO CSPP DRAWINGS FOR HAZARD MARKING AND LIGHTING REQUIRED ON PROJECT.
- AS REQUIRED BY SECTION 9.A, THE CONTRACTOR SHALL PROVIDE A POINT OF CONTACT WITH THE SPCD THAT CAN BE REACHED 24 HOURS A DAY FOR EMERGENCY MAINTENANCE OF CONSTRUCTION HAZARD LIGHTING AND BARRICADES.
- REFER TO SECTION 14.A FOR MAINTENANCE OF HAZARD MARKING AND LIGHTING.

B. EQUIPMENT

1. BARRICADES
- BARRICADES ON OR NEAR AIRFIELD PAVEMENT SHALL MEET THE REQUIREMENTS SHOWN ON THE CSPP DRAWINGS.
- REFER TO CSPP DRAWINGS FOR BARRICADE PLACEMENT LOCATIONS.
- BARRICADES SHALL BE PLACED END TO END WITH NO GAPS (UNLESS OTHERWISE SPECIFIED).
- BARRICADES (AND ANY ATTACHED RED LIGHTS) SHALL BE NO HIGHER THAN 18" TALL.
- THE CONTRACTOR SHALL SUPPLEMENT AIRPORT LOW PROFILE BARRICADES WITH SIGNAGE AS REQUIRED ON THE CSPP DRAWINGS.

2. LIGHTS
- ALL LIGHTS ON BARRICADES SHALL BE EITHER STEADY BURNING OR FLASHING RED AND MEET THE LUMINANCE REQUIREMENTS OF THE STATE HIGHWAY DEPARTMENT. LIGHTS SHALL BE MOUNTED ON THE BARRICADES AND SPACED AT NO MORE THAN 10' APART. LIGHTS MUST BE OPERATIONAL BETWEEN SUNSET AND SUNRISE AND DURING PERIODS OF LOW VISIBILITY WHENEVER THE AIRPORT IS OPEN FOR OPERATION. OPEN TRENCHES, SMALL AREAS UNDER REPAIR, WASTE AREAS, AND STOCKPILES LOCATED IN SAFETY AREAS SHALL HAVE HAZARD MARKING AND LIGHTING DEVICES.

3. RUNWAY CLOSURE X'S
RUNWAY CLOSURE X'S ARE REQUIRED AS PART OF THIS PROJECT. CLOSED RUNWAYS SHALL HAVE RUNWAY CLOSURE X'S PLACED ON EACH END PRIOR TO ANY WORK BEING ACCOMPLISHED WITHIN THE RUNWAY SAFETY AREA.

4. OTHER
HAZARD MARKING AND LIGHTING MUST BE SPECIFIED TO IDENTIFY OPEN AREAS UNDER REPAIR, STOCKPILED MATERIAL, WASTE AREAS, AND AREAS SUBJECT TO JET BLAST WHEN APPLICABLE.

17. WORK ZONE LIGHTING FOR NIGHTTIME CONSTRUCTION (AC 150/5370-2G, 2.21)

NIGHTTIME CONSTRUCTION NOT PERMITTED FOR THIS PROJECT.

18. PROTECTION OF RSA, TSA, ROFA, ROFZ, & APPROACH/DEPARTURE SURFACES (2.22)

IN NO CASE SHALL THE CONTRACTOR PENETRATE ANY ACTIVE RUNWAY, TAXIWAY, OR APRON SAFETY AREA WITHOUT OWNER APPROVAL AND PROPER OWNER-TRAINED ESCORTS.

A. RUNWAY SAFETY AREA (RSA): NO CONSTRUCTION MAY OCCUR WITHIN AN EXISTING RSA WHILE THE TAXIWAY IS OPEN FOR AIRCRAFT OPERATIONS. ALL EQUIPMENT NOT IN USE (OVERNIGHT, WEEKENDS,PERIODS WITH NO CONSTRUCTION ACTIVITY, ETC.) MUST BE REMOVED FROM RSA'S. NO STOCKPILING SHALL BE ALLOWED IN RSA'S, UNLESS OTHERWISE APPROVED BY THE OWNER AND FAA. OPEN TRENCHES OR EXCAVATIONS ARE NOT PERMITTED WITHIN THE RSA, SUBJECT TO APPROVED EXCEPTIONS.

B. RUNWAY OBJECT FREE AREA (ROFA): NO CONSTRUCTION MAY OCCUR WITHIN AN EXISTING ROFA WHILE THE TAXIWAY IS OPEN FOR AIRCRAFT OPERATIONS. ALL EQUIPMENT NOT IN USE (OVERNIGHT, WEEKENDS,PERIODS WITH NO CONSTRUCTION ACTIVITY, ETC.) MUST BE REMOVED FROM ROFA'S. NO STOCKPILING SHALL BE ALLOWED IN ROFA'S, UNLESS OTHERWISE APPROVED BY THE OWNER AND FAA. OPEN TRENCHES OR EXCAVATIONS ARE NOT PERMITTED WITHIN THE ROFA'S, SUBJECT TO APPROVED EXCEPTIONS.

C. TAXIWAY SAFETY AREA (TSA): NO CONSTRUCTION MAY OCCUR WITHIN AN EXISTING TSA WHILE THE TAXIWAY IS OPEN FOR AIRCRAFT OPERATIONS. ALL EQUIPMENT NOT IN USE (OVERNIGHT, WEEKENDS,PERIODS WITH NO CONSTRUCTION ACTIVITY, ETC.) MUST BE REMOVED FROM TSA'S. NO STOCKPILING SHALL BE ALLOWED IN TSA'S, UNLESS OTHERWISE APPROVED BY THE OWNER AND FAA. OPEN TRENCHES OR EXCAVATIONS ARE NOT PERMITTED WITHIN THE TSA, SUBJECT TO APPROVED EXCEPTIONS.

D. TAXIWAY OBJECT FREE AREA (TOFA): NO CONSTRUCTION MAY OCCUR WITHIN AN EXISTING TOFA WHILE THE TAXIWAY IS OPEN FOR AIRCRAFT OPERATIONS. ALL EQUIPMENT NOT IN USE (OVERNIGHT, WEEKENDS, PERIODS WITH NO CONSTRUCTION ACTIVITY, ETC.) MUST BE REMOVED FROM TOFA'S. NO STOCKPILING SHALL BE ALLOWED IN TOFA'S, UNLESS OTHERWISE APPROVED BY THE OWNER AND FAA.

E. OBSTACLE FREE ZONE (OFZ): WORK WILL BE ACCOMPLISHED WITHIN OBSTACLE FREE ZONES, APPLICABLE DURING RUNWAY CLOSURES.

F. RUNWAY APPROACH/DEPARTURE SURFACES: NO WORK TO BE ACCOMPLISHED WITHIN RUNWAY APPROACH/DEPARTURE SURFACES WHILE RUNWAYS ARE ACTIVE.

19. OTHER LIMITATIONS ON CONSTRUCTION (AC 150/5370-2G, SECTION 2.23)

A. PROHIBITIONS
- THE USE OF TALL EQUIPMENT (CRANES, TEMPORARY PCC/ACC PLANTS, CONCRETE PUMPS, ETC.) ARE PROHIBITED ON THE AIRPORT, UNLESS A 7460-1 LETTER OF NO OBJECTION HAS BEEN COORDINATED BY THE CONTRACTOR FOR SUCH EQUIPMENT AND A DETERMINATION OF "NON-HAZARD" IS RECEIVED FROM THE FAA.
- THE USE OF OPEN FLAME WELDING OR TORCHES ARE PROHIBITED UNLESS FIRE SAFETY PRECAUTIONS ARE PROVIDED AND THE AIRPORT OWNER HAS APPROVED THEIR USE IN WRITING.
- THE USE OF ELECTRICAL BLASTING CAPS ON OR WITHIN 1,000 FEET OF THE AIRPORT PROPERTY ARE STRICTLY PROHIBITED.
- THE USE OF FLARE POTS IS PROHIBITED WITHIN THE AOA AT ALL TIMES.

B. RESTRICTIONS
- PHASING RESTRICTIONS: ALL PHASING SHALL BE COMPLETED IN THE ORDER SHOWN ON THE CSPP DRAWINGS, UNLESS OTHERWISE APPROVED BY THE OWNER. A PHASE MUST BE COMPLETE PRIOR TO STARTING A NEW PHASE, UNLESS OTHERWISE APPROVED BY THE OWNER. WORK SHALL BE COMPLETED DURING THE HOURS AND NIGHTS/DAYS LISTED ON EACH INDIVIDUAL PHASING PLAN CSPP DRAWINGS.
- HAUL ROUTE & LOCATION OF CONSTRUCTION RESTRICTIONS: THE CONTRACTOR SHALL LIMIT OPERATIONS TO THE WORK AREAS SHOWN ON THE SAFETY/SEQUENCING PLAN(S) AND TO THOSE AREAS WITHIN 50' OF HAUL ROUTES, GRADING AREAS, BORROW AREAS, WASTE AREAS, STAGING AREA(S) AS SHOWN ON THE CSPP DRAWINGS AND DEFINED IN THE SPECIFICATIONS. CONTRACTOR'S VEHICLES (I.E. PCC TRUCKS, LOW BOY SEMIS) SHALL COMPLY WITH ALL LEGAL LOCAL DOT VEHICLE LOAD LIMITS/REGULATIONS WHILE OPERATING ON OR AROUND AIRPORT PROPERTY.
- NIGHT WORK: NO NIGHT WORK REQUIRED TO BE COMPLETED AS PART OF THIS PROJECT.
- GRADING OR STOCKPILING NEAR NAVAIDS: GRADING OR STOCKPILING WITHIN PROXIMITY OF ACTIVE NAVAIDS SHALL NOT BE ALLOWED FOR THIS PROJECT.

GEORGIA REGISTERED 04/16/2025 No. 043370 PROFESSIONAL ENGINEER ALEXANDER K. MOONE

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95% DOT SUBMITAL	-	7/1/2024

PROJECT: TAXIWAY 'A' PAVEMENT REHAB & LIGHTING
DATE: APRIL 2025

CONSTRUCTION SAFETY & PHASING PLAN (CSPP) - NOTES - SHEET 2

LAGRANGE - CALLAWAY AIRPORT (LGC) LAGRANGE, GA

benesch
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Atlanta, Georgia 30308
706-722-4114 - Job No. - 19024029.01

DRAWN BY: D.L. | DESIGNED BY: KRT | REVIEWED BY: AWB | QUANTITIES CHECKED BY: AKM

SHEET 18/96 | DRAWING NO. CSPP-5

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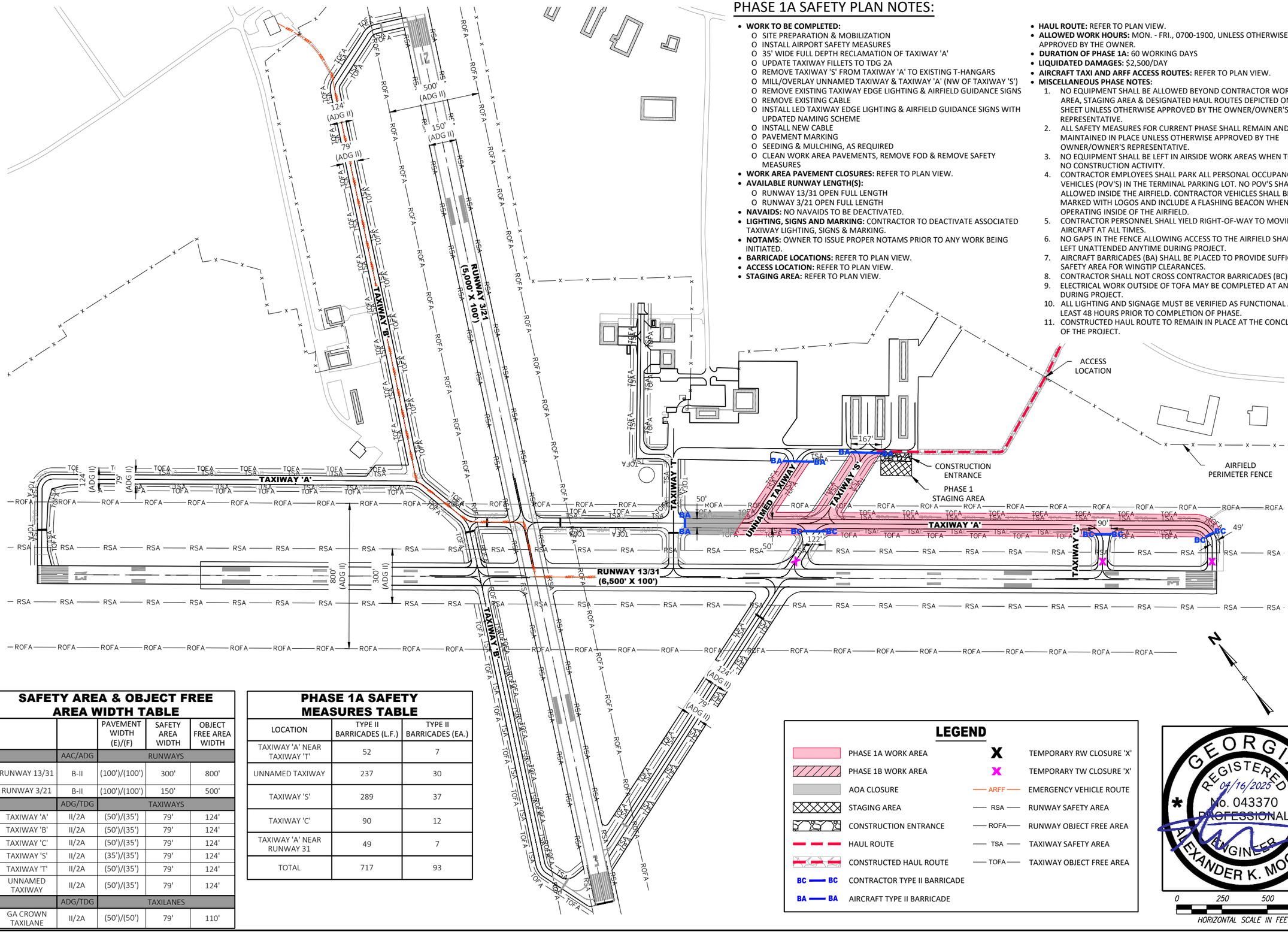

PHASE 1A SAFETY PLAN NOTES:

- **WORK TO BE COMPLETED:**
  - O SITE PREPARATION & MOBILIZATION
  - O INSTALL AIRPORT SAFETY MEASURES
  - O 35' WIDE FULL DEPTH RECLAMATION OF TAXIWAY 'A'
  - O UPDATE TAXIWAY FILLETS TO TDG 2A
  - O REMOVE TAXIWAY 'S' FROM TAXIWAY 'A' TO EXISTING T-HANGARS
  - O MILL/OVERLAY UNNAMED TAXIWAY & TAXIWAY 'A' (NW OF TAXIWAY 'S')
  - O REMOVE EXISTING TAXIWAY EDGE LIGHTING & AIRFIELD GUIDANCE SIGNS
  - O REMOVE EXISTING CABLE
  - O INSTALL LED TAXIWAY EDGE LIGHTING & AIRFIELD GUIDANCE SIGNS WITH UPDATED NAMING SCHEME
  - O INSTALL NEW CABLE
  - O PAVEMENT MARKING
  - O SEEDING & MULCHING, AS REQUIRED
  - O CLEAN WORK AREA PAVEMENTS, REMOVE FOD & REMOVE SAFETY MEASURES
- **WORK AREA PAVEMENT CLOSURES:** REFER TO PLAN VIEW.
- **AVAILABLE RUNWAY LENGTH(S):**
  - O RUNWAY 13/31 OPEN FULL LENGTH
  - O RUNWAY 3/21 OPEN FULL LENGTH
- **NAVAIDS:** NO NAVAIDS TO BE DEACTIVATED.
- **LIGHTING, SIGNS AND MARKING:** CONTRACTOR TO DEACTIVATE ASSOCIATED TAXIWAY LIGHTING, SIGNS & MARKING.
- **NOTAMS:** OWNER TO ISSUE PROPER NOTAMS PRIOR TO ANY WORK BEING INITIATED.
- **BARRICADE LOCATIONS:** REFER TO PLAN VIEW.
- **ACCESS LOCATION:** REFER TO PLAN VIEW.
- **STAGING AREA:** REFER TO PLAN VIEW.
- **HAUL ROUTE:** REFER TO PLAN VIEW.
- **ALLOWED WORK HOURS:** MON. - FRI., 0700-1900, UNLESS OTHERWISE APPROVED BY THE OWNER.
- **DURATION OF PHASE 1A:** 60 WORKING DAYS
- **LIQUIDATED DAMAGES:** $2,500/DAY
- **AIRCRAFT TAXI AND ARFF ACCESS ROUTES:** REFER TO PLAN VIEW.
- **MISCELLANEOUS PHASE NOTES:**
  1. NO EQUIPMENT SHALL BE ALLOWED BEYOND CONTRACTOR WORK AREA, STAGING AREA & DESIGNATED HAUL ROUTES DEPICTED ON THIS SHEET UNLESS OTHERWISE APPROVED BY THE OWNER/OWNER'S REPRESENTATIVE.
  2. ALL SAFETY MEASURES FOR CURRENT PHASE SHALL REMAIN AND BE MAINTAINED IN PLACE UNLESS OTHERWISE APPROVED BY THE OWNER/OWNER'S REPRESENTATIVE.
  3. NO EQUIPMENT SHALL BE LEFT IN AIRSIDE WORK AREAS WHEN THERE IS NO CONSTRUCTION ACTIVITY.
  4. CONTRACTOR EMPLOYEES SHALL PARK ALL PERSONAL OCCUPANCY VEHICLES (POV'S) IN THE TERMINAL PARKING LOT. NO POV'S SHALL BE ALLOWED INSIDE THE AIRFIELD. CONTRACTOR VEHICLES SHALL BE MARKED WITH LOGOS AND INCLUDE A FLASHING BEACON WHEN OPERATING INSIDE OF THE AIRFIELD.
  5. CONTRACTOR PERSONNEL SHALL YIELD RIGHT-OF-WAY TO MOVING AIRCRAFT AT ALL TIMES.
  6. NO GAPS IN THE FENCE ALLOWING ACCESS TO THE AIRFIELD SHALL BE LEFT UNATTENDED ANYTIME DURING PROJECT.
  7. AIRCRAFT BARRICADES (BA) SHALL BE PLACED TO PROVIDE SUFFICIENT SAFETY AREA FOR WINGTIP CLEARANCES.
  8. CONTRACTOR SHALL NOT CROSS CONTRACTOR BARRICADES (BC).
  9. ELECTRICAL WORK OUTSIDE OF TOFA MAY BE COMPLETED AT ANYTIME DURING PROJECT.
  10. ALL LIGHTING AND SIGNAGE MUST BE VERIFIED AS FUNCTIONAL AT LEAST 48 HOURS PRIOR TO COMPLETION OF PHASE.
  11. CONSTRUCTED HAUL ROUTE TO REMAIN IN PLACE AT THE CONCLUSION OF THE PROJECT.

SAFETY AREA & OBJECT FREE AREA WIDTH TABLE

		PAVEMENT WIDTH (E)/(F)	SAFETY AREA WIDTH	OBJECT FREE AREA WIDTH
	AAC/ADG	RUNWAYS		
RUNWAY 13/31	B-II	(100')/(100')	300'	800'
RUNWAY 3/21	B-II	(100')/(100')	150'	500'
	ADG/TDG	TAXIWAYS		
TAXIWAY 'A'	II/2A	(50')/(35')	79'	124'
TAXIWAY 'B'	II/2A	(50')/(35')	79'	124'
TAXIWAY 'C'	II/2A	(50')/(35')	79'	124'
TAXIWAY 'S'	II/2A	(35')/(35')	79'	124'
TAXIWAY 'T'	II/2A	(50')/(35')	79'	124'
UNNAMED TAXIWAY	II/2A	(50')/(35')	79'	124'
	ADG/TDG	TAXILANES		
GA CROWN TAXILANE	II/2A	(50')/(50')	79'	110'

PHASE 1A SAFETY MEASURES TABLE

LOCATION	TYPE II BARRICADES (L.F.)	TYPE II BARRICADES (EA.)
TAXIWAY 'A' NEAR TAXIWAY 'T'	52	7
UNNAMED TAXIWAY	237	30
TAXIWAY 'S'	289	37
TAXIWAY 'C'	90	12
TAXIWAY 'A' NEAR RUNWAY 31	49	7
TOTAL	717	93

LEGEND

- PHASE 1A WORK AREA
- PHASE 1B WORK AREA
- AOA CLOSURE
- STAGING AREA
- CONSTRUCTION ENTRANCE
- HAUL ROUTE
- CONSTRUCTED HAUL ROUTE
- BC — BC CONTRACTOR TYPE II BARRICADE
- BA — BA AIRCRAFT TYPE II BARRICADE
- X TEMPORARY RW CLOSURE 'X'
- X TEMPORARY TW CLOSURE 'X'
- ARFF EMERGENCY VEHICLE ROUTE
- RSA RUNWAY SAFETY AREA
- ROFA RUNWAY OBJECT FREE AREA
- TSA TAXIWAY SAFETY AREA
- TOFA TAXIWAY OBJECT FREE AREA

GEORGIA REGISTERED 04/16/2025 No. 043370 PROFESSIONAL ENGINEER ALEXANDER K. MOONE

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HORIZONTAL SCALE IN FEET

NO.	REVISIONS	DATE
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PROJECT: TAXIWAY 'A' PAVEMENT REHAB & LIGHTING
DATE: APRIL 2025

CONSTRUCTION SAFETY & PHASING PLAN (CSPP) - PHASE 1A

LAGRANGE - CALLAWAY AIRPORT (LGC) LAGRANGE, GA

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706-722-4114

Job No. - 19024029.01

DRAWN BY: D.JL | DESIGNED BY: KRT | REVIEWED BY: AWB | QUANTITIES CHECKED BY: AKM

SHEET 19/96 | DRAWING NO. CSPP-6

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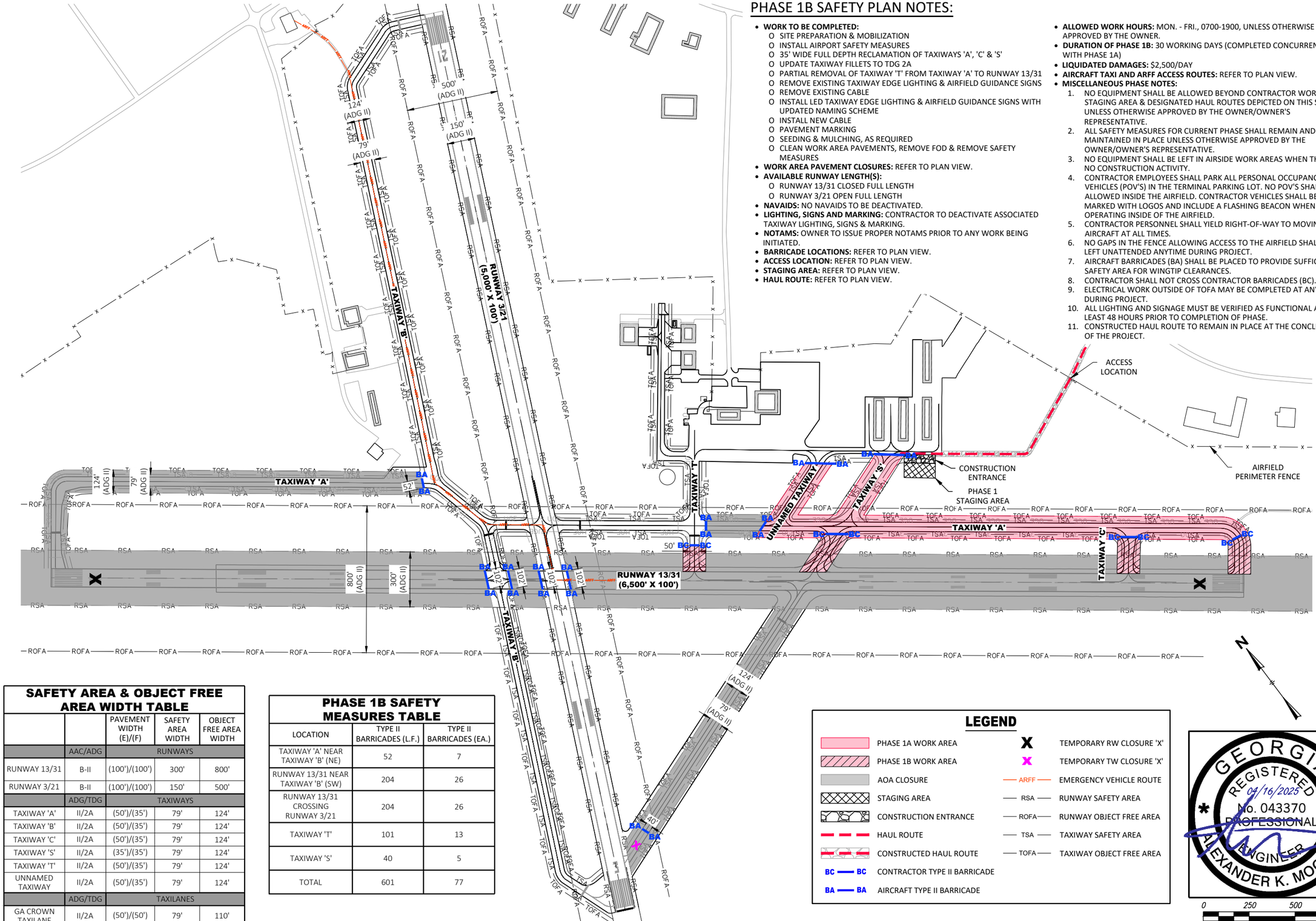

PHASE 1B SAFETY PLAN NOTES:

- **WORK TO BE COMPLETED:**
  - O SITE PREPARATION & MOBILIZATION
  - O INSTALL AIRPORT SAFETY MEASURES
  - O 35' WIDE FULL DEPTH RECLAMATION OF TAXIWAYS 'A', 'C' & 'S'
  - O UPDATE TAXIWAY FILLETS TO TDG 2A
  - O PARTIAL REMOVAL OF TAXIWAY 'T' FROM TAXIWAY 'A' TO RUNWAY 13/31
  - O REMOVE EXISTING TAXIWAY EDGE LIGHTING & AIRFIELD GUIDANCE SIGNS
  - O REMOVE EXISTING CABLE
  - O INSTALL LED TAXIWAY EDGE LIGHTING & AIRFIELD GUIDANCE SIGNS WITH UPDATED NAMING SCHEME
  - O INSTALL NEW CABLE
  - O PAVEMENT MARKING
  - O SEEDING & MULCHING, AS REQUIRED
  - O CLEAN WORK AREA PAVEMENTS, REMOVE FOD & REMOVE SAFETY MEASURES
- **WORK AREA PAVEMENT CLOSURES:** REFER TO PLAN VIEW.
- **AVAILABLE RUNWAY LENGTH(S):**
  - O RUNWAY 13/31 CLOSED FULL LENGTH
  - O RUNWAY 3/21 OPEN FULL LENGTH
- **NAVAIDS:** NO NAVAIDS TO BE DEACTIVATED.
- **LIGHTING, SIGNS AND MARKING:** CONTRACTOR TO DEACTIVATE ASSOCIATED TAXIWAY LIGHTING, SIGNS & MARKING.
- **NOTAMS:** OWNER TO ISSUE PROPER NOTAMS PRIOR TO ANY WORK BEING INITIATED.
- **BARRICADE LOCATIONS:** REFER TO PLAN VIEW.
- **ACCESS LOCATION:** REFER TO PLAN VIEW.
- **STAGING AREA:** REFER TO PLAN VIEW.
- **HAUL ROUTE:** REFER TO PLAN VIEW.
- **ALLOWED WORK HOURS:** MON. - FRI., 0700-1900, UNLESS OTHERWISE APPROVED BY THE OWNER.
- **DURATION OF PHASE 1B:** 30 WORKING DAYS (COMPLETED CONCURRENTLY WITH PHASE 1A)
- **LIQUIDATED DAMAGES:** $2,500/DAY
- **AIRCRAFT TAXI AND ARFF ACCESS ROUTES:** REFER TO PLAN VIEW.
- **MISCELLANEOUS PHASE NOTES:**
  1. NO EQUIPMENT SHALL BE ALLOWED BEYOND CONTRACTOR WORK AREA, STAGING AREA & DESIGNATED HAUL ROUTES DEPICTED ON THIS SHEET UNLESS OTHERWISE APPROVED BY THE OWNER/OWNER'S REPRESENTATIVE.
  2. ALL SAFETY MEASURES FOR CURRENT PHASE SHALL REMAIN AND BE MAINTAINED IN PLACE UNLESS OTHERWISE APPROVED BY THE OWNER/OWNER'S REPRESENTATIVE.
  3. NO EQUIPMENT SHALL BE LEFT IN AIRSIDE WORK AREAS WHEN THERE IS NO CONSTRUCTION ACTIVITY.
  4. CONTRACTOR EMPLOYEES SHALL PARK ALL PERSONAL OCCUPANCY VEHICLES (POV'S) IN THE TERMINAL PARKING LOT. NO POV'S SHALL BE ALLOWED INSIDE THE AIRFIELD. CONTRACTOR VEHICLES SHALL BE MARKED WITH LOGOS AND INCLUDE A FLASHING BEACON WHEN OPERATING INSIDE OF THE AIRFIELD.
  5. CONTRACTOR PERSONNEL SHALL YIELD RIGHT-OF-WAY TO MOVING AIRCRAFT AT ALL TIMES.
  6. NO GAPS IN THE FENCE ALLOWING ACCESS TO THE AIRFIELD SHALL BE LEFT UNATTENDED ANYTIME DURING PROJECT.
  7. AIRCRAFT BARRICADES (BA) SHALL BE PLACED TO PROVIDE SUFFICIENT SAFETY AREA FOR WINGTIP CLEARANCES.
  8. CONTRACTOR SHALL NOT CROSS CONTRACTOR BARRICADES (BC).
  9. ELECTRICAL WORK OUTSIDE OF TOFA MAY BE COMPLETED AT ANYTIME DURING PROJECT.
  10. ALL LIGHTING AND SIGNAGE MUST BE VERIFIED AS FUNCTIONAL AT LEAST 48 HOURS PRIOR TO COMPLETION OF PHASE.
  11. CONSTRUCTED HAUL ROUTE TO REMAIN IN PLACE AT THE CONCLUSION OF THE PROJECT.

SAFETY AREA & OBJECT FREE AREA WIDTH TABLE

		PAVEMENT WIDTH (E)/(F)	SAFETY AREA WIDTH	OBJECT FREE AREA WIDTH
	AAC/ADG	RUNWAYS		
RUNWAY 13/31	B-II	(100')/(100')	300'	800'
RUNWAY 3/21	B-II	(100')/(100')	150'	500'
	ADG/TDG	TAXIWAYS		
TAXIWAY 'A'	II/2A	(50')/(35')	79'	124'
TAXIWAY 'B'	II/2A	(50')/(35')	79'	124'
TAXIWAY 'C'	II/2A	(50')/(35')	79'	124'
TAXIWAY 'S'	II/2A	(35')/(35')	79'	124'
TAXIWAY 'T'	II/2A	(50')/(35')	79'	124'
UNNAMED TAXIWAY	II/2A	(50')/(35')	79'	124'
	ADG/TDG	TAXILANES		
GA CROWN TAXILANE	II/2A	(50')/(50')	79'	110'

PHASE 1B SAFETY MEASURES TABLE

LOCATION	TYPE II BARRICADES (L.F.)	TYPE II BARRICADES (EA.)
TAXIWAY 'A' NEAR TAXIWAY 'B' (NE)	52	7
RUNWAY 13/31 NEAR TAXIWAY 'B' (SW)	204	26
RUNWAY 13/31 CROSSING RUNWAY 3/21	204	26
TAXIWAY 'T'	101	13
TAXIWAY 'S'	40	5
TOTAL	601	77

LEGEND

- PHASE 1A WORK AREA
- PHASE 1B WORK AREA
- AOA CLOSURE
- STAGING AREA
- CONSTRUCTION ENTRANCE
- HAUL ROUTE
- CONSTRUCTED HAUL ROUTE
- BC — BC CONTRACTOR TYPE II BARRICADE
- BA — BA AIRCRAFT TYPE II BARRICADE
- X TEMPORARY RW CLOSURE 'X'
- X TEMPORARY TW CLOSURE 'X'
- ARFF EMERGENCY VEHICLE ROUTE
- RSA RUNWAY SAFETY AREA
- ROFA RUNWAY OBJECT FREE AREA
- TSA TAXIWAY SAFETY AREA
- TOFA TAXIWAY OBJECT FREE AREA

GEORGIA REGISTERED 04/16/2025 No. 043370 PROFESSIONAL ENGINEER ALEXANDER K. MOONE

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PROJECT: TAXIWAY 'A' PAVEMENT REHAB & LIGHTING
DATE: APRIL 2025

CONSTRUCTION SAFETY & PHASING PLAN (CSPP) - PHASE 1B

LAGRANGE - CALLAWAY AIRPORT (LGC) LAGRANGE, GA

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Job No. - 19024029.01

DRAWN BY: D.JL. | DESIGNED BY: KRT | REVIEWED BY: AWB | QUANTITIES CHECKED BY: AKM

SHEET 20/96 | DRAWING NO. CSPP-7

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NOT FOR CONSTRUCTION

ENLARGEMENT 'A'

0 100 200 300
HORIZONTAL SCALE IN FEET

ENLARGEMENT 'B'

0 100 200 300
HORIZONTAL SCALE IN FEET

REFER TO ENLARGEMENT 'B' (THIS SHEET)

REFER TO ENLARGEMENT 'A' (THIS SHEET)

COVER ARROW LEFT

NOTES: (#)

1. Sign Coverings Shall Be Completed Concurrently With Airport Safety Measure Placement, Under Owner Escort.
2. Signs S28, S33, S34, S35, S36, S38, S39, And S42 To Be Covered For The Duration Of Phases 1A and 1B.
3. See Sheet E-10 For Sign Changes.
4. Contractor Shall Cover All Signs That Direct To Closed Taxiways And Runways.

LEGEND

- PHASE 1A WORK AREA
- PHASE 1B WORK AREA
- AOA CLOSURE
- TW EDGE LIGHTS
- COVER TW EDGE LIGHTS
- COVER SIGN
- RSA — RUNWAY SAFETY AREA
- ROFA — RUNWAY OBJECT FREE AREA
- TSA — TAXIWAY SAFETY AREA
- TOFA — TAXIWAY OBJECT FREE AREA

GEORGIA REGISTERED 04/16/2025 No. 043370 PROFESSIONAL ENGINEER ALEXANDER K. MOONE

0 250 500 750
HORIZONTAL SCALE IN FEET

NO.	REVISIONS	DATE
1	95% CDOT SUBMITAL	7/1/2024

PROJECT: TAXIWAY 'A' PAVEMENT REHAB & LIGHTING
DATE: APRIL 2025

CONSTRUCTION SAFETY & PHASING PLAN - SIGN ADJUSTMENT PLAN - (1)

LAGRANGE - CALLAWAY AIRPORT (LGC) LAGRANGE, GA

benesch
Alfred Benesch & Company
600 Peachtree Street NE - Suite 2410
Atlanta, Georgia 30308
708-724-4114 Job No. - 19024029.01

DRAWN BY: DJL | DESIGNED BY: KRT | REVIEWED BY: SMV | QUANTITIES CHECKED BY: MKM

SHEET 21/96 | DRAWING NO. CSPP-8

Last Saved: 3/26/2025 10:20:30 AM Saved By: DLEON Plotted: 4/10/2025 12:04 PM
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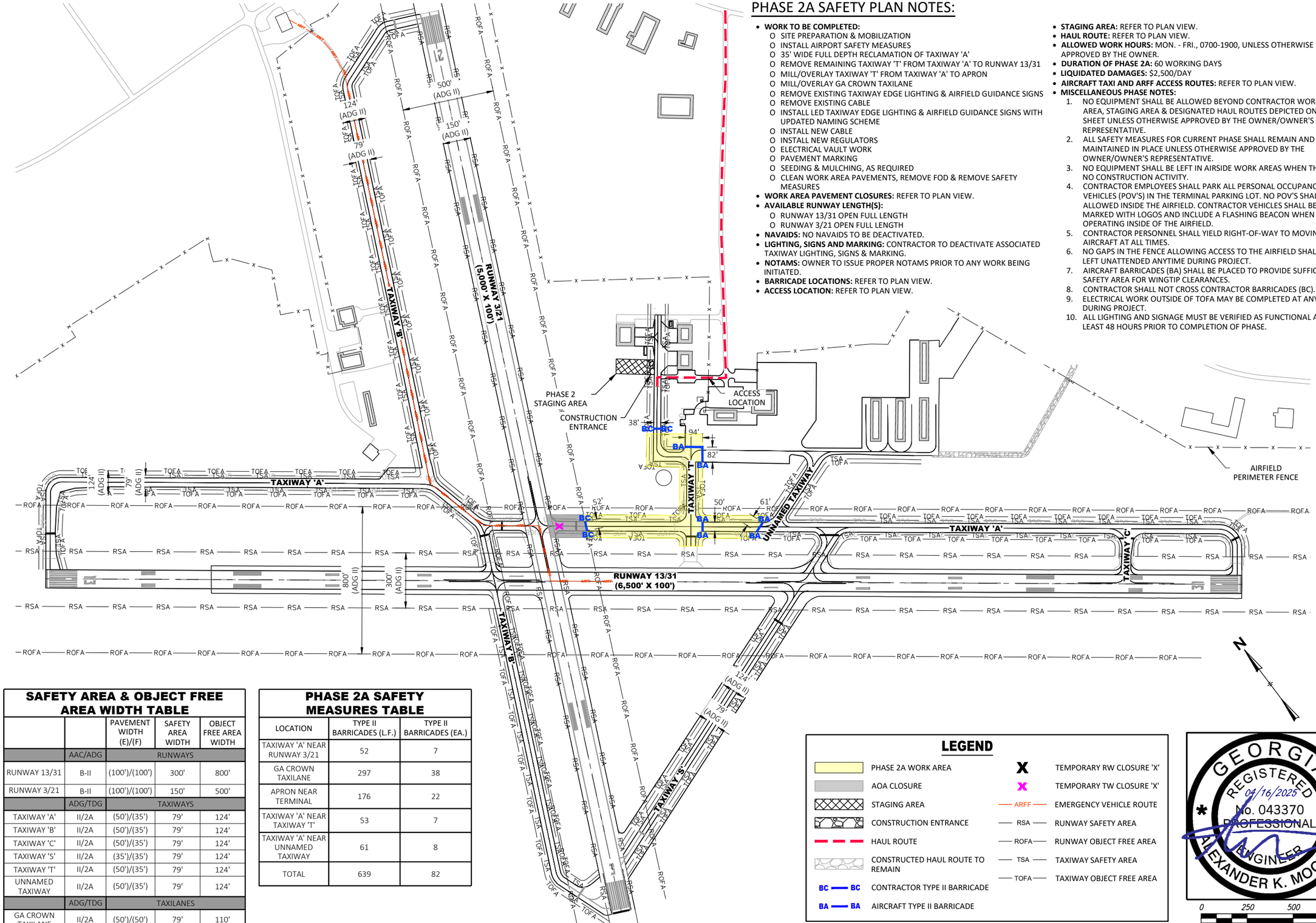
NOT FOR CONSTRUCTION



PHASE 2A SAFETY PLAN NOTES:

- **WORK TO BE COMPLETED:**
  - O SITE PREPARATION & MOBILIZATION
  - O INSTALL AIRPORT SAFETY MEASURES
  - O 35' WIDE FULL DEPTH RECLAMATION OF TAXIWAY 'A'
  - O REMOVE REMAINING TAXIWAY 'T' FROM TAXIWAY 'A' TO RUNWAY 13/31
  - O MILL/OVERLAY TAXIWAY 'T' FROM TAXIWAY 'A' TO APRON
  - O MILL/OVERLAY GA CROWN TAXILANE
  - O REMOVE EXISTING TAXIWAY EDGE LIGHTING & AIRFIELD GUIDANCE SIGNS
  - O REMOVE EXISTING CABLE
  - O INSTALL LED TAXIWAY EDGE LIGHTING & AIRFIELD GUIDANCE SIGNS WITH UPDATED NAMING SCHEME
  - O INSTALL NEW CABLE
  - O INSTALL NEW REGULATORS
  - O ELECTRICAL VAULT WORK
  - O PAVEMENT MARKING
  - O SEEDING & MULCHING, AS REQUIRED
  - O CLEAN WORK AREA PAVEMENTS, REMOVE FOD & REMOVE SAFETY MEASURES
- **WORK AREA PAVEMENT CLOSURES:** REFER TO PLAN VIEW.
- **AVAILABLE RUNWAY LENGTH(S):**
  - O RUNWAY 13/31 OPEN FULL LENGTH
  - O RUNWAY 3/21 OPEN FULL LENGTH
- **NAVAIDS:** NO NAVAIDS TO BE DEACTIVATED.
- **LIGHTING, SIGNS AND MARKING:** CONTRACTOR TO DEACTIVATE ASSOCIATED TAXIWAY LIGHTING, SIGNS & MARKING.
- **NOTAMS:** OWNER TO ISSUE PROPER NOTAMS PRIOR TO ANY WORK BEING INITIATED.
- **BARRICADE LOCATIONS:** REFER TO PLAN VIEW.
- **ACCESS LOCATION:** REFER TO PLAN VIEW.
- **STAGING AREA:** REFER TO PLAN VIEW.
- **HAUL ROUTE:** REFER TO PLAN VIEW.
- **ALLOWED WORK HOURS:** MON. - FRI., 0700-1900, UNLESS OTHERWISE APPROVED BY THE OWNER.
- **DURATION OF PHASE 2A:** 60 WORKING DAYS
- **LIQUIDATED DAMAGES:** $2,500/DAY
- **AIRCRAFT TAXI AND ARFF ACCESS ROUTES:** REFER TO PLAN VIEW.
- **MISCELLANEOUS PHASE NOTES:**
  1. NO EQUIPMENT SHALL BE ALLOWED BEYOND CONTRACTOR WORK AREA, STAGING AREA & DESIGNATED HAUL ROUTES DEPICTED ON THIS SHEET UNLESS OTHERWISE APPROVED BY THE OWNER/OWNER'S REPRESENTATIVE.
  2. ALL SAFETY MEASURES FOR CURRENT PHASE SHALL REMAIN AND BE MAINTAINED IN PLACE UNLESS OTHERWISE APPROVED BY THE OWNER/OWNER'S REPRESENTATIVE.
  3. NO EQUIPMENT SHALL BE LEFT IN AIRSIDE WORK AREAS WHEN THERE IS NO CONSTRUCTION ACTIVITY.
  4. CONTRACTOR EMPLOYEES SHALL PARK ALL PERSONAL OCCUPANCY VEHICLES (POV'S) IN THE TERMINAL PARKING LOT. NO POV'S SHALL BE ALLOWED INSIDE THE AIRFIELD. CONTRACTOR VEHICLES SHALL BE MARKED WITH LOGOS AND INCLUDE A FLASHING BEACON WHEN OPERATING INSIDE OF THE AIRFIELD.
  5. CONTRACTOR PERSONNEL SHALL YIELD RIGHT-OF-WAY TO MOVING AIRCRAFT AT ALL TIMES.
  6. NO GAPS IN THE FENCE ALLOWING ACCESS TO THE AIRFIELD SHALL BE LEFT UNATTENDED ANYTIME DURING PROJECT.
  7. AIRCRAFT BARRICADES (BA) SHALL BE PLACED TO PROVIDE SUFFICIENT SAFETY AREA FOR WINGTIP CLEARANCES.
  8. CONTRACTOR SHALL NOT CROSS CONTRACTOR BARRICADES (BC).
  9. ELECTRICAL WORK OUTSIDE OF TOFA MAY BE COMPLETED AT ANYTIME DURING PROJECT.
  10. ALL LIGHTING AND SIGNAGE MUST BE VERIFIED AS FUNCTIONAL AT LEAST 48 HOURS PRIOR TO COMPLETION OF PHASE.

SAFETY AREA & OBJECT FREE AREA WIDTH TABLE

		PAVEMENT WIDTH (E)/(F)	SAFETY AREA WIDTH	OBJECT FREE AREA WIDTH
	AAC/ADG	RUNWAYS		
RUNWAY 13/31	B-II	(100')/(100')	300'	800'
RUNWAY 3/21	B-II	(100')/(100')	150'	500'
	ADG/TDG	TAXIWAYS		
TAXIWAY 'A'	II/2A	(50')/(35')	79'	124'
TAXIWAY 'B'	II/2A	(50')/(35')	79'	124'
TAXIWAY 'C'	II/2A	(50')/(35')	79'	124'
TAXIWAY 'S'	II/2A	(35')/(35')	79'	124'
TAXIWAY 'T'	II/2A	(50')/(35')	79'	124'
UNNAMED TAXIWAY	II/2A	(50')/(35')	79'	124'
	ADG/TDG	TAXILANES		
GA CROWN TAXILANE	II/2A	(50')/(50')	79'	110'

PHASE 2A SAFETY MEASURES TABLE

LOCATION	TYPE II BARRICADES (L.F.)	TYPE II BARRICADES (EA.)
TAXIWAY 'A' NEAR RUNWAY 3/21	52	7
GA CROWN TAXILANE	297	38
APRON NEAR TERMINAL	176	22
TAXIWAY 'A' NEAR TAXIWAY 'T'	53	7
TAXIWAY 'A' NEAR UNNAMED TAXIWAY	61	8
TOTAL	639	82

LEGEND

- PHASE 2A WORK AREA
- AOA CLOSURE
- STAGING AREA
- CONSTRUCTION ENTRANCE
- HAUL ROUTE
- CONSTRUCTED HAUL ROUTE TO REMAIN
- BC — BC CONTRACTOR TYPE II BARRICADE
- BA — BA AIRCRAFT TYPE II BARRICADE
- X TEMPORARY RW CLOSURE 'X'
- X TEMPORARY TW CLOSURE 'X'
- ARFF EMERGENCY VEHICLE ROUTE
- RSA RUNWAY SAFETY AREA
- ROFA RUNWAY OBJECT FREE AREA
- TSA TAXIWAY SAFETY AREA
- TOFA TAXIWAY OBJECT FREE AREA

GEORGIA REGISTERED 04/16/2025 No. 043370 PROFESSIONAL ENGINEER ALEXANDER K. MOONE

0 250 500 750
HORIZONTAL SCALE IN FEET

NO.	REVISIONS	DATE
1	95% ODOT SUBMITAL	7/1/2024

PROJECT: TAXIWAY 'A' PAVEMENT REHAB & LIGHTING
DATE: APRIL 2025

CONSTRUCTION SAFETY & PHASING PLAN (CSPP) - PHASE 2A

LAGRANGE - CALLAWAY AIRPORT (LGC) LAGRANGE, GA

benesch
Alfred Benesch & Company
600 Peachtree Street NE - Suite 2410
Atlanta, Georgia 30308
706-722-4114

Job No. - 19024029.01

DRAWN BY: D.JL | DESIGNED BY: KRT | REVIEWED BY: AWB | QUANTITIES CHECKED BY: AKM

SHEET 22/96 | DRAWING NO. CSPP-9

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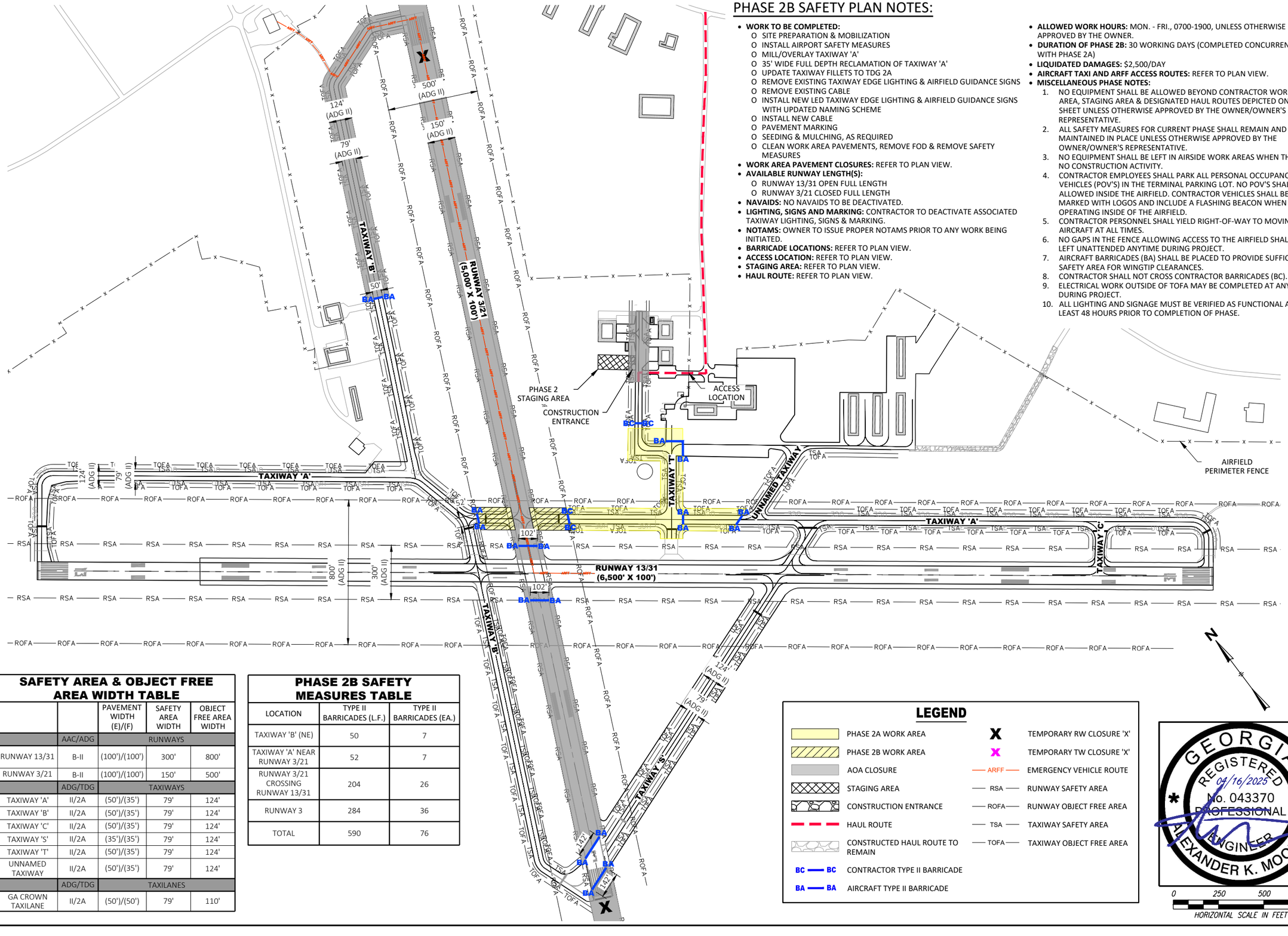
NOT FOR CONSTRUCTION



PHASE 2B SAFETY PLAN NOTES:

- **WORK TO BE COMPLETED:**
  - O SITE PREPARATION & MOBILIZATION
  - O INSTALL AIRPORT SAFETY MEASURES
  - O MILL/OVERLAY TAXIWAY 'A'
  - O 35' WIDE FULL DEPTH RECLAMATION OF TAXIWAY 'A'
  - O UPDATE TAXIWAY FILLETS TO TDG 2A
  - O REMOVE EXISTING TAXIWAY EDGE LIGHTING & AIRFIELD GUIDANCE SIGNS
  - O REMOVE EXISTING CABLE
  - O INSTALL NEW LED TAXIWAY EDGE LIGHTING & AIRFIELD GUIDANCE SIGNS WITH UPDATED NAMING SCHEME
  - O INSTALL NEW CABLE
  - O PAVEMENT MARKING
  - O SEEDING & MULCHING, AS REQUIRED
  - O CLEAN WORK AREA PAVEMENTS, REMOVE FOD & REMOVE SAFETY MEASURES
- **WORK AREA PAVEMENT CLOSURES:** REFER TO PLAN VIEW.
- **AVAILABLE RUNWAY LENGTH(S):**
  - O RUNWAY 13/31 OPEN FULL LENGTH
  - O RUNWAY 3/21 CLOSED FULL LENGTH
- **NAVAIDS:** NO NAVAIDS TO BE DEACTIVATED.
- **LIGHTING, SIGNS AND MARKING:** CONTRACTOR TO DEACTIVATE ASSOCIATED TAXIWAY LIGHTING, SIGNS & MARKING.
- **NOTAMS:** OWNER TO ISSUE PROPER NOTAMS PRIOR TO ANY WORK BEING INITIATED.
- **BARRICADE LOCATIONS:** REFER TO PLAN VIEW.
- **ACCESS LOCATION:** REFER TO PLAN VIEW.
- **STAGING AREA:** REFER TO PLAN VIEW.
- **HAUL ROUTE:** REFER TO PLAN VIEW.
- **ALLOWED WORK HOURS:** MON. - FRI., 0700-1900, UNLESS OTHERWISE APPROVED BY THE OWNER.
- **DURATION OF PHASE 2B:** 30 WORKING DAYS (COMPLETED CONCURRENTLY WITH PHASE 2A)
- **LIQUIDATED DAMAGES:** $2,500/DAY
- **AIRCRAFT TAXI AND ARFF ACCESS ROUTES:** REFER TO PLAN VIEW.
- **MISCELLANEOUS PHASE NOTES:**
  1. NO EQUIPMENT SHALL BE ALLOWED BEYOND CONTRACTOR WORK AREA, STAGING AREA & DESIGNATED HAUL ROUTES DEPICTED ON THIS SHEET UNLESS OTHERWISE APPROVED BY THE OWNER/OWNER'S REPRESENTATIVE.
  2. ALL SAFETY MEASURES FOR CURRENT PHASE SHALL REMAIN AND BE MAINTAINED IN PLACE UNLESS OTHERWISE APPROVED BY THE OWNER/OWNER'S REPRESENTATIVE.
  3. NO EQUIPMENT SHALL BE LEFT IN AIRSIDE WORK AREAS WHEN THERE IS NO CONSTRUCTION ACTIVITY.
  4. CONTRACTOR EMPLOYEES SHALL PARK ALL PERSONAL OCCUPANCY VEHICLES (POV'S) IN THE TERMINAL PARKING LOT. NO POV'S SHALL BE ALLOWED INSIDE THE AIRFIELD. CONTRACTOR VEHICLES SHALL BE MARKED WITH LOGOS AND INCLUDE A FLASHING BEACON WHEN OPERATING INSIDE OF THE AIRFIELD.
  5. CONTRACTOR PERSONNEL SHALL YIELD RIGHT-OF-WAY TO MOVING AIRCRAFT AT ALL TIMES.
  6. NO GAPS IN THE FENCE ALLOWING ACCESS TO THE AIRFIELD SHALL BE LEFT UNATTENDED ANYTIME DURING PROJECT.
  7. AIRCRAFT BARRICADES (BA) SHALL BE PLACED TO PROVIDE SUFFICIENT SAFETY AREA FOR WINGTIP CLEARANCES.
  8. CONTRACTOR SHALL NOT CROSS CONTRACTOR BARRICADES (BC).
  9. ELECTRICAL WORK OUTSIDE OF TOFA MAY BE COMPLETED AT ANYTIME DURING PROJECT.
  10. ALL LIGHTING AND SIGNAGE MUST BE VERIFIED AS FUNCTIONAL AT LEAST 48 HOURS PRIOR TO COMPLETION OF PHASE.

SAFETY AREA & OBJECT FREE AREA WIDTH TABLE

		PAVEMENT WIDTH (E)/(F)	SAFETY AREA WIDTH	OBJECT FREE AREA WIDTH
	AAC/ADG	RUNWAYS		
RUNWAY 13/31	B-II	(100')/(100')	300'	800'
RUNWAY 3/21	B-II	(100')/(100')	150'	500'
	ADG/TDG	TAXIWAYS		
TAXIWAY 'A'	II/2A	(50')/(35')	79'	124'
TAXIWAY 'B'	II/2A	(50')/(35')	79'	124'
TAXIWAY 'C'	II/2A	(50')/(35')	79'	124'
TAXIWAY 'S'	II/2A	(35')/(35')	79'	124'
TAXIWAY 'T'	II/2A	(50')/(35')	79'	124'
UNNAMED TAXIWAY	II/2A	(50')/(35')	79'	124'
	ADG/TDG	TAXILANES		
GA CROWN TAXILANE	II/2A	(50')/(50')	79'	110'

PHASE 2B SAFETY MEASURES TABLE

LOCATION	TYPE II BARRICADES (L.F.)	TYPE II BARRICADES (EA.)
TAXIWAY 'B' (NE)	50	7
TAXIWAY 'A' NEAR RUNWAY 3/21	52	7
RUNWAY 3/21 CROSSING RUNWAY 13/31	204	26
RUNWAY 3	284	36
TOTAL	590	76

LEGEND

- PHASE 2A WORK AREA
- PHASE 2B WORK AREA
- AOA CLOSURE
- STAGING AREA
- CONSTRUCTION ENTRANCE
- HAUL ROUTE
- CONSTRUCTED HAUL ROUTE TO REMAIN
- BC — BC CONTRACTOR TYPE II BARRICADE
- BA — BA AIRCRAFT TYPE II BARRICADE
- X TEMPORARY RW CLOSURE 'X'
- X TEMPORARY TW CLOSURE 'X'
- ARFF EMERGENCY VEHICLE ROUTE
- RSA RUNWAY SAFETY AREA
- ROFA RUNWAY OBJECT FREE AREA
- TSA TAXIWAY SAFETY AREA
- TOFA TAXIWAY OBJECT FREE AREA

GEORGIA REGISTERED 04/16/2025 No. 043370 PROFESSIONAL ENGINEER ALEXANDER K. MOONE

0 250 500 750
HORIZONTAL SCALE IN FEET

NO.	REVISIONS	DATE
1	95% COOT SUBMITTAL	7/1/2024

PROJECT: TAXIWAY 'A' PAVEMENT REHAB & LIGHTING
DATE: APRIL 2025

CONSTRUCTION SAFETY & PHASING PLAN (CSPP) - PHASE 2B

LAGRANGE - CALLAWAY AIRPORT (LGC) LAGRANGE, GA

benesch
Alfred Benesch & Company
600 Peachtree Street NE - Suite 2410
Atlanta, Georgia 30308
706-722-4114 Job No. - 19024029.01

DRAWN BY: D.L. | DESIGNED BY: KRT | REVIEWED BY: AWB | QUANTITIES CHECKED BY: AKM

SHEET 23/96 | DRAWING NO. CSPP-10

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NOT FOR CONSTRUCTION

ENLARGEMENT 'C'

0 100 200 300
HORIZONTAL SCALE IN FEET

ENLARGEMENT 'D'

0 100 200 300
HORIZONTAL SCALE IN FEET

REFER TO ENLARGEMENT 'C' (THIS SHEET)

REFER TO ENLARGEMENT 'D' (THIS SHEET)

NOTES: (#)

1. Sign Coverings Shall Be Completed Concurrently With Airport Safety Measure Placement, Under Owner Escort.
2. Signs S25, S26, S28, And S33 To Be Covered For The Duration Of Phases 2A and 2B.
3. See Sheet E-10 For Sign Changes.
4. Contractor Shall Cover All Signs That Direct To Closed Taxiways And Runways.

LEGEND

- PHASE 2A WORK AREA
- PHASE 2B WORK AREA
- AOA CLOSURE
- TW EDGE LIGHTS
- COVER TW EDGE LIGHTS
- COVER SIGN
- RSA — RUNWAY SAFETY AREA
- ROFA — RUNWAY OBJECT FREE AREA
- TSA — TAXIWAY SAFETY AREA
- TOFA — TAXIWAY OBJECT FREE AREA

GEORGIA REGISTERED 04/16/2025 No. 043370 PROFESSIONAL ENGINEER ALEXANDER K. MOONEY

0 250 500 750
HORIZONTAL SCALE IN FEET

NO.	REVISIONS	DATE
1	95% CDOT SUBMITAL	7/1/2024

PROJECT: TAXIWAY 'A' PAVEMENT REHAB & LIGHTING
DATE: APRIL 2025

CONSTRUCTION SAFETY & PHASING PLAN - SIGN ADJUSTMENT PLAN (2)

LAGRANGE - CALLAWAY AIRPORT (LGC) LAGRANGE, GA

benesch
Alfred Benesch & Company
600 Peachtree Street NE - Suite 2410
Atlanta, Georgia 30308
706-722-4114 Job No. - 19024029.01

DRAWN BY: DJL | DESIGNED BY: KRT | REVIEWED BY: SMV | QUANTITIES CHECKED BY: AKM

SHEET 24/96 | DRAWING NO. CSPP-11

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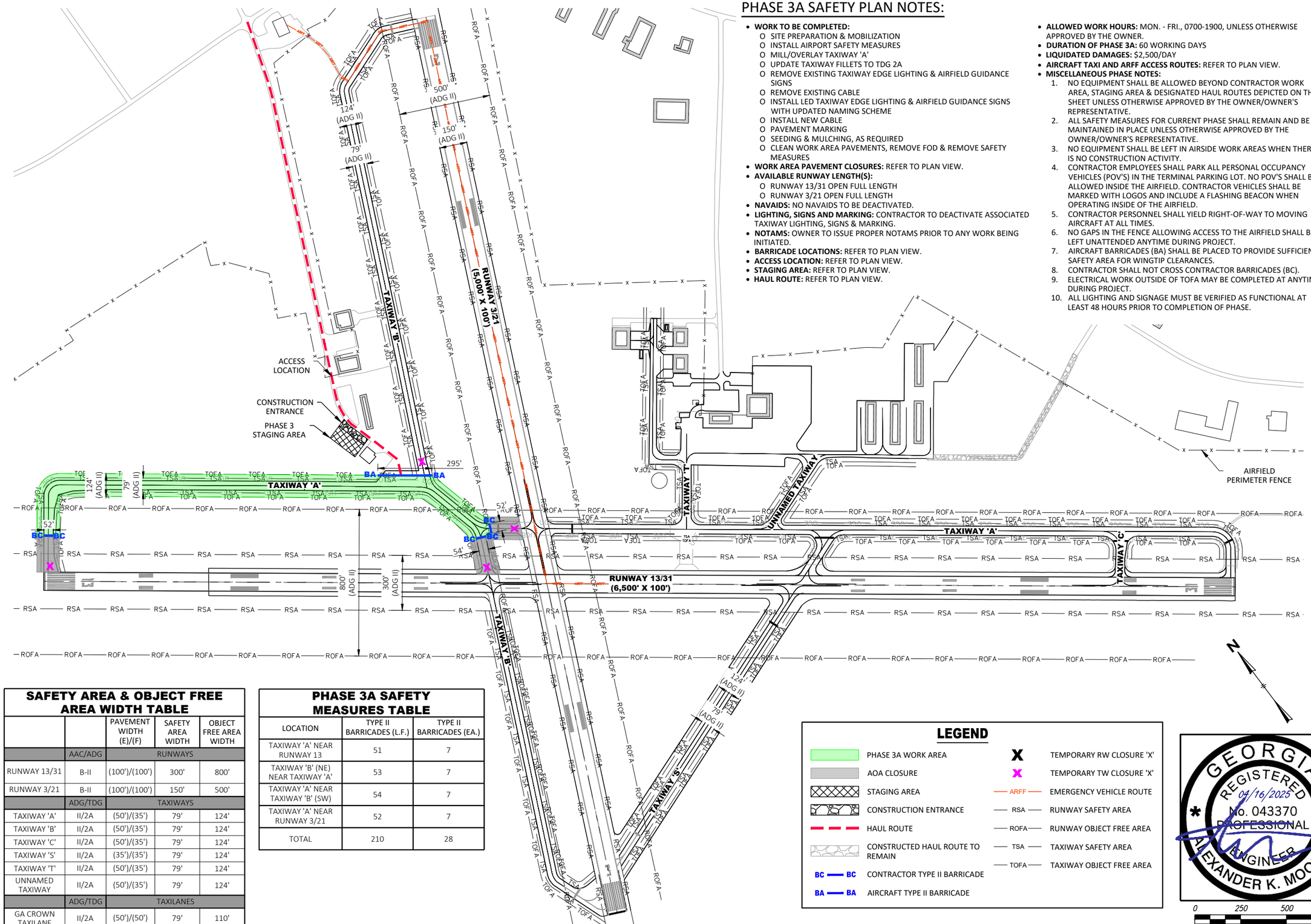

PHASE 3A SAFETY PLAN NOTES:

- **WORK TO BE COMPLETED:**
  - O SITE PREPARATION & MOBILIZATION
  - O INSTALL AIRPORT SAFETY MEASURES
  - O MILL/OVERLAY TAXIWAY 'A'
  - O UPDATE TAXIWAY FILLETS TO TDG 2A
  - O REMOVE EXISTING TAXIWAY EDGE LIGHTING & AIRFIELD GUIDANCE SIGNS
  - O REMOVE EXISTING CABLE
  - O INSTALL LED TAXIWAY EDGE LIGHTING & AIRFIELD GUIDANCE SIGNS WITH UPDATED NAMING SCHEME
  - O INSTALL NEW CABLE
  - O PAVEMENT MARKING
  - O SEEDING & MULCHING, AS REQUIRED
  - O CLEAN WORK AREA PAVEMENTS, REMOVE FOD & REMOVE SAFETY MEASURES
- **WORK AREA PAVEMENT CLOSURES:** REFER TO PLAN VIEW.
- **AVAILABLE RUNWAY LENGTH(S):**
  - O RUNWAY 13/31 OPEN FULL LENGTH
  - O RUNWAY 3/21 OPEN FULL LENGTH
- **NAVAIDS:** NO NAVAIDS TO BE DEACTIVATED.
- **LIGHTING, SIGNS AND MARKING:** CONTRACTOR TO DEACTIVATE ASSOCIATED TAXIWAY LIGHTING, SIGNS & MARKING.
- **NOTAMS:** OWNER TO ISSUE PROPER NOTAMS PRIOR TO ANY WORK BEING INITIATED.
- **BARRICADE LOCATIONS:** REFER TO PLAN VIEW.
- **ACCESS LOCATION:** REFER TO PLAN VIEW.
- **STAGING AREA:** REFER TO PLAN VIEW.
- **HAUL ROUTE:** REFER TO PLAN VIEW.
- **ALLOWED WORK HOURS:** MON. - FRI., 0700-1900, UNLESS OTHERWISE APPROVED BY THE OWNER.
- **DURATION OF PHASE 3A:** 60 WORKING DAYS
- **LIQUIDATED DAMAGES:** $2,500/DAY
- **AIRCRAFT TAXI AND ARFF ACCESS ROUTES:** REFER TO PLAN VIEW.
- **MISCELLANEOUS PHASE NOTES:**
  1. NO EQUIPMENT SHALL BE ALLOWED BEYOND CONTRACTOR WORK AREA, STAGING AREA & DESIGNATED HAUL ROUTES DEPICTED ON THIS SHEET UNLESS OTHERWISE APPROVED BY THE OWNER/OWNER'S REPRESENTATIVE.
  2. ALL SAFETY MEASURES FOR CURRENT PHASE SHALL REMAIN AND BE MAINTAINED IN PLACE UNLESS OTHERWISE APPROVED BY THE OWNER/OWNER'S REPRESENTATIVE.
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  5. CONTRACTOR PERSONNEL SHALL YIELD RIGHT-OF-WAY TO MOVING AIRCRAFT AT ALL TIMES.
  6. NO GAPS IN THE FENCE ALLOWING ACCESS TO THE AIRFIELD SHALL BE LEFT UNATTENDED ANYTIME DURING PROJECT.
  7. AIRCRAFT BARRICADES (BA) SHALL BE PLACED TO PROVIDE SUFFICIENT SAFETY AREA FOR WINGTIP CLEARANCES.
  8. CONTRACTOR SHALL NOT CROSS CONTRACTOR BARRICADES (BC).
  9. ELECTRICAL WORK OUTSIDE OF TOFA MAY BE COMPLETED AT ANYTIME DURING PROJECT.
  10. ALL LIGHTING AND SIGNAGE MUST BE VERIFIED AS FUNCTIONAL AT LEAST 48 HOURS PRIOR TO COMPLETION OF PHASE.

SAFETY AREA & OBJECT FREE AREA WIDTH TABLE

		PAVEMENT WIDTH (E)/(F)	SAFETY AREA WIDTH	OBJECT FREE AREA WIDTH
	AAC/ADG	RUNWAYS		
RUNWAY 13/31	B-II	(100')/(100')	300'	800'
RUNWAY 3/21	B-II	(100')/(100')	150'	500'
	ADG/TDG	TAXIWAYS		
TAXIWAY 'A'	II/2A	(50')/(35')	79'	124'
TAXIWAY 'B'	II/2A	(50')/(35')	79'	124'
TAXIWAY 'C'	II/2A	(50')/(35')	79'	124'
TAXIWAY 'S'	II/2A	(35')/(35')	79'	124'
TAXIWAY 'T'	II/2A	(50')/(35')	79'	124'
UNNAMED TAXIWAY	II/2A	(50')/(35')	79'	124'
	ADG/TDG	TAXILANES		
GA CROWN TAXILANE	II/2A	(50')/(50')	79'	110'

PHASE 3A SAFETY MEASURES TABLE

LOCATION	TYPE II BARRICADES (L.F.)	TYPE II BARRICADES (EA.)
TAXIWAY 'A' NEAR RUNWAY 13	51	7
TAXIWAY 'B' (NE) NEAR TAXIWAY 'A'	53	7
TAXIWAY 'A' NEAR TAXIWAY 'B' (SW)	54	7
TAXIWAY 'A' NEAR RUNWAY 3/21	52	7
TOTAL	210	28

LEGEND

- PHASE 3A WORK AREA
- AOA CLOSURE
- STAGING AREA
- CONSTRUCTION ENTRANCE
- HAUL ROUTE
- CONSTRUCTED HAUL ROUTE TO REMAIN
- BC — BC CONTRACTOR TYPE II BARRICADE
- BA — BA AIRCRAFT TYPE II BARRICADE
- X TEMPORARY RW CLOSURE 'X'
- X TEMPORARY TW CLOSURE 'X'
- ARFF EMERGENCY VEHICLE ROUTE
- RSA RUNWAY SAFETY AREA
- ROFA RUNWAY OBJECT FREE AREA
- TSA TAXIWAY SAFETY AREA
- TOFA TAXIWAY OBJECT FREE AREA

GEORGIA REGISTERED 04/16/2025 No. 043370 PROFESSIONAL ENGINEER ALEXANDER K. MOONE

0 250 500 750
HORIZONTAL SCALE IN FEET

NO.	REVISIONS	DATE
1	95% CDOT SUBMITAL	7/1/2024

PROJECT: TAXIWAY 'A' PAVEMENT REHAB & LIGHTING
DATE: APRIL 2025

CONSTRUCTION SAFETY & PHASING PLAN (CSPP) - PHASE 3A

LAGRANGE - CALLAWAY AIRPORT (LGC) LAGRANGE, GA

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Alfred Benesch & Company
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706-722-4114

Job No. - 19024029.01

QUANTITIES CHECKED BY: AKM
REVIEWED BY: AWB
DESIGNED BY: KRT
DRAWN BY: DJL

SHEET 25/96
DRAWING NO. CSPP-12

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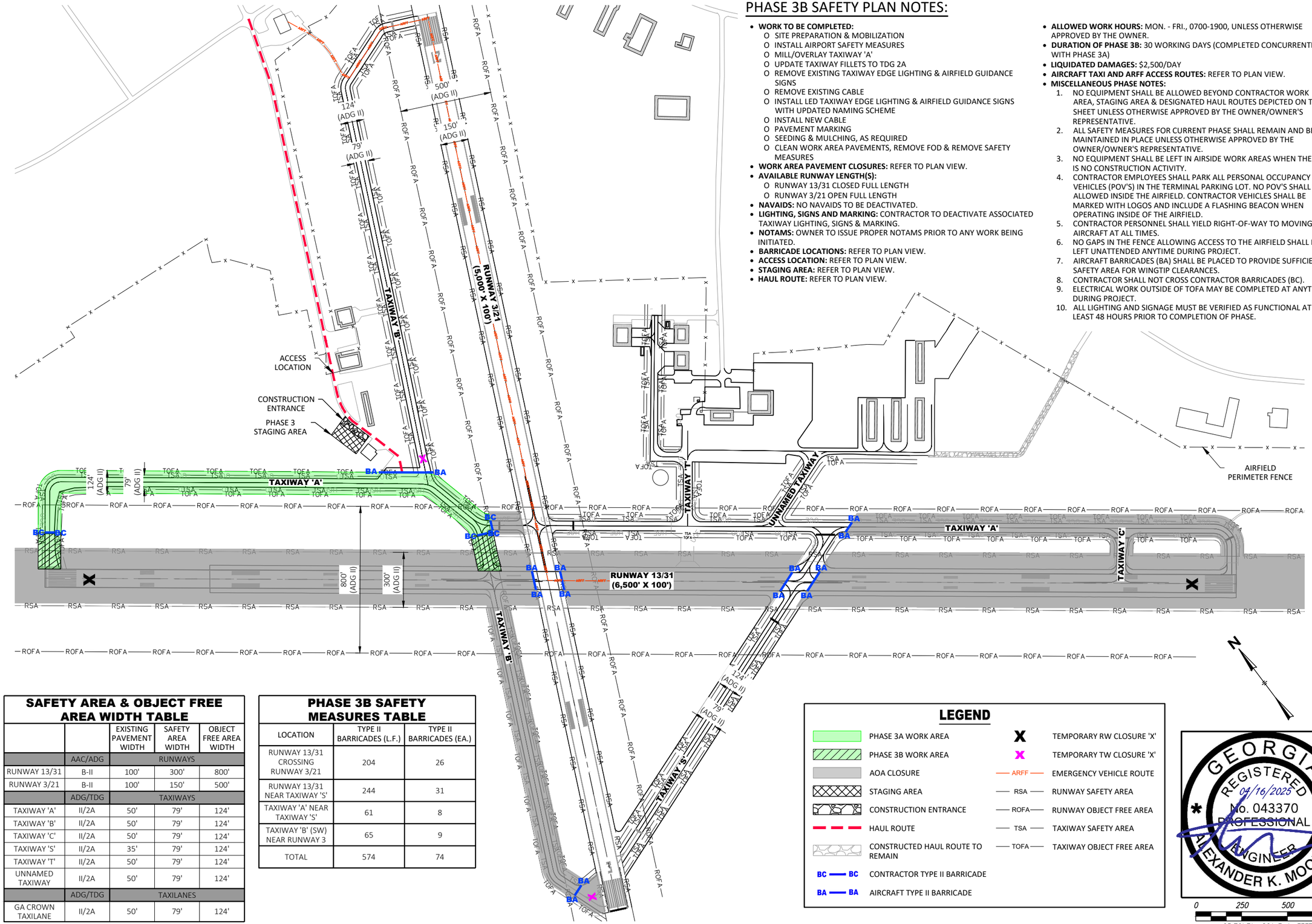
NOT FOR CONSTRUCTION



PHASE 3B SAFETY PLAN NOTES:

- **WORK TO BE COMPLETED:**
  - SITE PREPARATION & MOBILIZATION
  - INSTALL AIRPORT SAFETY MEASURES
  - MILL/OVERLAY TAXIWAY 'A'
  - UPDATE TAXIWAY FILLETS TO TDG 2A
  - REMOVE EXISTING TAXIWAY EDGE LIGHTING & AIRFIELD GUIDANCE SIGNS
  - REMOVE EXISTING CABLE
  - INSTALL LED TAXIWAY EDGE LIGHTING & AIRFIELD GUIDANCE SIGNS WITH UPDATED NAMING SCHEME
  - INSTALL NEW CABLE
  - PAVEMENT MARKING
  - SEEDING & MULCHING, AS REQUIRED
  - CLEAN WORK AREA PAVEMENTS, REMOVE FOD & REMOVE SAFETY MEASURES
- **WORK AREA PAVEMENT CLOSURES:** REFER TO PLAN VIEW.
- **AVAILABLE RUNWAY LENGTH(S):**
  - RUNWAY 13/31 CLOSED FULL LENGTH
  - RUNWAY 3/21 OPEN FULL LENGTH
- **NAVAIDS:** NO NAVAIDS TO BE DEACTIVATED.
- **LIGHTING, SIGNS AND MARKING:** CONTRACTOR TO DEACTIVATE ASSOCIATED TAXIWAY LIGHTING, SIGNS & MARKING.
- **NOTAMS:** OWNER TO ISSUE PROPER NOTAMS PRIOR TO ANY WORK BEING INITIATED.
- **BARRICADE LOCATIONS:** REFER TO PLAN VIEW.
- **ACCESS LOCATION:** REFER TO PLAN VIEW.
- **STAGING AREA:** REFER TO PLAN VIEW.
- **HAUL ROUTE:** REFER TO PLAN VIEW.
- **ALLOWED WORK HOURS:** MON. - FRI., 0700-1900, UNLESS OTHERWISE APPROVED BY THE OWNER.
- **DURATION OF PHASE 3B:** 30 WORKING DAYS (COMPLETED CONCURRENTLY WITH PHASE 3A)
- **LIQUIDATED DAMAGES:** $2,500/DAY
- **AIRCRAFT TAXI AND ARFF ACCESS ROUTES:** REFER TO PLAN VIEW.
- **MISCELLANEOUS PHASE NOTES:**
  1. NO EQUIPMENT SHALL BE ALLOWED BEYOND CONTRACTOR WORK AREA, STAGING AREA & DESIGNATED HAUL ROUTES DEPICTED ON THIS SHEET UNLESS OTHERWISE APPROVED BY THE OWNER/OWNER'S REPRESENTATIVE.
  2. ALL SAFETY MEASURES FOR CURRENT PHASE SHALL REMAIN AND BE MAINTAINED IN PLACE UNLESS OTHERWISE APPROVED BY THE OWNER/OWNER'S REPRESENTATIVE.
  3. NO EQUIPMENT SHALL BE LEFT IN AIRSIDE WORK AREAS WHEN THERE IS NO CONSTRUCTION ACTIVITY.
  4. CONTRACTOR EMPLOYEES SHALL PARK ALL PERSONAL OCCUPANCY VEHICLES (POV'S) IN THE TERMINAL PARKING LOT. NO POV'S SHALL BE ALLOWED INSIDE THE AIRFIELD. CONTRACTOR VEHICLES SHALL BE MARKED WITH LOGOS AND INCLUDE A FLASHING BEACON WHEN OPERATING INSIDE OF THE AIRFIELD.
  5. CONTRACTOR PERSONNEL SHALL YIELD RIGHT-OF-WAY TO MOVING AIRCRAFT AT ALL TIMES.
  6. NO GAPS IN THE FENCE ALLOWING ACCESS TO THE AIRFIELD SHALL BE LEFT UNATTENDED ANYTIME DURING PROJECT.
  7. AIRCRAFT BARRICADES (BA) SHALL BE PLACED TO PROVIDE SUFFICIENT SAFETY AREA FOR WINGTIP CLEARANCES.
  8. CONTRACTOR SHALL NOT CROSS CONTRACTOR BARRICADES (BC).
  9. ELECTRICAL WORK OUTSIDE OF TOFA MAY BE COMPLETED AT ANYTIME DURING PROJECT.
  10. ALL LIGHTING AND SIGNAGE MUST BE VERIFIED AS FUNCTIONAL AT LEAST 48 HOURS PRIOR TO COMPLETION OF PHASE.

SAFETY AREA & OBJECT FREE AREA WIDTH TABLE

		EXISTING PAVEMENT WIDTH	SAFETY AREA WIDTH	OBJECT FREE AREA WIDTH
	AAC/ADG	RUNWAYS		
RUNWAY 13/31	B-II	100'	300'	800'
RUNWAY 3/21	B-II	100'	150'	500'
	ADG/TDG	TAXIWAYS		
TAXIWAY 'A'	II/2A	50'	79'	124'
TAXIWAY 'B'	II/2A	50'	79'	124'
TAXIWAY 'C'	II/2A	50'	79'	124'
TAXIWAY 'S'	II/2A	35'	79'	124'
TAXIWAY 'T'	II/2A	50'	79'	124'
UNNAMED TAXIWAY	II/2A	50'	79'	124'
	ADG/TDG	TAXILANES		
GA CROWN TAXILANE	II/2A	50'	79'	124'

PHASE 3B SAFETY MEASURES TABLE

LOCATION	TYPE II BARRICADES (L.F.)	TYPE II BARRICADES (EA.)
RUNWAY 13/31 CROSSING RUNWAY 3/21	204	26
RUNWAY 13/31 NEAR TAXIWAY 'S'	244	31
TAXIWAY 'A' NEAR TAXIWAY 'S'	61	8
TAXIWAY 'B' (SW) NEAR RUNWAY 3	65	9
TOTAL	574	74

LEGEND

- PHASE 3A WORK AREA
- PHASE 3B WORK AREA
- AOA CLOSURE
- STAGING AREA
- CONSTRUCTION ENTRANCE
- HAUL ROUTE
- CONSTRUCTED HAUL ROUTE TO REMAIN
- BC — BC CONTRACTOR TYPE II BARRICADE
- BA — BA AIRCRAFT TYPE II BARRICADE
- X TEMPORARY RW CLOSURE 'X'
- X TEMPORARY TW CLOSURE 'X'
- ARFF EMERGENCY VEHICLE ROUTE
- RSA RUNWAY SAFETY AREA
- ROFA RUNWAY OBJECT FREE AREA
- TSA TAXIWAY SAFETY AREA
- TOFA TAXIWAY OBJECT FREE AREA

GEORGIA REGISTERED 04/16/2025 No. 043370 PROFESSIONAL ENGINEER ALEXANDER K. MOONEY

0 250 500 750
HORIZONTAL SCALE IN FEET

NO.	REVISIONS	DATE
1	-	-
2	-	-
3	-	-
4	-	-
5	-	-
6	-	-
7	-	-
8	-	-
9	-	-
10	-	-

95% CDOT SUBMITAL 7/1/2024

PROJECT: TAXIWAY 'A' PAVEMENT REHAB & LIGHTING
DATE: APRIL 2025

CONSTRUCTION SAFETY & PHASING PLAN (CSPP) - PHASE 3B

LAGRANGE - CALLAWAY AIRPORT (LGC) LAGRANGE, GA

benesch
Alfred Benesch & Company
600 Peachtree Street NE - Suite 2410
Atlanta, Georgia 30308
706-722-4114

Job No. - 19024029.01

DRAWN BY: D.I.L. | DESIGNED BY: KRT | REVIEWED BY: AWB | QUANTITIES BACKED BY: AKM

SHEET 26/96 | DRAWING NO. CSPP-13

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NOT FOR CONSTRUCTION

ENLARGEMENT 'E'

0 100 200 300

HORIZONTAL SCALE IN FEET

ENLARGEMENT 'F'

0 100 200 300

HORIZONTAL SCALE IN FEET

REFER TO ENLARGEMENT 'E' (THIS SHEET)

REFER TO ENLARGEMENT 'F' (THIS SHEET)

NOTES: (#)

1. Sign Coverings Shall Be Completed Concurrently With Airport Safety Measure Placement, Under Owner Escort.
2. Signs S19, S21, S22, S23, And S24 To Be Covered For The Duration Of Phases 3A and 3B.
3. See Sheet E-10 For Sign Changes.
4. Contractor Shall Cover All Signs That Direct To Closed Taxiways And Runways.

LEGEND

- PHASE 3A WORK AREA
- PHASE 3B WORK AREA
- AOA CLOSURE
- TW EDGE LIGHTS
- COVER TW EDGE LIGHTS
- COVER SIGN
- RSA — RUNWAY SAFETY AREA
- ROFA — RUNWAY OBJECT FREE AREA
- TSA — TAXIWAY SAFETY AREA
- TOFA — TAXIWAY OBJECT FREE AREA

GEORGIA REGISTERED 04/16/2025 No. 043370 PROFESSIONAL ENGINEER ALEXANDER K. MOONE

0 250 500 750

HORIZONTAL SCALE IN FEET

NO.	REVISIONS	DATE
1	-	7/1/2024
95% CDOT SUBMITAL	-	

PROJECT: TAXIWAY 'A' PAVEMENT REHAB & LIGHTING

DATE: APRIL 2025

CONSTRUCTION SAFETY & PHASING PLAN - SIGN ADJUSTMENT PLAN (3)

LAGRANGE - CALLAWAY AIRPORT (LGC) LAGRANGE, GA

benesch
Alfred Benesch & Company
600 Peachtree Street NE - Suite 2410
Atlanta, Georgia 30308
706-722-4114 Job No. - 19024029.01

DRAWN BY: DJL | DESIGNED BY: KRT | REVIEWED BY: SMV | QUANTITIES CHECKED BY: MKM

SHEET 27/96 | DRAWING NO. CSPP-14

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APPENDIX 3

SAMPLE CONTRACTOR SAFETY PLAN COMPLIANCE DOCUMENT (SPCD)

benesch

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SAFETY PLAN COMPLIANCE DOCUMENT (SPCD)

{Prepared in Accordance With FAA Advisory Circular (AC) 150/5370-2G "Operational Safety On Airports During Construction" (Dated 12/13/2017)}

Contractor Name: *{Contractor Name}*

Contractor Address: {Contractor Address}

Project Name: Taxiway 'A' Pavement Rehabilitation & Lighting Project

AIP #AP024-9052-44(285)

Airport Name: LaGrange Callaway Airport

Airport City: LaGrange, Georgia

Compliance Statement:

I, {Contractor Name} have read the Construction Safety & Phasing Plans (CSPP) in Appendix 2 of the Contract Documents & Specification Booklet and have reviewed the CSPP drawings in the project drawing set, along with all official bidding addendums issued to the documents, and will abide by the documents as written and with the following additions as noted:

1. Coordination {AC 150/5370-2G, Section 2.4.2.1}:

Pre-Construction Conference

_____
_____
_____

□ No Supplemental Information {Check Box If Applicable}

a. Progress Meeting/Safety Meeting

_____
_____
_____

□ No Supplemental Information {Check Box If Applicable}

b. Scope Or Schedule Changes

_____
_____
_____

□ No Supplemental Information {Check Box If Applicable}

c. FAA Air Traffic Organization (ATO) Coordination

No SPCD Supplemental Information Required.

2. Phasing {AC 150/5370-2G, Section 2.4.2.2}:

a. Phase Elements

Estimated Duration of Work: {See Contractor Project Schedule}

Daily Estimated Start And Finish Time For Construction: _____

3. Areas And Operations Affected By The Construction Activity {AC 150/5370-2G, Section 2.4.2.3}:

Areas And Operations Are Identified On CSPP Drawings, No Supplemental Information Required.

4. Protection Of Navigation Aids (Navaids) {AC 150/5370-2G, Section 2.4.2.4}:

Method To Protect NAVAIDs:_____

_____

_____

_____

5. Contractor Access {AC 150/5370-2G, Section 2.4.2.5}:

_____

_____

_____

□ No Supplemental Information {Check Box If Applicable}

6. Wildlife Management {AC 150/5370-2G, Section 2.4.2.6}:

_____

_____

_____

□ No Supplemental Information {Check Box If Applicable}

7. Foreign Object Debris (FOD) Management {AC 150/5370-2G, Section 2.4.2.7}:

_____

_____

_____

□ No Supplemental Information {Check Box If Applicable}

8. Hazardous Materials (Hazmat) Management {AC 150/5370-2G, Section 2.4.2.8}:

_____

_____

_____

□ No Supplemental Information {Check Box If Applicable}

9. Notification Of Construction Activities {AC 150/5370-2G, Section 2.4.2.9}:

Contractor Point(s) Of Contact

Name	Work Phone	Cell Phone

Contractor 24 Hour Point(s) Of Contact

Name	Work Phone	Cell Phone

Contractor Equipment (Taller Than 25'), Including Batch Plant, To Be Utilized On Site:

_____
_____
_____

7460's To Be Submitted By Owner For Equipment (Taller Than 25') Listed Above.

10. Inspection Requirements {AC 150/5370-2G, Section 2.4.2.10}:

Daily Safety Inspection Procedures:

_____
_____
_____

11. Underground Utilities {AC 150/5370-2G, Section 2.4.2.11}:

Utility Locate Procedures:

_____
_____
_____

12. Penalties {AC 150/5370-2G, Section 2.4.2.12}:
No SPCD Entry Required.

13. Special Conditions {AC 150/5370-2G, Section 2.4.2.13}:
On This Project, No SPCD Entry Required For Special Conditions.

14. Runway And Taxiway Visual Aids {AC 150/5370-2G, Section 2.4.2.14}:

_____
_____
_____

□ No Supplemental Information {Check Box If Applicable}

15. Marking And Signs For Access Routes {AC 150/5370-2G, Section 2.4.2.15}:

_____
_____
_____

□ No Supplemental Information {Check Box If Applicable}

16. Hazard Marking And Lighting {AC 150/5370-2G, Section 2.4.2.16}:

_____
_____
_____

□ No Supplemental Information {Check Box If Applicable}

17. Work Zone Lighting For Nighttime Construction {AC 150/5370-2G, Section 2.4.2.17}:

_____
_____
_____

□ No Supplemental Information {Check Box If Applicable}

18. Protection of RSAs, TSAs, ROFAs, ROFZs, & App./Dep. Surfaces {AC 150/5370-2G, Section 2.4.2.18}:

_____
_____
_____

□ No Supplemental Information {Check Box If Applicable}

19. Other Limitation On Construction {AC 150/5370-2G, Section 2.4.2.19}:
No SPCD Entry Required.

Contractor:

Print Company Name	Print Name of Authorized Representative	Signature of Authorized Representative	Date

_____
_____

Airport OR Authorized Airport Representative to Fill out remaining lines:
This has been reviewed and approved by:

Print Company/Entity Name	Print Name of Airport Official OR Authorized Representative	Signature of Airport Official OR Authorized Representative	Date of Approval

APPENDIX 4

FAA AC 150/5370-2G OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION DATED 12/13/2017

benesch

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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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FIGURES

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TABLES

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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

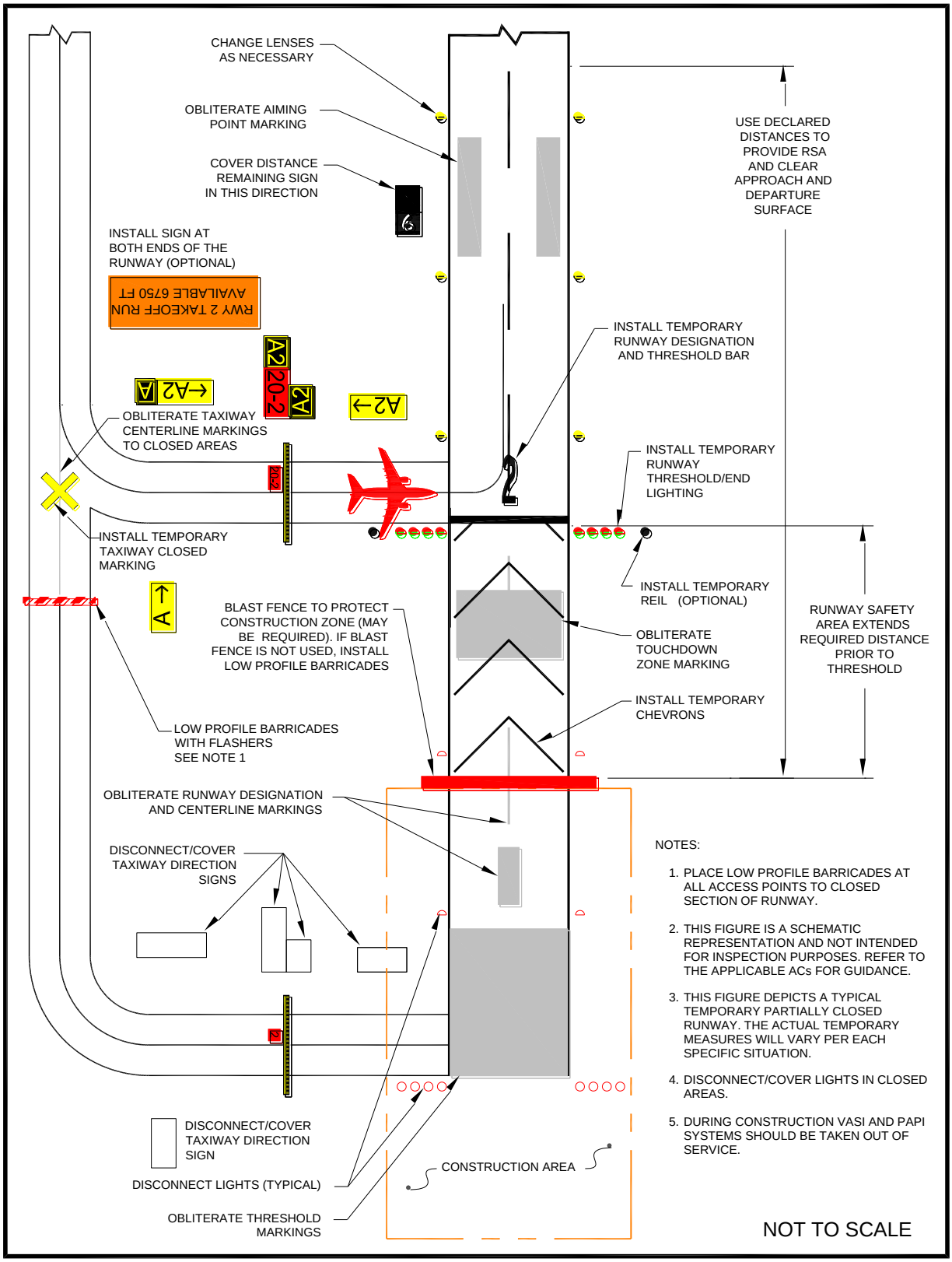
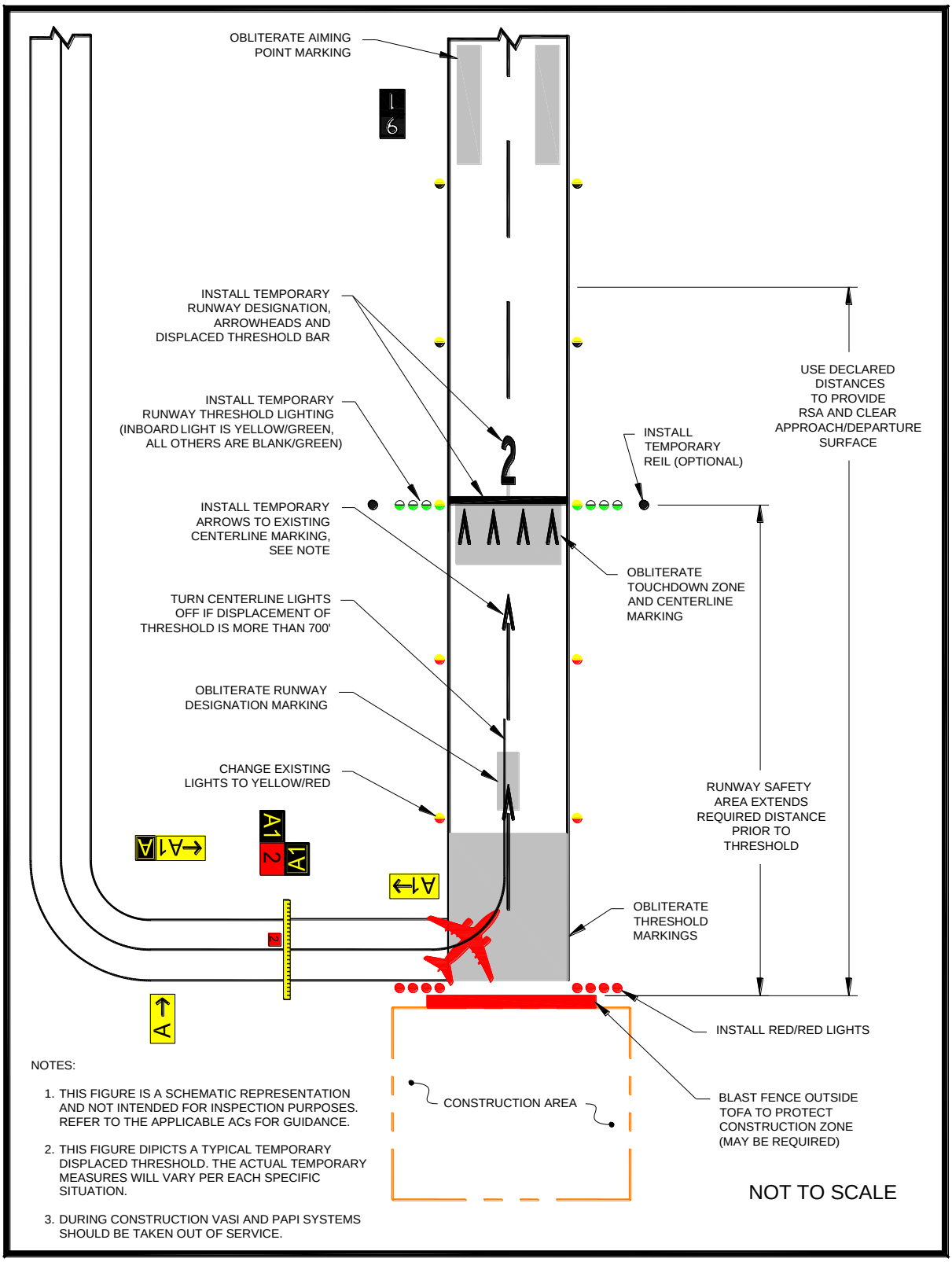


Figure 2-2. Temporary Displaced Threshold



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

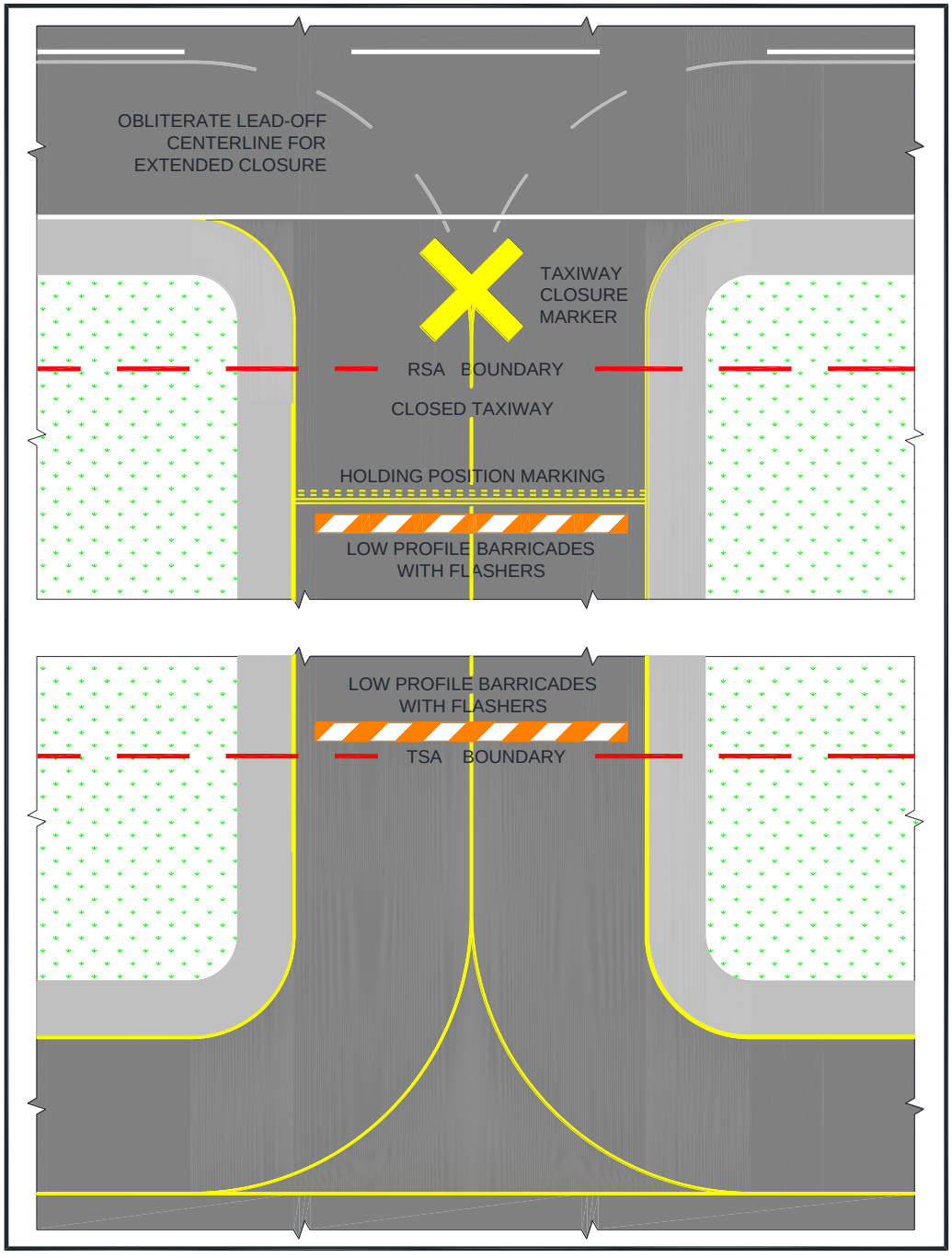
1. **Partially Closed Runways.** Pavement markings for temporary closed portions of the runway consist of a runway threshold bar, runway designation, and yellow chevrons to identify pavement areas that are unsuitable for takeoff or landing (see AC 150/5340-1). Obliterate or cover markings prior to the 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.

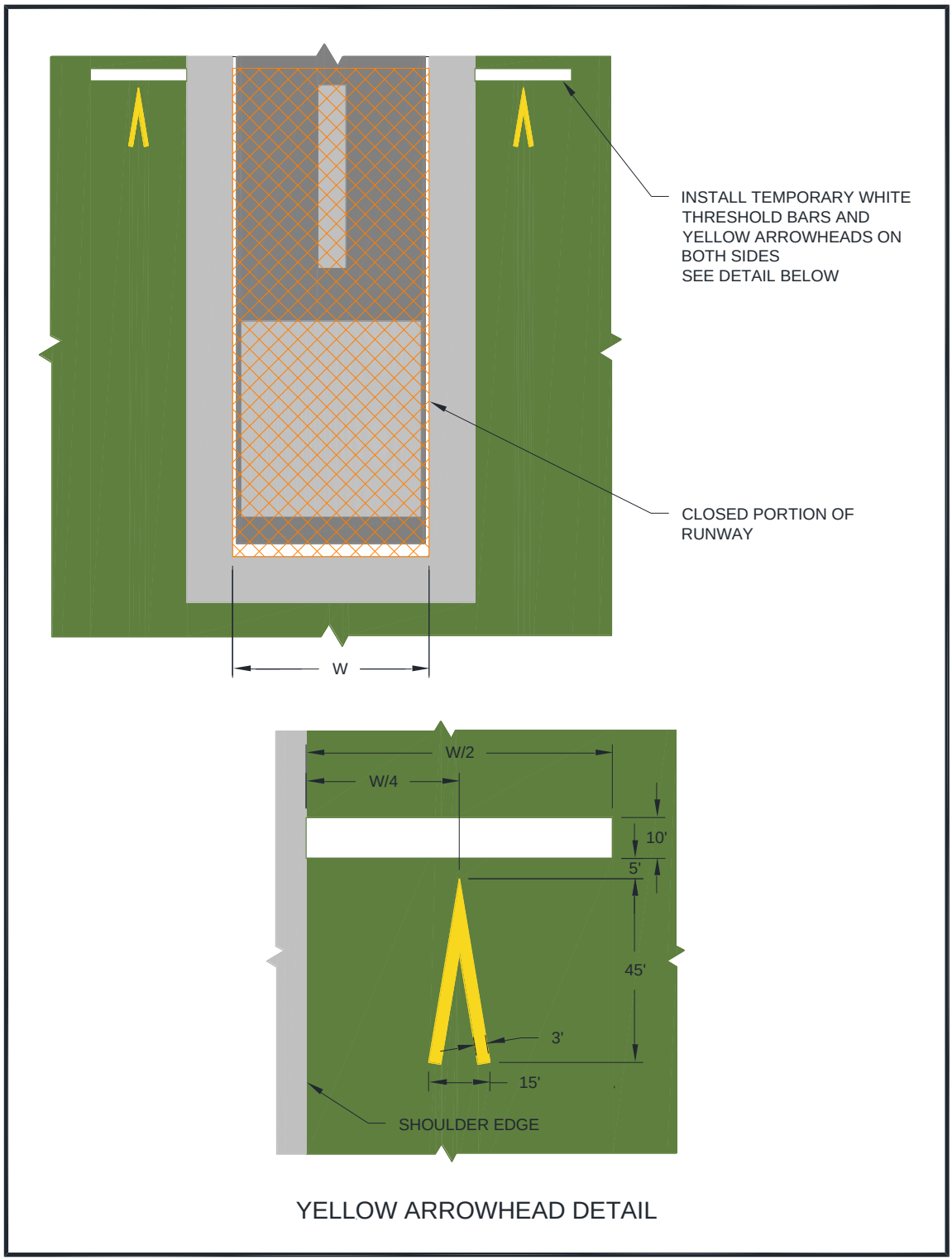
2.18.2.3 It may be necessary to remove or cover runway markings, including but not limited to, runway designation markings, threshold markings, centerline markings, edge stripes, touchdown zone markings and aiming point markings, depending on the length of construction and type of activity at the airport. 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.		

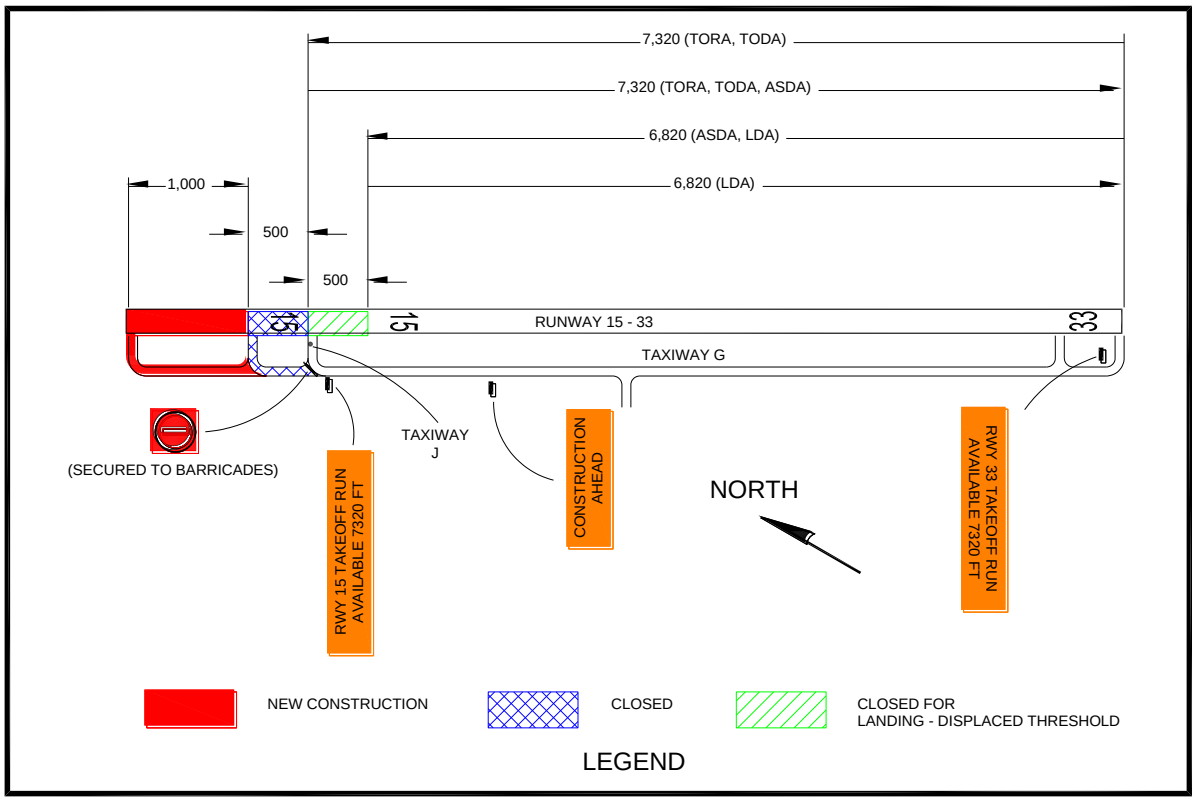
APPENDIX E. SAMPLE OPERATIONAL EFFECTS TABLE

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

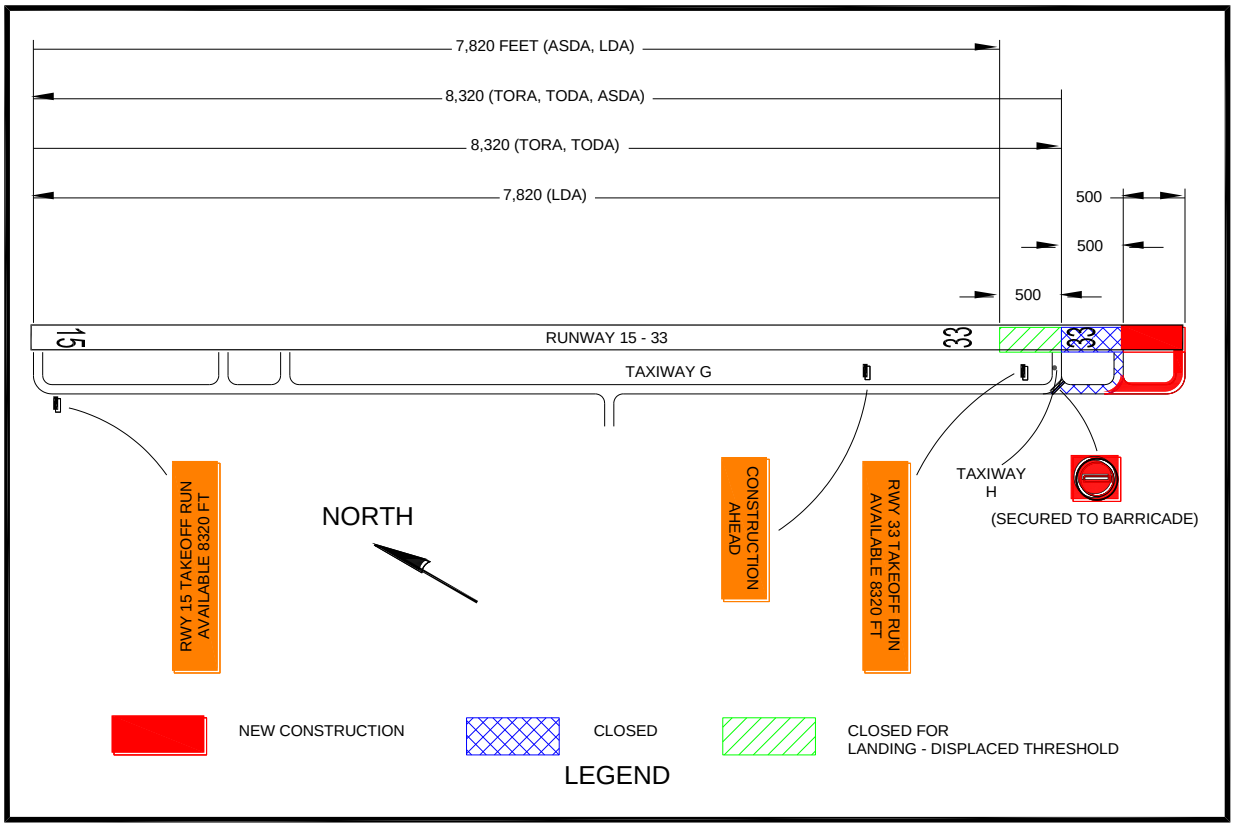


Note 1: Where hold signs are installed on both sides of a taxiway, install the TORA sign on the left side of the taxiway before the final turn to the runway intersection.

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

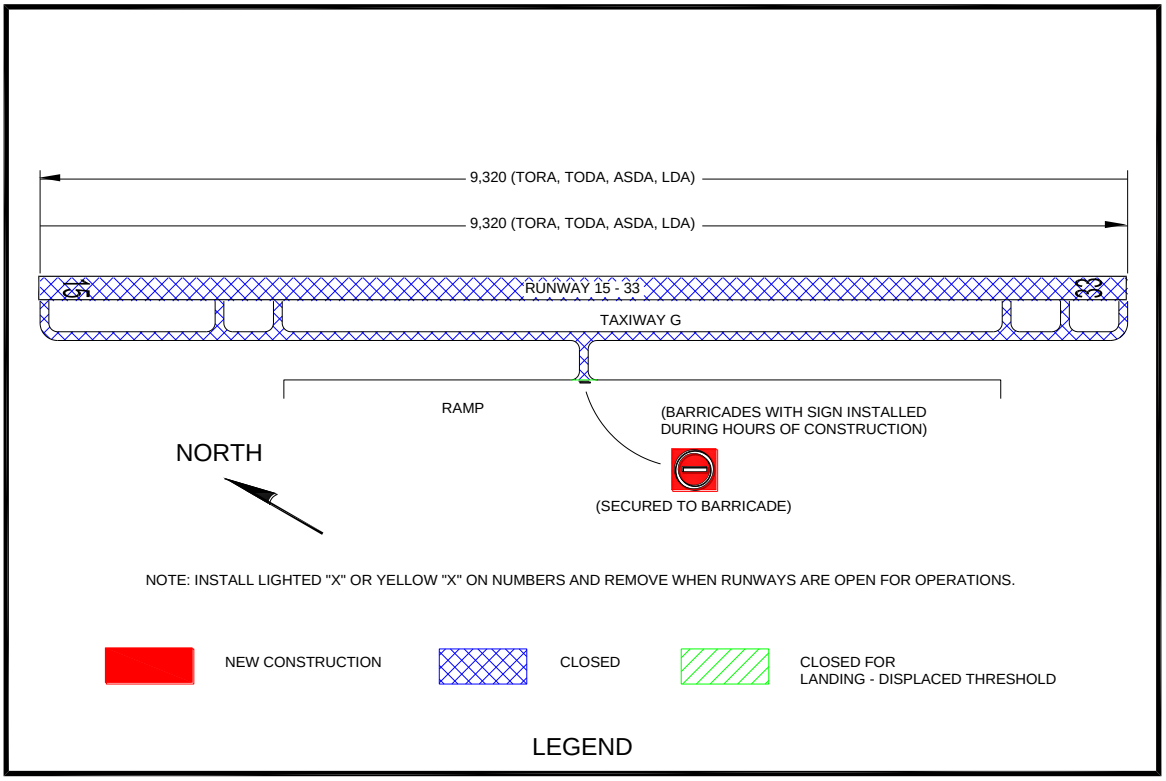


Table E-1. Operational Effects Table

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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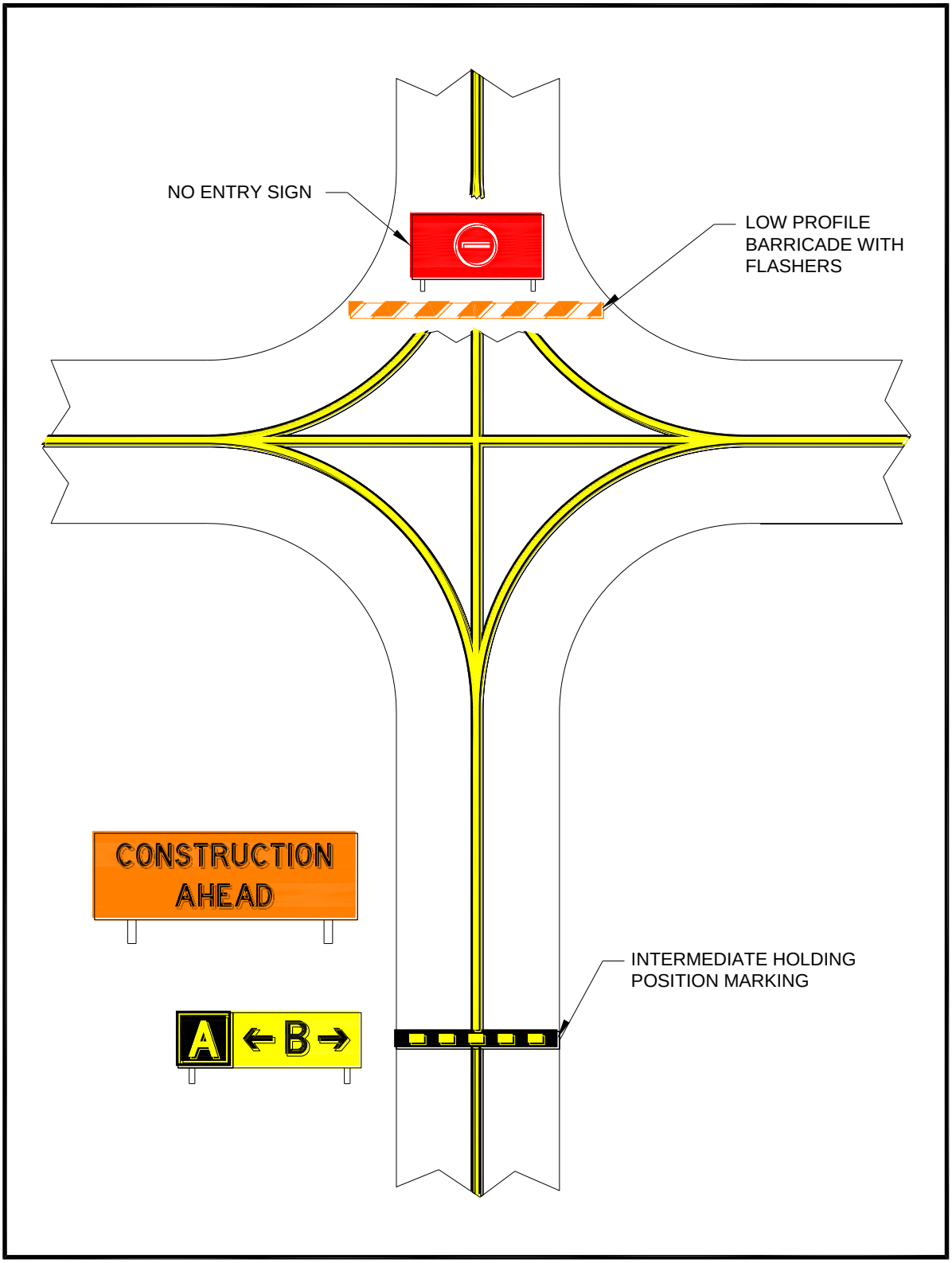
APPENDIX F. ORANGE CONSTRUCTION SIGNS

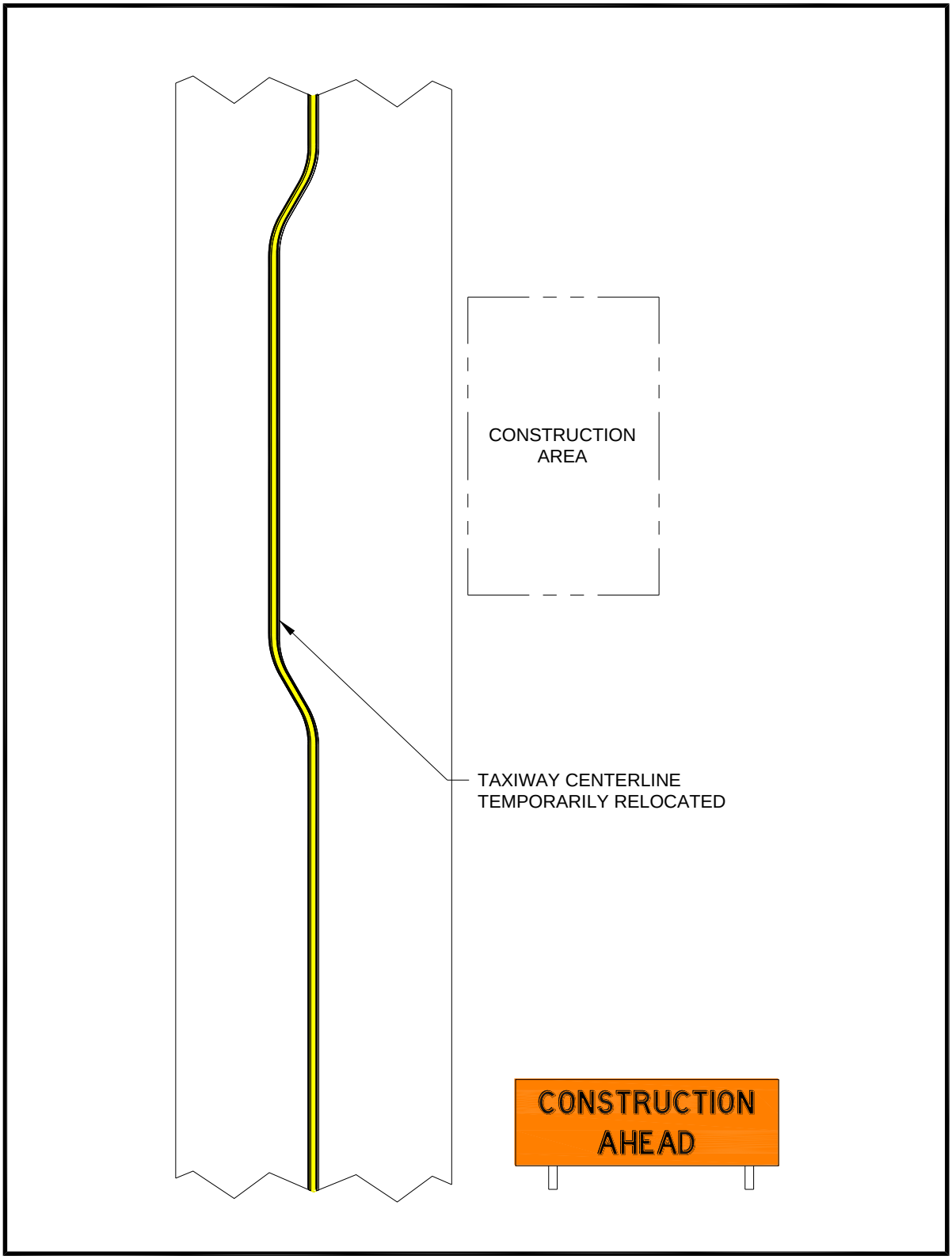
Figure F-1. Approved Sign Legends

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: _____

APPENDIX 5

FAA BUY AMERICAN WAIVERS ISSUED AS OF 1/22/2025

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FAA
Office of Airports

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

NOTICE: L-823 Connectors do not have independent utility needed to consider it as a component that warrants a Buy American waiver. For purposes of Buy American Preferences, the FAA considers these products as sub-components of the larger airfield lighting equipment being installed.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Oshkosh	Oshkosh Striker 6x6 3,000 Gallon ARFF Truck	1/21/2025	Approved
Type III Equipment/Building	M-B Companies, Inc.	4600 TTB	1/21/2025	Approved
Type III Equipment/Building	CAT	CAT 966M Wheel Loader	1/21/2025	Approved
Type III Equipment/Building	Dabico A-Bridge LLC	Passenger Boarding Bridge	1/12/2025	Approved
Type III Equipment/Building	Minit Charger, LLC	Industrial Battery Charger Momentus 1 Port	1/12/2025	Approved
Type III Equipment/Building	Caterpillar	980 Medium Wheel Loader	1/4/2025	Approved
Type III Equipment/Building	Caterpillar	980 Medium Wheel Loader	1/4/2025	Approved
Type III Equipment/Building	M-B Companies, Inc.	SRE MB4	1/4/2025	Approved
Type III Equipment/Building	Automatic Systems, Inc.	Baggage Handling System	1/4/2025	Approved
Type III Equipment/Building	Oshkosh Airport Products, a division of Pierce Manufacturing, Inc.	Oshkosh Striker 6x6 ARFF Truck	1/4/2025	Approved
Type III Equipment/Building	Volkswagen	Volkswagen ID4 AWD	1/4/2025	Approved
Type III Equipment/Building	Weitz/Turner a Joint Venture	Terminal Phase 1A- Passenger Terminal-Construction (Portions of GMP 6 Masonry, Overhead Doors, and Pedestrian Walkway)	1/4/2025	Approved
Type III Equipment/Building	Weitz/Turner a Joint Venture	Terminal Phase 1A- Construction (Portions of GMP 5 Roofing, Exterior Wall Panels, Interior Wall Framing)	1/4/2025	Approved
Type III Equipment/Building	M-B Companies, Inc.	MB5 Snow Removal Equipment	1/4/2025	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Oshkosh	Oshkosh Striker 6x6 3,000 Gallon ARFF Truck	12/14/2024	Approved
Type III Equipment/Building	Oshkosh	Oshkosh Striker 6x6 3,000 Gallon ARFF Truck	12/14/2024	Select..
Type III Equipment/Building	Oshkosh	Oshkosh Striker 6x6 3,000 Gallon ARFF Truck	12/14/2024	Approved
Type III Equipment/Building	Oshkosh	Oshkosh Striker 6x6 3,000 Gallon ARFF Truck	12/14/2024	Approved
Type III Equipment/Building	CAT	CAT 966M	12/14/2024	Approved
Type III Equipment/Building	CAT	CAT 962M Wheel Loader	12/14/2024	Approved
Type III Equipment/Building	CAT	CAT 962M Wheel Loader	12/14/2024	Approved
Type III Equipment/Building	CAT	CAT 962M Wheel Loader	12/14/2024	Approved
Type III Equipment/Building	CAT	CAT 962M Wheel Loader	12/14/2024	Approved
Type III Equipment/Building	CAT	CAT 962M Wheel Loader	12/14/2024	Approved
Type III Equipment/Building	CAT	CAT 962M Wheel Loader	12/14/2024	Approved
Type III Equipment/Building	Roger Hickel Contracting, Inc.	Anchorage Gate B4 Passenger Boarding Bridge Replacement	12/7/2024	Approved
Type III Equipment/Building	Caterpillar	CAT 980M Wheel Loader	12/7/2024	Approved
Type III Equipment/Building	Caterpillar	CAT 980M	12/7/2024	Approved
Type III Equipment/Building	BYD	Battery Electric Transit Buses	11/30/2024	Approved
Type III Equipment/Building	S&L Specialty	Doors Windows Ventilation	11/30/2024	Approved
Type III Equipment/Building	Tricon General Construction, Inc.	Install Chilled Water Central Plant	11/23/2024	Approved
Type III Equipment/Building	RPM Tech	RPM220	11/23/2024	Revoked
Type III Equipment/Building	RPM Tech	RPM220	11/23/2024	Approved
Type III Equipment/Building	BSI Equipment LLC	Edge Light Cleaner	11/16/2024	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Scull Construction Services, Inc.	Airport Terminal Building Expansion and Renovation	11/9/2024	Approved
Type III Equipment/Building	Doosan Bobcat North America	Electric Skid Loader M0378	11/2/2024	Approved
Type III Equipment/Building	Cruz Construction, Inc	L-109 Electrical Enclusure	11/2/2024	Approved
Type III Equipment/Building	Masscott Equipment Company, LLC	Fuel System	10/26/2024	Approved
Type III Equipment/Building	M-B Companies,Inc.	SRE North Star	10/19/2024	Approved
Type III Equipment/Building	M-B Companies, Inc.	snow removal equipment MB4	10/19/2024	Approved
Type III Equipment/Building	M-B Companies, Inc	snow removal equipment MB3	10/19/2024	Approved
Type III Equipment/Building	M-B Companies, Inc.	snow removal equipment MB2 CRDL	10/19/2024	Approved
Type III Equipment/Building	M-B Companies, Inc.	snow removal equipment MB2 and MB5	10/19/2024	Approved
Type III Equipment/Building	M-B Companies, Inc.	snow removal equipment MB3	10/19/2024	Approved
Type III Equipment/Building	M-B Companies, Inc.	MB5 snow removal equipment	10/19/2024	Approved
Type III Equipment/Building	M-B Companies, Inc	MB4 snow removal equipment	10/19/2024	Approved
Type III Equipment/Building	M-B Companies, Inc.	MB3 snow removal equipment	10/19/2024	Approved
Type III Equipment/Building	M-B Companies, Inc.	MB Deicing equipment	10/19/2024	Approved
Type III Equipment/Building	M-B Companies, Inc.	MB3 and MB4 snow removal equipment	10/19/2024	Approved
Type III Equipment/Building	M-B Companies, Inc	MB2 Snow Removal Equipment	10/19/2024	Approved
Type III Equipment/Building	M-B Companies, Inc.	MB2 Snow Removal Equipment	10/19/2024	Approved
Type III Equipment/Building	F&W Construction Company, Inc.	Building - SREB	10/19/2024	Approved
Type III Equipment/Building	Oshkosh AeroTech - Jetway Systems	SJ-70 30T Preconditioned Air System and JetPower 3 Ground Power Unit	10/19/2024	Approved
Type III Equipment/Building	Rosenbauer Minnesota, LLC	ARFF Vehicle	10/12/2024	Approved
Type III Equipment/Building	Caterpillar Defense	927XE CAT Wheel Loader	10/12/2024	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Strong Tower Construction	Residential Sound Insulation - Phase 2 (203 Units)	10/12/2024	Approved
Type III Equipment/Building	Dale Johnson III Construction, LLC	Aircraft Hangar	10/5/2024	Approved
Type III Equipment/Building	McG/Dawson Joint Venture	Phase 1A: Terminal Improvements including sitework, demolition, construction of new space	10/5/2024	Approved
Type III Equipment/Building	Oshkosh	Oshkosh Striker 4X4 ARFF Vehicle	9/28/2024	Approved
Type III Equipment/Building	Pierce	Pierce Manufacturing, Inc. 100' Enforcer Tower / Fire Apparatus	9/28/2024	Approved
Type III Equipment/Building	Pape Machinery Inc	Snow Removal Equipment (loader and attachments)	9/28/2024	Approved
Type III Equipment/Building	M-B Companies	MB3 Snow Broom with Airblast	9/28/2024	Approved
Type III Equipment/Building	Siddons Martin Emergency Group	Index A Class III ARFF Truck	9/28/2024	Approved
Type III Equipment/Building	Oshkosh Airport Products Inc.	Oshkosh Striker 6x6	9/21/2024	Approved
Type III Equipment/Building	Baltimore Aircoil Company (BAC), Multistack, Johnson Controls International/York International Company, Eaton Corporation	Adiabatic Fluid Cooler (Baltimore Aircoil Company), Geothermal Chiller (Multistack), Centrifugal Chiller (Johnson Controls Int), Medium Voltage Assemblies and Switchgear (Eaton)	9/21/2024	Approved
Type III Equipment/Building	Sampson Construction Co., Inc.	Construct Terminal Building	9/21/2024	Approved
Type III Equipment/Building	Roger Hickel Contracting, Inc.	Rehabilitattion of building 835.	9/21/2024	Approved
Type III Equipment/Building	Duke Electric	Emergency Power Improvements	9/21/2024	Approved
Type III Equipment/Building	All-O-Matic	Vehicle gate operators	9/21/2024	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Allegiance Fire and Rescue	Hydraulic tools, oxygen tanks, hand tools, etc.	9/14/2024	Approved
Type III Equipment/Building	Erskine Attachments, LLC	965RM Snowblower Attachment	9/14/2024	Approved
Type III Equipment/Building	Turner Construction (Prime Contracto)	Passenger boarding bridges, fixed walkways, foundations	9/14/2024	Approved
Type III Equipment/Building	Swank/QD	Terminal Building Expansion	9/14/2024	Approved
Type III Equipment/Building	Swank/QD	Terminal Building Expansion	9/14/2024	Approved
Type III Equipment/Building	The Joseph Company, Inc.	10-Unit Aircraft Hangar	9/14/2024	Approved
Type III Equipment/Building	M-B Companies, Inc.	MB4 Blower	9/7/2024	Approved
Type III Equipment/Building	ACG Systems, Incorporated	BDN ATCT Cab Communications for FCT Tower	9/7/2024	Approved
Type III Equipment/Building	James Talcott Construction, Inc	GA Terminal Buiilding	9/7/2024	Approved
Type III Equipment/Building	Prime Construction Contractor - King Construction Services	New Terminal Building comprised of miscellaneous building materials	9/7/2024	Approved
Type III Equipment/Building	Ground Support Specialists, LLC	Osprey 1400 Deicer Vehicle	9/7/2024	Approved
Type III Equipment/Building	Ground Support Specialist, LLC	Osprey 1400 Deicer Vehicle	9/7/2024	Approved
Type III Equipment/Building	TK Airport Solutions, Inc.	Const. Passenger Boarding Bridges	9/2/2024	Approved
Type III Equipment/Building	Rosenbauer Minnesota, LLC	ARFF Vehicle - Model A144	9/2/2024	Approved
Type III Equipment/Building	Oshkosh AeroTech - Jetway Systems	PBB Preconditioned Air Systems (PCA) and Ground Power Units (GPU)	9/2/2024	Approved
Type III Equipment/Building	Daimler Truck North America LLC	One snowplow 4x4 and spreader; one snowplow 6x6 and spreader	9/2/2024	Approved
Type III Equipment/Building	Oshkosh Airport Products	Striker 4x4 ARFF Vehicle	9/2/2024	Approved
Type III Equipment/Building	M-B Companies, Inc.	SRE CRDL Snow Removal Vehicle	9/2/2024	Approved
Type III Equipment/Building	M-B Companies, Inc.	MB2 Carrier Vehicle	9/2/2024	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	M-B Companies, Inc.	SRE MB4 and SRE MB5	9/2/2024	Approved
Type III Equipment/Building	Wausau Equipment Inc	Snow Removal Equipment	8/24/2024	Approved
Type III Equipment/Building	Edison Foard, LLC.	Concourse E Renovations	8/24/2024	Approved
Type III Equipment/Building	Rosenbauer Minnesota, LLC	ARFF Vehicle Model – A146	8/24/2024	Approved
Type III Equipment/Building	American Elevator	Moving Walkways 19, 20, 23 and 24	8/24/2024	Approved
Type III Equipment/Building	S&L Specialty	doors, door hardware, windows and HVAC & mechanical components)	8/24/2024	Approved
Type III Equipment/Building	M-B Companies, Inc.	Snow Removal Truck MB3	8/10/2024	Approved
Type III Equipment/Building	Crossland Constuction Company, Inc	Terminal Building	8/10/2024	Approved
Type III Equipment/Building	M-B Companies, Inc.	MB-4	8/10/2024	Approved
Type III Equipment/Building	Oshkosh Airport Products	ARFF vehicle, Type IV	8/10/2024	Approved
Type III Equipment/Building	NENA Construction, Inc.	HVAC Equipment/Materials and Door Hardware	8/10/2024	Approved
Type III Equipment/Building	Halliday Technologies Inc.	RT3 Flight Continuous Friction Measuring Equipment (CFME) Winter Unit	8/10/2024	Approved
Type III Equipment/Building	Holder Construction Group LLC	Terminal 4 Central Utility Plant Modernization	8/3/2024	Approved
Type III Equipment/Building	1 Source Solar, LLC	Install 28.8 KW (DC) Photovoltaic Solar Array on Ground	8/3/2024	Approved
Type III Equipment/Building	HENNINGSEN CONSTRUCTION	T-HANGAR CONSTRUCTION AND TAXILANE EXTENSION	8/3/2024	Approved
Type III Equipment/Building	Tricon Construction Group	Construct Hangar with attached Airport/FBO Terminal Building	8/3/2024	Approved
Type III Equipment/Building	John Deere	524 P-Tier Wheel Loader	8/3/2024	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Minit Charger, LLC	e GSE Charger Altus II with BIW Cables	8/3/2024	Approved
Type III Equipment/Building	RIDE Mobility	RIDE K7M ER Transit Bus	7/26/2024	Approved
Type III Equipment/Building	Halliday Technologies, Inc.	RT3 Flight Winter Friction Measuring Unit	7/26/2024	Approved
Type III Equipment/Building	M-B Companies, Inc.	MB3 SRE Power Broom Truck	7/26/2024	Approved
Type III Equipment/Building	K. WHoltman Construction, Inc.	multiple (Steel, Rebar, barrier rolls, insulation, wire mesh, etc.)	7/26/2024	Approved
Type III Equipment/Building	Kendal Ford	Ford F-SERIES U8500 Vale Vehicles	7/20/2024	Approved
Type III Equipment/Building	S & L Construction Inc	Doors, Windows Ventilation	7/20/2024	Approved
Type III Equipment/Building	Averest Inc.	eGSE Portable Charging Station	7/13/2024	Approved
Type III Equipment/Building	Swinerton Builders	JWA Vertical Conveyance Systems Improvements Phase 1	7/13/2024	Approved
Type III Equipment/Building	Hensel Phelps Construction Company	Terminal Building	7/13/2024	Approved
Type III Equipment/Building	Oshkosh AeroTech - Jetway Systems	Passenger Boarding Bridges	7/13/2024	Approved
Type III Equipment/Building	Rosenbauer Minnesota, LLC	ARFF Vehicle Model -A144	7/13/2024	Approved
Type III Equipment/Building	Municipal Emergency Services, Inc	ARFF Turnout Gear and SCBA	7/13/2024	Approved
Type III Equipment/Building	Municipal Emergency Services, Inc	ARFF Tools	7/13/2024	Approved
Type III Equipment/Building	M-B Companies, Inc.	H2000 (Loader Mounted Rotary Snow Blower)	7/13/2024	Approved
Type III Equipment/Building	M-B Companies, Inc.	P5000C Plow	7/13/2024	Approved
Type III Equipment/Building	Oshkosh AeroTech - Jetway Systems	Passenger Boarding Bridges	7/13/2024	Approved
Type III Equipment/Building	SpawGlass Civil Construction, Inc.	PN668 IAH ARFF Station 92	7/13/2024	Approved
Type III Equipment/Building	TWR Lighting	Double-L-810 Red Obstruction Light with IR OL2VLED 2-IR	7/6/2024	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	TWR Lighting	L810 Red Obstruction Light with IR OL1VBH34LED2-IR	7/6/2024	Approved
Type III Equipment/Building	TWR Lighting	L-810 Red Obstruction Light with IR model # OL1VLED2-IR	7/6/2024	Approved
Type III Equipment/Building	M-B Companies, Inc.	Snow Removal Equipment (Two Multi-function)	7/1/2024	Approved
Type III Equipment/Building	Nunn Construction	Terminal Building	7/1/2024	Approved
Type III Equipment/Building	Rosenbauer Minnesota, LLC	ARFF Vehicle A144	7/1/2024	Approved
Type III Equipment/Building	TYMCO, Inc	Airfield Power Sweeper	7/1/2024	Approved
Type III Equipment/Building	Various	Various	7/1/2024	Approved
Type III Equipment/Building	Mesotech International, Inc.	Automated Weather Observing System (AWOS) I	7/1/2024	Approved
Type III Equipment/Building	Mesotech International Inc	Automated Weather Observing System (AWOS) II	7/1/2024	Approved
Type III Equipment/Building	Mesotech International Inc	Automated Weather Observing System (AWOS) IIIP	7/1/2024	Approved
Type III Equipment/Building	Mesotech International Inc	Automated Weather Observing System (AWOS) IVZ	7/1/2024	Approved
Type III Equipment/Building	Mesotech International Inc	Automated Weather Observing System (AWOS) IIIPT	7/1/2024	Approved
Type III Equipment/Building	Nunn Construction	Terminal Building	6/22/2024	Approved
Type III Equipment/Building	Rosenbauer Minnesota LLC	ARFFF Vehicle Model A144	6/22/2024	Approved
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-804E-AP1-066 Elevated Runway Guard Light	6/22/2024	Approved
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-858 SIGN LED	6/22/2024	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-858 SIGN FIBERGLASS LED	6/22/2024	Approved
Type III Equipment/Building	MB	MB4	6/22/2024	Approved
Type III Equipment/Building	John Deere	844P	6/22/2024	Approved
Type III Equipment/Building	Oshkosh	Class 4 ARFF Vehicle	6/15/2024	Approved
Type III Equipment/Building	M-B Companies, Inc.	Multi-Tasking Snow Removal Carrier Vehicle with Forward Runway Broom and Plow	6/15/2024	Approved
Type III Equipment/Building	M-B Companies, Inc.	Multi-Tasking Snow Removal Carrier Vehicle with Mid-Mount Runway Broom and Plow	6/15/2024	Approved
Type III Equipment/Building	Seaton Construction Group LLC	SRE Building	6/15/2024	Approved
Type III Equipment/Building	M-B Companies, Inc.	MB5 Multi-task Equipment (MTE)	6/15/2024	Approved
Type III Equipment/Building	M-B Companies, Inc.	MB2 Liquid Deicing Truck	6/15/2024	Approved
Type III Equipment/Building	Wausau Equipment Company	Pavement Deicing Truck and Applicator	6/1/2024	Approved
Type III Equipment/Building	Prysmian Cables and Systems (US) , Inc.	L-824 Underground Electrical Cable 1/8 XLPE 5KV FAA Type C 389171	5/18/2024	Approved
Type III Equipment/Building	Prysmian Cables and Systems (US), Inc.	L-824 Underground Electrical Cable 1/6 XLPE 5KV FAA Type C Yellow	5/18/2024	Approved
Type III Equipment/Building	Prysmian Cables and Systems (US) , Inc.	L-824 Underground Electrical Cable ¼ XLP 5KV FAA Type C 389181	5/18/2024	Approved
Type III Equipment/Building	Prysmian Cables and Systems (US), Inc.	L-824 Underground Electrical Cable 1/8 EPR/PVC 5KV FAA Type B 38827	5/18/2024	Approved
Type III Equipment/Building	Prysmian Cables and Systems (US), Inc.	L-824 Underground Electrical Cable 1/6(7X) EPR/CPE 5KV FAA Type B	5/18/2024	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Big Sun	Solar Covered Parking	5/18/2024	Approved
Type III Equipment/Building	Oshkosh AeroTech - Jetway Systems	Passenger Boarding Bridges (PBB)	5/18/2024	Approved
Type III Equipment/Building	RIDE Coach&Bus	K9MD Battery Electric Bus	5/18/2024	Approved
Type III Equipment/Building	Rosenbauer Minnesota, LLC	Class 5 Aircraft Rescue Firefighting Vehicle	5/18/2024	Approved
Type III Equipment/Building	ADB Safegate Americas, LCC	L-861T(L) Taxiway Edge Light, Medium Intensity (MIRL) Elevated model ETES/XXXX	5/18/2024	Approved
Type III Equipment/Building	ADB Safegate Americas, LCC	L-861E(L) Runway Threshold Light Medium Intensity (MITHL) Elevated model EMIS2XX0XS00X00	5/18/2024	Approved
Type III Equipment/Building	ADB Safegate Americas, LCC	L-861(L) Runway Edge Light Medium Intensity (MIRL) Elevated model EMIS2XX0XS00X00	5/18/2024	Approved
Type III Equipment/Building	ADB Safegate Americas, LCC	L-861SE(L) Runway Threshold Light, Medium Intensity (MITHL) Elevated model EMIS2XX0XSF0X00	5/18/2024	Approved
Type III Equipment/Building	Gillig	Electric Buses and related charging equipment	5/18/2024	Approved
Type III Equipment/Building	Hughes Fire Equipment, Oshkosh ECO EFP NoFoam System	NoFoam Testing System	5/11/2024	Approved
Type III Equipment/Building	M-B Companies, Inc.	Snow Removal Equipment (Liquid Deicer Truck)	5/11/2024	Approved
Type III Equipment/Building	M-B Companies, Inc.	Snow Removal Equipment (Solid Material Spreader Truck)	5/11/2024	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Ben Hur Construction Co.	AOC/EOC Development Project in Terminal 1	5/11/2024	Approved
Type III Equipment/Building	Corp Inc	Air Traffic Control Tower (Sponsor Owned and FCT)	5/11/2024	Approved
Type III Equipment/Building	M-B Companies, Inc.	MB3 Broom	5/11/2024	Select..
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-828S Constant Current Regulator	5/11/2024	Approved
Type IV	FlashParking, Inc.	PMMP	5/11/2024	Approved
Type III Equipment/Building	John Deere	544P Wheel Loader with Attachments	5/11/2024	Approved
Type III Equipment/Building	John Deere	544P Wheel Loader with Attachments	5/11/2024	Approved
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-828M Constant Current Regulator	5/11/2024	Approved
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Product	Product L-828L Constant Current Regulator	5/11/2024	Select..
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-829S Monitored Constant Current Regulator	5/11/2024	Approved
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-829M Monitored Constant Current Regulator	5/11/2024	Approved
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-829L Monitored Constant Current Regulator	5/11/2024	Approved
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-847 Circuit Selector Switch	5/11/2024	Approved
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-850A LED Inpavement Runway Lights	5/11/2024	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-850A3 Quartz Inpavement Runway Lights	5/11/2024	Approved
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-850B LED Inpavement Runway Lights	5/11/2024	Approved
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-850B3 Quartz Inpavement Runway Lights	5/11/2024	Approved
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-850C LED Inpavement Runway	5/11/2024	Approved
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-850C Quartz Inpavement Runway Lights	5/11/2024	Approved
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-850D LED Inpavemetn Runway Lights	5/11/2024	Approved
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-852E3 Quartz Inpavement Taxiway Lights	5/11/2024	Approved
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-852D 12-inch LED Inpavement Taxiway Lights	5/11/2024	Approved
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Product	L-852D 8-inch LED Inpavment Taxiway Lights	5/11/2024	Select..
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Projects	L-852C 12-inch LED Inpavement Taxiway Lights	5/11/2024	Approved
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-852C 8-inch LED Inpavement Taxiway Lights	5/11/2024	Approved
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-852B 12-inch LED Inpavement Taxiway Lights	5/11/2024	Approved
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-852B 8-inch LED Inpavement Taxiway Lights	5/11/2024	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-852A 12 -inch LED Inpavement Taxiway Lights	5/11/2024	Approved
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-852A 8-inch LED Inpavement Taxiway Lights	5/11/2024	Approved
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-852J LED 8-Inch Taxiway Centerline Lights	5/11/2024	Approved
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-852G LED Inset Runway Guard Lights	5/11/2024	Approved
Type III Equipment/Building	Eaton Crouse-Hinds Airport Lighting Products	L-852G IRGL/STOP BAR LED	5/11/2024	Approved
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-852J LED 12-Inch Taxiway Centerline Lights	5/11/2024	Approved
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-852K LED 8-Inch Taxiway Centerline Lights	5/11/2024	Approved
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-852K 12 Inch LED Taxiway Centerline Lights	5/11/2024	Approved
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-852S STOP BAR LED	5/11/2024	Approved
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-852T TOL QUARTZ	5/11/2024	Approved
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-890 Airport Lighting Control and Monitoring System	5/11/2024	Approved
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-861 MIRL Omnidirectional LED	5/11/2024	Approved
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-861 MIRL Bidirectional LED	5/11/2024	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-861E MIRL THR LED	5/11/2024	Approved
Type III Equipment/Building	Eaton Crouse Hiinds Airport Lighting Products	L-861SE MIRL THR/RW END LED	5/11/2024	Approved
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-861T AP1 MITL LED	5/11/2024	Approved
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-861T MITL LED	5/11/2024	Approved
Type III Equipment/Building	Allegheny Construction Group, A-1 Electric, Wheels Mechanical Contractor & Supplier, HRANEC Sheet Metal	Terminal Addition	5/11/2024	Approved
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-852T TOL LED	5/11/2024	Approved
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-862 HIRL EDGE LED	5/11/2024	Approved
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-862 HIRL EDGE QUARTZ	5/11/2024	Approved
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-862E HIRL THR LED	5/11/2024	Approved
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-862E HIRL THR QUARTZ	5/11/2024	Approved
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-862S PRO APF Elevated Stop Bar LED	5/11/2024	Approved
Type III Equipment/Building	ADB Safegate Americas, LLC	L-881B(L) Abbreviated LED Precision Approach Path Indicator (PAPI)	5/11/2024	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	ADB Safegate Americas, LCC	Heliport Perimeter Light, Inset IUL/3X2X	5/11/2024	Approved
Type III Equipment/Building	Oshkosh Airport Products	ARFF vehicle	4/27/2024	Approved
Type III Equipment/Building	Icon Structures, Inc.	Expand Terminal Building	4/20/2024	Approved
Type III Equipment/Building	Sletten Construction, Inc.	Expand Terminal Building	4/20/2024	Approved
Type III Equipment/Building	MB-4 SRE Vehicle	Snow Removal Equipment (Two-Stage High-Speed Rotary Plow with Carrier Vehicle)	4/20/2024	Approved
Type III Equipment/Building	Crown USA Incorporated	F-HB-491 TT-P-1952F Type III Bicycle Green	4/20/2024	Approved
Type III Equipment/Building	Crown USA Incorporated	F-HB-281 TT-P-1952F Type III Yellow Marking Paint	4/20/2024	Approved
Type III Equipment/Building	Crown USA Incorporated	F-HB-287 TT-P-1952F Type III Red Marking Paint	4/20/2024	Approved
Type III Equipment/Building	Crown USA Incorporated	F-HB-493 TT-P-1952F Type III Green	4/20/2024	Approved
Type III Equipment/Building	Crown USA Incorporated	F-HB-283 TT-P-1952F Type III Black Marking Paint	4/20/2024	Approved
Type III Equipment/Building	Crown USA Incorporated	F-HB-287-D TT-P-1952F Type III Dark Red Marking Paint	4/20/2024	Approved
Type III Equipment/Building	Crown USA Incorporated	F-HB-280 TT-P-1952F Type III White Marking Paint	4/20/2024	Approved
Type III Equipment/Building	Crown USA Incorporated	F-HB-285 TT-P-1952F Type III Blue Marking Paint	4/20/2024	Approved
Type III Equipment/Building	Market & Johnson	South Ramp Hangar	4/6/2024	Approved
Type III Equipment/Building	JBT AeroTech - Jetway Systems	Passenger Boarding Bridge	4/6/2024	Approved
Type III Equipment/Building	MB Companies, INC	MB2	4/6/2024	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	M-B Companies, Incorporated	runway broom equipment	3/23/2024	Approved
Type III Equipment/Building	M-B Companies, Incorportated	MB4 Snow Removal Equipment	3/23/2024	Approved
Type III Equipment/Building	DBT Transportation Services LLC	DBT Transportation Services LLC AWOS 3PT	3/23/2024	Approved
Type III Equipment/Building	APX Construction	Four Unit Hangar Building	3/23/2024	Approved
Type III Equipment/Building	M-B Companies, Incorporated	Snow Removal Carrier Vehicle and Brooms	3/23/2024	Approved
Type III Equipment/Building	M-B Companies, Incorportated	MB2 and MB3 SRE	3/23/2024	Approved
Type III Equipment/Building	M-B Companies, Incorporated	North Star SRE	3/23/2024	Approved
Type III Equipment/Building	M-B Componies, Incorporated	H2000 SRE	3/23/2024	Approved
Type III Equipment/Building	M-B Compoanies, Incorportated	MB3 Snow Removal Equipment	3/23/2024	Approved
Type III Equipment/Building	M-B Companies, Incorporated	Snow Removal Equipment (SRE) (deicing truck)	3/23/2024	Approved
Type III Equipment/Building	M-B Companies, Incorporated	MB5 SRE	3/23/2024	Approved
Type III Equipment/Building	M-B Companies, Inc.	Dedicated Broom	3/23/2024	Approved
Type III Equipment/Building	M-B Companies, Inc.	Towed Broom	3/23/2024	Approved
Type III Equipment/Building	Caterpillar Defense	938M Caterpillar Wheel Loader and Arctic Sectional Snow Pusher	3/16/2024	Approved
Type III Equipment/Building	Bud Mahas Construction Inc.	Terminal Expansion	3/16/2024	Approved
Type III Equipment/Building	Glore & Associates	acoustical prime door assemblies	3/16/2024	Approved
Type III Equipment/Building	Prime Window Systems	acoustical windows and sliding doors	3/16/2024	Approved
Type III Equipment/Building	noneUS Air--Johnson Controls/ York	HVAC equipment	3/16/2024	Approved
Type III Equipment/Building	Crossland Construction Co.	Joplin Regional Airport (ARFF & SRE Building)	3/16/2024	Approved
Type III Equipment/Building	DBT Transportation Services LLC	AWOS 3PT plus Thunderstorm Sensor	3/16/2024	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	MAC	Geothermal HVAC Unit for Terminal	3/16/2024	Approved
Type III Equipment/Building	L. J. Paolella Construction Inc	Box Hangar	3/5/2024	Approved
Type III Equipment/Building	Icon Structures	Construct 2-Bay and 6-Bay Box Hangars	3/5/2024	Approved
Type III Equipment/Building	S & L Specialty Inc	Quieter Home Program 65-69 DNL - QHP Phase 13 group 4 - 24 Residences	3/5/2024	Approved
Type III Equipment/Building	MB Companies, Inc.	MB4 Front Mount Rotary Snow Blower and Chassis	3/5/2024	Approved
Type III Equipment/Building	Gleason Construction, Inc.	Terminal Building Expansion	2/25/2024	Approved
Type III Equipment/Building	KJU Inc., dba KJ Unnerstall Construction	Airport T Hangar	2/25/2024	Approved
Type III Equipment/Building	Gardner Builders Duluth, LLC.	Terminal Building	2/25/2024	Approved
Type III Equipment/Building	Larue America, Inc.	D40-3C Loader Mounted Snow Blower	2/25/2024	Approved
Type III Equipment/Building	S & L Specialty Construction Inc.	Noise Insulation for residences	2/25/2024	Approved
Type III Equipment/Building	JBT AeroTech - Jetway Systems	Passenger Boarding Bridges	2/25/2024	Approved
Type III Equipment/Building	JN Curtis and Sons	ARFF Safety Gear	2/25/2024	Approved
Type III Equipment/Building	Hawaiian Dredging Construction Company, Inc.	South TSA Checkpoint	2/25/2024	Approved
Type III Equipment/Building	APX Construction	Four Unit Hangar Building	2/25/2024	Approved
Type III Equipment/Building	Daimler Truck North America, LLC	Liquid Pavement Deicing Truck and Dispenser	2/25/2024	Approved
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-850A-AP1-XX-F1 PRO APF RCL LED	2/25/2024	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-850A3 PRO III RCL QUARTZ	2/25/2024	Approved
Type III Equipment/Building	Eaton Crouse Hinds Airport Lighting Products	L-850B TDZ LED	2/25/2024	Approved
Type III Equipment/Building	Oshkosh Airport Products	Index C ARFF Truck - Striker 4X4	2/25/2024	Approved
Type III Equipment/Building	Industrial Protection Services	Index C ARFF Ancillary Equipment	2/25/2024	Approved
Type III Equipment/Building	S&L Specialty Contracting, Inc.	Residential Sound Insulation - Phase 1B (20 Single Family Units)	2/4/2024	Select..
Type III Equipment/Building	S & L Specialty Construction Inc.	Noise Mitigation Measure for residences	2/4/2024	Approved
Type III Equipment/Building	M-B Companies, Inc.	MB3 with Broom Head and Plow	2/4/2024	Approved
Type III Equipment/Building	Honnen Equipment Company	John Deere 320P Backhoe, Rylind RP-JDW25-12' RP Snow Pusher and FODoRazor Airport Runway Sweeper	2/4/2024	Approved
Type III Equipment/Building	Gardner Builders, LLC	Snow Removal Equipment Building	2/4/2024	Approved
Type III Equipment/Building	TK Airport Solutions Inc.	Passenger Boarding Bridge	1/15/2024	Approved
Type III Equipment/Building	Webasto Charging Systems, Incorportated	ASSY Top 50Hz GSE 600-380	1/15/2024	Approved
Type III Equipment/Building	Webasto Charging Systems, Incorporated	DVS400 480V-600V ADK-CEC	1/15/2024	Approved
Type III Equipment/Building	ABB E-Mobility Incorportated.	Terra DC Fast Charger T184 HC CC	1/15/2024	Approved
Type III Equipment/Building	ABB E-Mobility Incorporated	Terra DC Fast Charger T184 BAA CTEP/NTEP	1/15/2024	Approved
Type III Equipment/Building	ABB E-Mobility Incorporated	Terra DC Fast Charger T124 Dual CCS1 BABA	1/15/2024	Approved
Type III Equipment/Building	ABB E-Mobility Incorporated	Terra DC Fast Charger T184 Single ADA	1/15/2024	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	ADB Safegate Americas, LLC	L-895 Elevated Light Stake Mounting	1/15/2024	Approved
Type III Equipment/Building	M-B Companies, Inc.	Multiple snow removal equipment items	1/15/2024	Approved
Type III Equipment/Building	ABB E-Mobility Incorporated	Terra Direct Current Fast Charger T184 BAA ADA	1/15/2024	Approved
Type III Equipment/Building	Brice Incorporated	Building - Snow Removal Equipment Building construction	1/7/2024	Approved
Type III Equipment/Building	Generac	Industrial Spark-Ignited Generator Set	12/31/2023	Approved
Type III Equipment/Building	Groathouse Construction	Terminal Building	12/31/2023	Approved
Type III Equipment/Building	Blue Plow LLC dba Daniels Plows	Daniels 3in1 Plow - 20’	12/31/2023	Approved
Type III Equipment/Building	Nunn Construction	Baggage Handling System	12/31/2023	Approved
Type III Equipment/Building	M-B Companies, Inc.	Multi-Functional Snow Removal Carrier Vehicle with Plow and Sweeper	12/31/2023	Approved
Type III Equipment/Building	M-B Companies, Inc.	multi-tasking equipment (model MB4)	12/31/2023	Approved
Type III Equipment/Building	M-B Companies, Inc.	carrier vehicle with broom and plow	12/31/2023	Approved
Type III Equipment/Building	M-B Companies, Inc.	multitasking carrier vehicle with front mount plow and mid mount broom equipment (model MB5)	12/31/2023	Approved
Type III Equipment/Building	M-B Companies, Inc.	one new and one replacement carrier vehicle with broom (model MB3)	12/31/2023	Approved
Type III Equipment/Building	M-B Companies, Inc.	carrier vehicle with broom (model MB2,CDRL)	12/31/2023	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	M-B Companies, Inc.	two replacement broom attachments (model MB3)	12/31/2023	Approved
Type III Equipment/Building	M-B Companies, Inc.	rotary plow, spreader, and deicing equipment (models MB2 and	12/31/2023	Approved
Type III Equipment/Building	M-B Companies Inc.	a high-speed multi-tasking SRE equipment with plow and broom	12/31/2023	Approved
Type III Equipment/Building	M-B Companies Inc.	wheel loader and broom (model MB3)	12/31/2023	Approved
Type III Equipment/Building	S&L Specialty Companies, Stergis Windows & Doors, JB Sash & Door, Schirrhein St Nicholas Company, LLC	Door Weatherstrip, Door Hinges, Door Hardware, Wood Window Hardware	12/31/2023	Approved
Type III Equipment/Building	Kraus-Anderson Construction Company	Five Unit Hangar Building	12/31/2023	Approved
Type III Equipment/Building	TYMCO, Inc.	TYMCO Model 600 Airfield Sweeper mounted on Freightliner M2-106 Truck Chassis	12/1/2023	Approved
Type III Equipment/Building	Global Environmental Products, Inc.	M4EV Mechanical Street Sweeper	11/27/2023	Approved
Type III Equipment/Building	Lightning eMotors	CG4-159-23-P120-L080 Bus	11/27/2023	Approved
Type III Equipment/Building	JBT AeroTech	A3 53/104 Passenger Boarding Bridge	11/27/2023	Approved
Type III Equipment/Building	S & L Special, Construction, Inc. PEM Door Inc., Prime Window Systems	HVAC, Doors, Windows	11/27/2023	Approved
Type III Equipment/Building	Wolen, L.L.C.	Air Traffic Control Equipment	11/27/2023	Approved
Type III Equipment/Building	Caterpillar	140 Motor Grader	11/27/2023	Approved
Type III Equipment/Building	Caterpillar	140 Motor Grader	11/27/2023	Approved
Type III Equipment/Building	Caterpillar	140 Motor Grader	11/27/2023	Approved
Type III Equipment/Building	Caterpillar	140 Motor Grader	11/27/2023	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Caterpillar	140 Motor Grader	11/27/2023	Approved
Type III Equipment/Building	Caterpillar	140 Motor Grader	11/27/2023	Approved
Type III Equipment/Building	Caterpillar	140 Motor Grader	11/27/2023	Approved
Type III Equipment/Building	Roger Hickel Contracting, Inc.	Building Improvements	11/11/2023	Approved
Type III Equipment/Building	NENA Construction, Inc.	HVAC Material and/or Equipment and Door Hardware	11/11/2023	Approved
Type III Equipment/Building	NENA Construction, Inc.	HVAC Material and/or Equipment and Door Hardware	11/11/2023	Approved
Type III Equipment/Building	ABB E-mobility Inc.	Final Product - 3Q2299XXXXX, Charger: T184 HC CC	11/11/2023	Approved
Type III Equipment/Building	Larue America, Inc.	D50-4C JA Larue Loader Mounted Snow Blower Attachment	11/11/2023	Approved
Type III Equipment/Building	PEM Door Inc., Prime Window Systems, Systems Components	Acoustic Prime Doors, Acoustic Vinyl Windows and Doors, HVAC Equipment/System	11/4/2023	Approved
Type III Equipment/Building	Nelson	Drainage system components	11/4/2023	Approved
Type III Equipment/Building	Midland Door Solutions	Bi-Fold Hangar Door	11/4/2023	Approved
Type III Equipment/Building	Strong Tower	Door Hardware, Vinyl Windows and Doors, Mini-Split AC Systems and Ventilators	11/4/2023	Approved
Type III Equipment/Building	Engleberth Construction, Inc.	Passenger Boarding Bridge Components	11/4/2023	Approved
Type III Equipment/Building	PEM Door Inc., Prime Window Systems	Doors and windows	10/7/2023	Approved
Type III Equipment/Building	Frontline Ag Solutions, LLC	John Deere 5090R Tractor with snowblower, snow pusher and snow bucket	10/7/2023	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Frontline Ag Solution, LLC	John Deere 5090R Tractor with snowblower, snow pusher and snow bucket	10/7/2023	Approved
Type III Equipment/Building	NENA Construction, Inc.	HVAC Condensers, Coils, Mini-Splits, and Door Hardware	10/7/2023	Approved
Type III Equipment/Building	Zodiac Heating and Air Conditioning Inc.	HVAC Equipment	10/7/2023	Approved
Type III Equipment/Building	Specialty Doors Inc.	Wood Acoustic Doors	10/7/2023	Approved
Type III Equipment/Building	Skyward Specialty Distribution	Sliding Glass Door	10/7/2023	Approved
Type III Equipment/Building	AMSCO Windows	Window Serenity Series	10/7/2023	Approved
Type III Equipment/Building	Specialty Door Company, Inc.	Acoustical Fiberglass Assemblies, Acoustical Secondary & Acoustical Alum Skylights & Storm Windows, Acoustical Wood Door Assemblies, Acoustical Windows, Acoustical Sliding Glass Doors	9/26/2023	Approved
Type III Equipment/Building	Potters Industries	Reflective Media TTB 1325D Type IVA (Flex-O-Lite) Glass Beads	9/26/2023	Approved
Type III Equipment/Building	Sun Electric	Electrical Vault	9/26/2023	Approved
Type III Equipment/Building	A-Bridge, LLC	Three Passenger Boarding bridges	9/26/2023	Approved
Type III Equipment/Building	Oshkosh	Oshkosh Stryker ARFF Truck	9/26/2023	Approved
Type III Equipment/Building	Various	Various	9/26/2023	Approved
Type III Equipment/Building	Suffolk-31 Joint Venture, LLC	Zero Carbon Electrical Central Utility Plant	9/26/2023	Approved
Type III Equipment/Building	Ground Support LLC	Deicing Vehicle	9/26/2023	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Various	L-821 Airfield Lighting Control Panel and other	9/26/2023	Approved
Type III Equipment/Building	PEM Door Inc. Prime Window Systems & Systems Components	HVAC, Doors, Windows	9/26/2023	Approved
Type III Equipment/Building	Massachusetts Port Authority	Canopy and Arrivals Level	9/16/2023	Approved
Type III Equipment/Building	Dean Snyder Construction	Terminal Building	9/16/2023	Approved
Type III Equipment/Building	Roger Hickel Contracting, Inc.	Building Improvements	9/16/2023	Approved
Type III Equipment/Building	Building Improvements	noneRoger Hickel Contracting, Inc.	9/16/2023	Approved
Type III Equipment/Building	JBT AeroTech Corporation- Jetway	Passenger Boarding Bridge	9/16/2023	Approved
Type III Equipment/Building	Oshkosh	Striker 4X4 Snozzle Vehicle	9/16/2023	Approved
Type III Equipment/Building	John Bean Technologies Corporation, JBT AeroTech - Jetway Systems	Passenger Boarding Bridge	9/2/2023	Approved
Type III Equipment/Building	Blinderman Construction	Residential Sound Insulation	9/2/2023	Approved
Type III Equipment/Building	Blinderman Construction Co	Residentail Sound Insulation	9/2/2023	Approved
Type III Equipment/Building	MONTEITH CONSTRUCTION	ILM ATRIUM REFRESH	9/2/2023	Approved
Type III Equipment/Building	ADB Safegate Americas LLC	L-862(L) Runway Edge Light High Intensity (HIRL) EREX2XXXXXXXX02	8/26/2023	Approved
Type III Equipment/Building	ADB Safegate Americas, LLC	L-862E(L) Runway Threshold Light, High Intensity (HITHL) EREX2XXXXXFXX02	8/26/2023	Approved
Type III Equipment/Building	MB Companies, Inc.	Deicing Truck	8/26/2023	Approved
Type III Equipment/Building	John Deere	544P Payloader	8/26/2023	Approved
Type III Equipment/Building	Larue America, Inc.	JA Larue D50-4C Loader Mounted Snow Blower	8/26/2023	Approved
Type III Equipment/Building	Oshkosh Airport Products	Oshkosh Striker 4X4 ARFF Vehicle	8/26/2023	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Rosenbauer Minnesota, LLC	Rosenbauer Model A144 Panther 4X4 ARFF	8/26/2023	Approved
Type III Equipment/Building	Visions Construction Group, Inc.	Combined General Aviation Terminal and SRE Building	8/26/2023	Approved
Type III Equipment/Building	New Holland and Kage	TB 320 Tractor and Snowdozer Plow	8/26/2023	Approved
Type III Equipment/Building	Yost Farm Supply	Carrier Vehicle with Broom and Snow Blade	8/18/2023	Approved
Type III Equipment/Building	Lakloey, Inc.	L-103 Airport Beacon	8/18/2023	Approved
Type III Equipment/Building	M-B Companies, Inc.	Snow Removal Runway Broom, Airblast and Vehicle	8/18/2023	Approved
Type III Equipment/Building	M-B Companies, Inc.	MB-5 Multi-Function Truck with 24 foot Plow and Broom	8/18/2023	Approved
Type III Equipment/Building	Schneider Electric	Electrical Substation Replacement	8/18/2023	Approved
Type III Equipment/Building	Halliday Technologies, Inc.	Continuous Friction Measuring Equipment (CFME)	8/18/2023	Approved
Type III Equipment/Building	MB Companies, Inc.	MB5 Multi-Function Snow Removal Truck with Plow and Broom	8/18/2023	Approved
Type III Equipment/Building	M-B Companies, Inc.	Carrier Vehicle R/W Broom with Airblast	8/18/2023	Approved
Type III Equipment/Building	Blue Skys Construction	General Aviation Terminal Building	8/18/2023	Approved
Type III Equipment/Building	Oshkosh Airport Products, a Division of Pierce Mfg., Inc.	Oshkosh Striker 4X4 ARFF Vehicle	8/5/2023	Approved
Type III Equipment/Building	BCI Construction	10 Unit T- Hangar	8/5/2023	Approved
Type III Equipment/Building	Everstrong Construction, Inc.	Two Bay Box Hangar	8/5/2023	Approved
Type III Equipment/Building	Market & Johnson	Hangar	8/5/2023	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	JBT Aero Tech - Jetway Systems	Preconditioned Air Units	8/5/2023	Approved
Type III Equipment/Building	AVCOM Company	Ramona ATCT Data and Communication Equipment	8/5/2023	Approved
Type III Equipment/Building	Oshkosh Defense	Oshkosh H Series Broom HB2723	7/29/2023	Approved
Type III Equipment/Building	Mesotech International	AWOS 3P/T (AWA-30PT)	7/29/2023	Approved
Type III Equipment/Building	Pease Development Authority	Terminal Building Expansion - Total Facility	7/22/2023	Approved
Type III Equipment/Building	Fair Manufacturing, Inc.	Snow Blower	7/22/2023	Approved
Type III Equipment/Building	Kage Innovation	Snow Plow System	7/22/2023	Approved
Type III Equipment/Building	ADB Safegate Americas, LLC	L-852G(L) Inpavement Runway Guard Light, model RSRG11XX1NYXX2X1	7/22/2023	Approved
Type III Equipment/Building	DBT Transportation Services LLC	AWOS 3PT	7/22/2023	Approved
Type III Equipment/Building	DBT Transportation Services LLC	AWOS 3P	7/22/2023	Approved
Type III Equipment/Building	DBT Transportation Services LLC	AWOS 3	7/22/2023	Approved
Type III Equipment/Building	DBT Transporation Services LLC	AWOS 2	7/22/2023	Approved
Type III Equipment/Building	DBT Transportation Services LLC	AWOS 1	7/22/2023	Approved
Type III Equipment/Building	DBT Transportation Services LLC	AWOS AV	7/22/2023	Approved
Type III Equipment/Building	BYD Coach & Bus LLC d/b/a RIDE Coach & Bus LLC	Battery Electric Transit Bus	7/17/2023	Approved
Type III Equipment/Building	Oshkosh Defense, LLC	Oshkosh H Series Blower H2723B	7/17/2023	Approved
Type III Equipment/Building	Consolidated Contracting & Engineering, LLC	ANC North Terminal Baggage Handling System Improvements	7/17/2023	Approved
Type III Equipment/Building	E-ONE, Inc.	AFFF Testing Unit	7/17/2023	Approved
Type III Equipment/Building	M-B Companies, Inc.	Snow Removal Equipment (Vehicle, Plow & Deicer System)	7/17/2023	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Roger Hickel Contracting, Inc.	Building Improvements	7/17/2023	Approved
Type III Equipment/Building	MB Companies, INC	Snowplow Vehicle, Plow and Spreader	7/8/2023	Select..
Type III Equipment/Building	Daimler Truck North America LLC	Carrier Vehicle - 43,000# GVW, 370 Hp Diesel Truck complete with Dump Box & Hoist with a 14' High-Speed, Power Reversible, snowplow with Hydraulically Actuated End Gates	7/8/2023	Approved
Type III Equipment/Building	M-B Companies, Inc.	Carrier vehicle w/rotary plow and broom	7/8/2023	Approved
Type III Equipment/Building	Aldridge Electric, Inc.	Electrical Distribution Equipment Switchboards and Disconnects; JetPower III Flat Pack 180 Ground Power Unit	7/8/2023	Approved
Type III Equipment/Building	ADB Safegate Americas, LLC	L-830, Isolation Transformers, 60Hz Model 1STXXX66601001	7/8/2023	Approved
Type III Equipment/Building	Hillcrest Industries, Inc.	Reflective Media TTB 1325D Type 1A – Glass Beads	7/8/2023	Approved
Type III Equipment/Building	Crown USA Incorporated	F-AB-297 TT-P-1952F Type II Black Marking Paint	7/8/2023	Approved
Type III Equipment/Building	Crown USA Incorporated	F-AL-397 TT-P-1952F Type II Blue Marking Paint	7/8/2023	Approved
Type III Equipment/Building	Caterpillar	966 Medium Wheel Loader	7/8/2023	Approved
Type III Equipment/Building	Crown USA Incorportated	F-AR-399 TT-P-1952F Type II Red Marking Paint	7/8/2023	Approved
Type III Equipment/Building	M-B Companies, Inc.	Snow Removal Rotary Broom	7/8/2023	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	M-B Companies, Inc.	Cupping Ramp Plow	7/8/2023	Approved
Type III Equipment/Building	M-B Companies, Inc.	Loader Mounted Snow Blower	7/8/2023	Approved
Type III Equipment/Building	Crown USA Incorportated	F-AR-D-399 TT-P-1952F Type II Dark Red Marking Paint	7/8/2023	Approved
Type III Equipment/Building	Crown USA Incorportated	F-AW-292 TT-P-1952F Type II White Marking Paint	7/8/2023	Approved
Type III Equipment/Building	Crown USA Incorporated	F-LFY-295 TT-P-1952F Type II L.F. Yellow Marking Paint	7/8/2023	Approved
Type III Equipment/Building	Crown USA Incorporated	F-AG-355 TT-P-1952F Type II Bicycle Green Marking Paint	7/8/2023	Approved
Type III Equipment/Building	NoFoam Systems	NoFoam Tester Model P w kits	7/1/2023	Approved
Type III Equipment/Building	NoFoam Systems	NoFoam Tester (Model C) w kits	7/1/2023	Approved
Type III Equipment/Building	E-One, Inc.	Ecologic Test Cart	7/1/2023	Approved
Type III Equipment/Building	Daimler Truck North America	Carrier Vehicle - 43,000# GVW, 370 Hp Diesel Truck complete with Dump Box with a 14' High-Speed, Power Reversible, snowplow with Hydraulically Actuated End Gates	7/1/2023	Approved
Type III Equipment/Building	Mesotech International	AWOS IIIPT	7/1/2023	Approved
Type III Equipment/Building	JBT Aerotech - Jetway Systems	Passenger Boarding Bridge	7/1/2023	Approved
Type III Equipment/Building	Rosenbauer Minnesota, LLC	Airport Rescue and Fire Fighting (ARFF) Vehicle-Model A144	6/24/2023	Approved
Type III Equipment/Building	Pine Tree Solar, LLC	On-Airport Energy Production	6/24/2023	Approved
Type III Equipment/Building	Emerging Growth Enterprise LLC BDA NoFoam Systems	NoFoam Tester Model P with kits	6/24/2023	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Emerging Growth Enterprise LLC BDA NoFoam Systems	NoFoam Testing System Model P and C	6/24/2023	Approved
Type III Equipment/Building	BYD Coach & Bus LLC d/b/a RIDE Coach & Bus LLC	BYD K9MD Battery Electric Bus	6/24/2023	Approved
Type III Equipment/Building	John Deere	624P Loader	6/24/2023	Approved
Type III Equipment/Building	Smart Manufacturing, Inc.	Runway/Ramp RRR 2K Deicer	6/24/2023	Approved
Type III Equipment/Building	MB Companies, Inc.	MB2 Chassis with MB P5014SD Plow and MB3 Chassis with MB 4616 Pivot Lift Broom	6/24/2023	Approved
Type III Equipment/Building	Glenelg Construction Inc.	VALE Infrastructure	6/24/2023	Approved
Type III Equipment/Building	Clausen and Sons Inc.	SRE building	6/17/2023	Approved
Type III Equipment/Building	Schindler Elevator Company	Model S5500 Elevator	6/17/2023	Approved
Type III Equipment/Building	Schindler Elevator Company	Model 9300 Escalator	6/17/2023	Approved
Type III Equipment/Building	Oshkosh Airport Products, a Division of Pierce Mfg., Inc.	Oshkosh Striker 4x4 ARFF Vehicle	6/17/2023	Approved
Type III Equipment/Building	MB Companies, Inc.	Rotary Tow Behind Broom	6/17/2023	Approved
Type III Equipment/Building	CAT	966MWL	6/17/2023	Approved
Type III Equipment/Building	Oshkosh Defense, LLC	Oshkosh H-Series Snow Blower H2723B	6/17/2023	Approved
Type III Equipment/Building	M-B Companies, Inc.	MB4 Front Mount Rotary Snow Blower and Chassis	6/17/2023	Approved
Type III Equipment/Building	Conco Inc.	SRE Building	6/17/2023	Approved
Type III Equipment/Building	Teinert Construction	Wall Tile WP-1	6/17/2023	Approved
Type III Equipment/Building	Hy-Tec Construction of Brainerd, Inc.	Two Bay Conventional Hangar	6/17/2023	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	M-B Companies, Inc.	MTE, MB2 Chassis, Plow and Tow Broom	6/17/2023	Approved
Type III Equipment/Building	Fair Manufacturing , Inc.	SnoCrete 848C Snow Blower Attachment	6/17/2023	Approved
Type III Equipment/Building	M-B Companies, Inc.	MB4 Chassis and MB MH7500 Snowblower Attachment	6/17/2023	Approved
Type III Equipment/Building	Grouser Products, Inc.	Grouser 12 Foot 241 I Blade	6/17/2023	Approved
Type III Equipment/Building	Fair Manufacturing, Inc.	Snocrete 848C Blower	6/17/2023	Approved
Type III Equipment/Building	KCI Construction	Terminal Buidling	6/17/2023	Approved
Type III Equipment/Building	Bergstrom Electric, Inc.	Terminal Building	6/17/2023	Approved
Type III Equipment/Building	Klemetsrud Plumbing and Heating Company, Inc.	Terminal Building	6/17/2023	Approved
Type III Equipment/Building	Wausau Equipment Company, Inc.	Snogo Model PB 3000H Snowblower	6/17/2023	Approved
Type III Equipment/Building	Wausau Equipment Company	Snogo Model PB 3000H Snowblower	6/17/2023	Approved
Type III Equipment/Building	Emerging Growth Enterprise LLC dba NoFoam Systems	ARFF NoFoam Testing System Model P and C	5/20/2023	Approved
Type III Equipment/Building	Ameresco	Terminal Canopies and Lighting	5/20/2023	Approved
Type III Equipment/Building	Rosenbauer Minnesota, LLC	New Class 4 Aircraft Rescue and Fire Fighting (ARFF) vehicle	5/20/2023	Approved
Type III Equipment/Building	Patterson Pump Company	Terminal Boiler Pump	5/13/2023	Approved
Type III Equipment/Building	RDH Electric & Construction, Inc.	SRE building	5/13/2023	Approved
Type III Equipment/Building	Arconas Corporation	Passenger Terminal Seating	5/13/2023	Approved
Type III Equipment/Building	E-One, Inc.	AFFF Measurement Cart	5/13/2023	Approved
Type III Equipment/Building	Generac Power Systems, Inc.	Industrial Gaseous Generator	5/13/2023	Approved
Type III Equipment/Building	Generac Power Systems, Inc.	Industrial Gaseous Generator	5/13/2023	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Whiting Turner Contracting Company	Terminal Building Construction and Renovation	5/1/2023	Approved
Type III Equipment/Building	Suffolk Construction	Terminal Building Renovation	5/1/2023	Approved
Type III Equipment/Building	Edling Electric, Inc.	GA Apron Expansion Phase 4 Gate Operating System	5/1/2023	Approved
Type III Equipment/Building	JBT AeroTech - Jetway Systems	A3 64/131 Passenger Boarding Bridge with 90kVA/28VDC JPIV	5/1/2023	Approved
Type III Equipment/Building	JBT AeroTech Corporation- Jetway Systems	Passenger Boarding Bridge A3 60/119 and A3 58/110,	4/15/2023	Approved
Type III Equipment/Building	CAT	JOY 160 Motor Graders	4/15/2023	Approved
Type III Equipment/Building	CAT	966M Medium Wheel Loader	4/15/2023	Approved
Type III Equipment/Building	Caterpillar	D3 Dozer	4/15/2023	Approved
Type III Equipment/Building	Engelberth Construction, Inc.	Breach Control System	4/15/2023	Approved
Type III Equipment/Building	Fair Manufacturing, Inc.	SnoCrete 848C Snowblower Attachment	4/15/2023	Approved
Type III Equipment/Building	Patriot Mechanical, LLC	Air Handling Unit (AHU)	4/15/2023	Approved
Type III Equipment/Building	Johnson Controls Inc	XTO/XTI Air Handling Unit (AHU)	4/1/2023	Approved
Type III Equipment/Building	Garco|QD Builders	Terminal Building Renovation & Expansion	4/1/2023	Approved
Type III Equipment/Building	SPX Aids for Aviation	L-863 Portable Runway and Taxiway Lighting AV-70-863-B-SW-CP	3/25/2023	Approved
Type III Equipment/Building	SPX Aids to Aviation	L-863 Portable Runway and Taxiway Lighting AC-70-863-B-RF-SW-CP	3/25/2023	Approved
Type III Equipment/Building	ADB Safegate Americas, LLC	L-852T LED (L) Omni-directional In-pavement Taxiway Edge Light RSTEX1XP3NXNXXX2	3/25/2023	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Emerging Growth Enterprise LLC dba NoFoam Systems	Model P NoFoam Testing System	3/25/2023	Approved
Type III Equipment/Building	M-B Companies, Inc.	Carrier Vehicle, Snow Plow and Liquid Spreader	3/18/2023	Approved
Type III Equipment/Building	M-B Companies, Inc	Carrier Vehcile with Runway Broom and Air Blast	3/18/2023	Approved
Type III Equipment/Building	Rosenbauer Minnesota, LLC	ARFF Vehicle Model-A146	3/18/2023	Approved
Type III Equipment/Building	Caterpillar	926M Small Wheel Loader	3/11/2023	Approved
Type III Equipment/Building	Caterpillar	926M Small Wheel Loader	3/11/2023	Approved
Type III Equipment/Building	Bangor International Airport	Passenger Terminal Building Improvements	3/11/2023	Approved
Type III Equipment/Building	All Weather Incorporated	Automated Weather Observation System AWOS II	3/6/2023	Approved
Type III Equipment/Building	TSJ Construction, LLC	Snow Removal Equipment Building	3/6/2023	Approved
Type III Equipment/Building	John Deere	John Deere 444P Wheel Loader	3/6/2023	Approved
Type III Equipment/Building	MB Companies, Inc	MB Model HL Broom SRE	3/6/2023	Approved
Type III Equipment/Building	Erskine Attachments	930011 Extreme Snowblower SRE Attachment	3/6/2023	Approved
Type III Equipment/Building	H+U Construction	Cargo Hangar and Associated Landside Development	3/6/2023	Approved
Type III Equipment/Building	Cherokee Nation 3S	Automated Weather Observation System AWOS-C	3/6/2023	Approved
Type III Equipment/Building	Robins & Morton Group	Terminal Elevator and Escalator Area Renovation	2/25/2023	Approved
Type III Equipment/Building	Hammers Construction	SRE Building	2/25/2023	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	JBT AeroTech - Jetway Systems	AT3 Truss Passenger Boarding Bridge	2/25/2023	Approved
Type III Equipment/Building	TF Powers Construction Company	Customs Border Protection Building	2/25/2023	Approved
Type III Equipment/Building	HTP	ELX-400 Boiler	2/25/2023	Approved
Type III Equipment/Building	All Weather Incorporated	Automated Weather Observation System III P/T	2/25/2023	Approved
Type III Equipment/Building	All Weather Incorportated	Automated Weather Observation System III	2/25/2023	Approved
Type III Equipment/Building	All Weather Incorporated	Automated Weather Observation System III-P	2/25/2023	Approved
Type III Equipment/Building	All Weather Incorportated	Automated Weather Observation System AWOS I	2/25/2023	Approved
Type III Equipment/Building	All Weather Incorportated	Automated Weather Observation System Altimeter/Visibility (AV)	2/25/2023	Approved
Type III Equipment/Building	DP Porter Contractors, Inc.	Construct New Terminal Building	2/18/2023	Approved
Type III Equipment/Building	S&L Specialty Contracting, Inc.	Residential Sound Insulation - Phase 1A (18 Units)	2/18/2023	Approved
Type III Equipment/Building	TK Airport Solutions, Inc	Passenger Boarding Bridge	2/6/2023	Approved
Type III Equipment/Building	M-B Companies Inc.	Multi-Tasking Equipment Plow and Broom	2/6/2023	Approved
Type III Equipment/Building	JBT AeroTech Corporation- Jetway	Passenger Boarding Bridge	2/6/2023	Approved
Type III Equipment/Building	M-B Companies, Inc	Runway Broom with Air Blast and Carrier Vehicle	2/6/2023	Approved
Type III Equipment/Building	Suffolk Construction	(HVAC, Ticketing, Baggage Handling and Passenger Boarding Bridge	2/6/2023	Approved
Type III Equipment/Building	Cofell's Plumbing & Heating, Inc.	Snow Removal Equipment Building Mechanical Construction	2/6/2023	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

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Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Butler Machinery Company	Caterpillar 926 Wheel Loader with 12" Snow Plow and Broom	2/6/2023	Approved
Type III Equipment/Building	HitchDoc	HitchDoc HDS9200 Hydraulic Snow Blower Attachment	2/6/2023	Approved
Type III Equipment/Building	M-B Companies, Inc.	MB5 Multi-Function Snow Removal Truck	2/6/2023	Approved
Type III Equipment/Building	Ebert Construction	Terminal Building	2/6/2023	Approved
Type III Equipment/Building	Wieser Brothers General Contractor, Inc.	Terminal Building	2/6/2023	Approved
Type III Equipment/Building	Wolverine Supply, Inc.	Rehabilitated snow removal equipment building.	2/6/2023	Approved
Type III Equipment/Building	Wausau Equipment Company	Freightliner 114SD Plow Truck	2/6/2023	Approved
Type III Equipment/Building	Knox County	Crew / Operations House	1/14/2023	Approved
Type III Equipment/Building	Pending Correction	Hangar Terminal Building	1/14/2023	Approved
Type III Equipment/Building	M-B Companies, Inc.	Multi-Function Snow Removal Vehicle	1/14/2023	Approved
Type III Equipment/Building	M-B Companies Inc	Multi-Function Snow Removal Vehicle	1/14/2023	Approved
Type III Equipment/Building	BYD Motors	BYD K9M Battery Electric Bus	1/14/2023	Approved
Type III Equipment/Building	M-B Companies inc.	Cupping Ramp plow and Chassis, Plow and De-Icer	12/31/2022	Approved
Type III Equipment/Building	A-Bridge LLC	Passenger Boarding Bridge	12/31/2022	Approved
Type III Equipment/Building	AIC Marianas, Inc.	Passenger Boarding Bridge; AT3 53/104 125R with JT-26-BB	12/31/2022	Approved
Type III Equipment/Building	Rosenbauer Minnesota, LLC	Model A144 Panther 4X4 ARFF Vehicle	12/20/2022	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	John Deere	724P Wheel Loader	12/20/2022	Approved
Type III Equipment/Building	MB Companies, Inc.	P5500-C Cupping Plow	12/20/2022	Approved
Type III Equipment/Building	None	None	12/20/2022	Approved
Type III Equipment/Building	none	none	12/20/2022	Approved
Type III Equipment/Building	Oshkosh Airport Products, LLC	Oshkosh Striker 6X6 Aircraft Rescue and Fire Fighting Vehicle	12/10/2022	Approved
Type III Equipment/Building	MB Companies, Incorporated	MB High Speed Multi-Tasking Snow Vehicle	12/10/2022	Approved
Type III Equipment/Building	Erskine Attachments	84" Snowblower	12/10/2022	Approved
Type III Equipment/Building	Oshkosh Defense, LLC	H-Series Snow Blower	12/10/2022	Approved
Type III Equipment/Building	Northern Improvement Company	Snow Removal Equipment Building Civil Site and Building Construction	11/20/2022	Approved
Type III Equipment/Building	Edling Electric Incorporated	Snow Removal Equipment Building Electrical Construction	11/20/2022	Approved
Type III Equipment/Building	Emerging Growth Enterprise, LLC dba NoFoam Systems	Aircraft Rescue Fire Fighting NoFoam Testing System Cart	11/20/2022	Approved
Type III Equipment/Building	Emerging Growth Enterprise LLC dba NoFoam Systems	NoFoam Testing System	11/20/2022	Approved
Type III Equipment/Building	none	Sound Insulation Program - O'Hare Airport	11/20/2022	Approved
Type III Equipment/Building	Erkstine Attachments	84" Snowblower	11/20/2022	Approved
Type III Equipment/Building	JBT AeroTech Corporation, Jetway Systems	Passenger Boarding Bridges	11/20/2022	Approved
Type III Equipment/Building	John Deere	John Deere 824L/824P Pay Loader	11/20/2022	Approved
Type III Equipment/Building	Arctic Snow and Ice Control Products	27.5 ft Heavy Duty Sectional Snow Plow	11/20/2022	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	MB Companies, Inc.	Loader Mounted Snowblower	11/20/2022	Approved
Type III Equipment/Building	Hoffman Construction Company of Washington	Terminal Building & Parking Lot Construction	11/20/2022	Approved
Type III Equipment/Building	Erkstine Attachments	84" Snowblower	10/18/2022	Approved
Type III Equipment/Building	Monroe Tractor	Snow removal equipment vehicle with multiple attachments	9/26/2022	Approved
Type III Equipment/Building	Knik Construction Co, Inc.	Snow Removal Equipment Building	9/26/2022	Approved
Type III Equipment/Building	SRM Kodiak	Rotary Snow Blower	9/11/2022	Approved
Type III Equipment/Building	John Deer/	Front End Loader-624P and 16' Snow Pusher	9/11/2022	Approved
Type III Equipment/Building	Mack	Truck, plow,	9/3/2022	Approved
Type III Equipment/Building	E-ONE, INC	ARFF Testing Cart	9/3/2022	Approved
Type III Equipment/Building	Potters Industries (Flex-O-Lite)	Reflective Media TTB 13215D Type IA (Flex-O-Lite) Glass Beads	8/27/2022	Approved
Type III Equipment/Building	Five Star Equipment LLC	John Deere 644P	8/27/2022	Approved
Type III Equipment/Building	Miller Equipment, Inc.	Multi-Tasking Equipment Power Unit for Snow Removal	8/20/2022	Approved
Type III Equipment/Building	Miller Equipment, Inc.	Multi-Tasking Equipment Power Unit for Snow Removal	8/20/2022	Approved
Type III Equipment/Building	Knik Construction Company, Inc.	Caterpillar C4.4 Diesel Engine Generator	8/20/2022	Approved
Type III Equipment/Building	Emerging Growth Enterprise LLC dba NoFoam Systems	NoFoam Testing System	8/20/2022	Approved
Type III Equipment/Building	CCI Electrical Services LLC	Electrical Enclosure Building	8/13/2022	Approved
Type III Equipment/Building	Emerging Growth Enterprise, LLC, dba	AFFF Testing Cart	8/13/2022	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Emerging Growth Enterprise, LLC, dba NoFoam Systems	AFFF Cart	8/13/2022	Approved
Type III Equipment/Building	GBA Components, LLC	Inpavement Light EB-83A Coated Bolts	8/7/2022	Approved
Type III Equipment/Building	Talcott Construciton, Inc.	bi-fold door components and fertilizer	8/7/2022	Approved
Type III Equipment/Building	Oshkosh Defense, LLC	Oshkosh Defense H Series SRE H2723B	8/7/2022	Approved
Type III Equipment/Building	NC Machinery	CAT 962M - 4CY GP Bucket Loader	8/7/2022	Approved
Type III Equipment/Building	NC Machinery	Cat 962M - 4CY Loader	8/7/2022	Approved
Type III Equipment/Building	Oshkosh	H Series Snow Blower H2723B	8/7/2022	Approved
Type III Equipment/Building	NC Machinery	Caterpillar D-3 dozer	8/7/2022	Approved
Type III Equipment/Building	NC Machinery	Cat 962M - 4CY loader	8/7/2022	Approved
Type III Equipment/Building	Oshkosh Defense, LLC	Oshkosh Defense H-Series Runway Broom and Chasis H2723B	8/7/2022	Approved
Type III Equipment/Building	M-B Companies, Inc.	MB5 Mid-Mount Broom and Plow Compact Multi-Tasking Snow Removal Vehicle	8/7/2022	Approved
Type III Equipment/Building	Jay Fortune Construction, Inc.	Snow Removal Equipment Building	8/7/2022	Approved
Type III Equipment/Building	International	International HV507 cab & chassis SRE carrier vehicles w/ attachments	7/30/2022	Approved
Type III Equipment/Building	Emerging Growth Enterprise, LLC (bla NoFoam Systems)	P-574 Portable Testing System	7/30/2022	Approved
Type III Equipment/Building	OSHKOSH	HB2723 with front mounted broom	7/30/2022	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	NENA Construction, Inc.	HVAC materials and equipment, door hardware, and electrical materials and equipment	7/30/2022	Approved
Type III Equipment/Building	National Security Corporation	Cameras and mounting equipment	7/30/2022	Approved
Type III Equipment/Building	Emerging Growth Enterprise LLC dba NoFoam Systems	NoFoam Testing System	7/30/2022	Approved
Type III Equipment/Building	Wylie Implement	Airport De-Icer Trailer SP0592	7/30/2022	Approved
Type III Equipment/Building	Emerging Growth Enterprise LLC dba NoFoam Systems	ARFF Test System	7/30/2022	Approved
Type III Equipment/Building	ADB Safegate Americas, LLC	L-850D(L) RSRT212XXXFXXXX1 Inpavement Runway Threshold Light	7/30/2022	Approved
Type III Equipment/Building	M-B Companies, Inc.	Snow removal broom	7/17/2022	Approved
Type III Equipment/Building	M-B Companies, Inc.	Snowplow 4X4 and spreader	7/17/2022	Select..
Type III Equipment/Building	M-B Companies, Inc.	Snow plow 6x6 and spreader	7/17/2022	Approved
Type III Equipment/Building	M-B Companies, Inc.	Snow removal equipment, high speed airport brooms	7/17/2022	Approved
Type III Equipment/Building	Blue Plow LLC dba Daniels Plows	Plow for snow removal equipment (SRE)	7/17/2022	Approved
Type III Equipment/Building	E-ONE, Inc.	ARFF Test Cart	7/17/2022	Approved
Type III Equipment/Building	M-B Companies, Inc.	MB2 Heavy Duty Plow Chassis with MB2 Material Spreader and P5000 Airport Reversible Plow	7/17/2022	Approved
Type III Equipment/Building	M-B Companies, Inc.	MB3 Front Mount Airport Broom and Chassis with 4600 Pivot Lift Airport Broom Head	7/17/2022	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Potters Industries (Flex-O-Lite)	Reflective Media TT-B 1325D Type III (Flex-O-Lite) Glass Beads, 1.9 Index of Refraction	7/17/2022	Approved
Type III Equipment/Building	ADB Safegate Americas, LLC	L-852K(LED) Inpavement Taxiway Centerline Light Model RSTK21XXXCXXX2X1	7/17/2022	Approved
Type III Equipment/Building	ADB Safegate Americas, LLC	L-852A (LED) Model RSTA21XXXNXXX2X1 Inpavement Taxiway Centerline Light	7/17/2022	Approved
Type III Equipment/Building	ADB Safegate Americas, LLC	L-852C (LED) Model RSTC21XXXNXXX2X1 Inpavement Taxiway Centerline Light	7/17/2022	Approved
Type III Equipment/Building	ADB Safegate Americas, LLC	L-852J (LED) Model RSTJ21XXXCXXX2X1 Inpavement Taxiway Centerline Light	7/17/2022	Approved
Type III Equipment/Building	ADB Safegate Americas, LLC	L-852S (LED) Model RSSB21XXXNRNX2X1 Inpavement Stop Bar Light	7/17/2022	Approved
Type III Equipment/Building	ADB Safegate Americas, LLC	L-852B (LED) Model RSTB21XXXNXXX2X1 Inpavement Centerline Light	7/17/2022	Approved
Type III Equipment/Building	ADB Safegate Americas, LLC	L-852D (LED) Model RSTD21XXXNXXX2X1 Inpavement Centerline Light	7/17/2022	Approved
Type III Equipment/Building	FLash Technology	L-880 (LED) Precision Approach Path Indicator	7/17/2022	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Flash Technology	Flash Technology L-881 (LED) Precision Approach Path Indicator	7/17/2022	Approved
Type III Equipment/Building	ADB Safegate	L-850A(L) RSRC11XXXNXXXXX1 Inpavement Runway Centerline Light	6/18/2022	Approved
Type III Equipment/Building	ADB Safegate	L-850C (L) RSRE11XXXCXXXXX1 Inpavement Runway Edge Light	6/18/2022	Approved
Type III Equipment/Building	ADB Safegate	L-850B(L) RSRZ11XX1XWNXXX1 Inpavement Touchdown Zone Light	6/18/2022	Approved
Type III Equipment/Building	ADB Safegate	L-850D(L) RSRN212XXXRXXXX1 Inpavement Runway End Light	6/18/2022	Approved
Type III Equipment/Building	ADB Safegate	L-850T(L) RSRS21XX1NRNRXX1 Runway Status Light	6/18/2022	Approved
Type III Equipment/Building	M-B Companies Inc.	MB4 Front Mount Snow Blower and Chassis	6/18/2022	Approved
Type III Equipment/Building	M-B Companies Inc.	MB4 Front Mount Snow Blower and Chassis	6/18/2022	Approved
Type III Equipment/Building	M-B Companies Inc.	MB2 Heavy Duty Plow Chassis	6/18/2022	Approved
Type III Equipment/Building	Generac Power Systems	Generator	6/5/2022	Approved
Type III Equipment/Building	Generac Power Systems	Generator	6/5/2022	Approved
Type III Equipment/Building	Generac Power Systems	Generator	6/5/2022	Approved
Type III Equipment/Building	Emerging Growth Enterprise, LLC (dba NoFoam Systems)	P-574 Portable Testing System	6/5/2022	Approved
Type III Equipment/Building	Rosenbauer Minnesota, LLC.	Aircraft Rescue and Fire Fighting Vehicle (ARFF), model A144	6/5/2022	Approved
Type III Equipment/Building	Independent Lift Truck /Mitsubishi Caterpillar Forklift America	7,000 lb. Capacity LP Pneumatic Tire Lift Truck (Forklift)	6/5/2022	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	BSI Equipment /Tenco Inc.	Loader Mounted Snow Blower	6/5/2022	Approved
Type III Equipment/Building	Emerging Growth Enterprise, LLC (dba NoFoam Systems)	P-574 Portable Testing System	6/5/2022	Approved
Type III Equipment/Building	Oshkosh Airport Products, LLC	Strike 4x4 ARFF Vehicle	5/28/2022	Approved
Type III Equipment/Building	Emerging Growth Enterprise LLC dba NoFoam Systems	NoFoam System	5/28/2022	Approved
Type III Equipment/Building	M-B Companies, Inc.	M-B Model TKH Broom	5/21/2022	Approved
Type III Equipment/Building	M-B Companies, Inc.	Carrier Vehicle and Broom Attachment	5/21/2022	Approved
Type III Equipment/Building	Oshkosh Airports Products, LLC	Striker 6x6 ARFF Vehicle	5/21/2022	Approved
Type III Equipment/Building	Tronair, Inc.	Eagle Tow Tractor TTR-12	5/21/2022	Approved
Type III Equipment/Building	John Deere Construction and Forestry	544P Front End Loader	5/21/2022	Approved
Type III Equipment/Building	RWC International	SEF-2334 4000 Gallon De-Icing Truck	5/21/2022	Approved
Type III Equipment/Building	RWC INTERNATIONAL	SEF-2334 4000 Gallon De-Icing Truck	5/21/2022	Approved
Type III Equipment/Building	RWC INTERNATIONAL	SEF-2334 4000 Gallon De-Icing Truck	5/21/2022	Approved
Type III Equipment/Building	RWC INTERNATIONAL,	SEF-2334 4000 Gallon De-Icing Truck	5/21/2022	Approved
Type III Equipment/Building	Freightliner	M2-108 4WD Single Axle Snow Removal Truck With 14-Foot Reversible Snowplow	5/21/2022	Approved
Type III Equipment/Building	M-B Companies of Chilton, WI	Cradling tow broom	5/21/2022	Approved
Type III Equipment/Building	M-B Companies of Chilton, WI	Cupping ramp plow	5/21/2022	Approved
Type III Equipment/Building	M-B Companies of Chilton, WI	MB5000 deicer	5/21/2022	Approved
Type III Equipment/Building	Oshkosh Defense, LLC	Two-stage high-speed rotary plow with carrier vehicle	5/21/2022	Approved
Type III Equipment/Building	M-B Companies of Chilton, WI	MB3 chassis and broom	5/21/2022	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	M-B Companies of Chilton, WI	MB2 chassis and plow	5/21/2022	Approved
Type III Equipment/Building	M-B Companies of Chilton, WI	MB4 chassis and snow blower	5/21/2022	Approved
Type III Equipment/Building	Emerging Growth Enterprise, LLC (dba NoFoam Systems)	P-574 Portable Testing System	5/21/2022	Approved
Type III Equipment/Building	E-ONE, Inc.	Aircraft Rescue and Fire Fighting (ARFF) Aqueous Film Forming Foam (AFFF) Testing Unit overall.	5/21/2022	Approved
Type III Equipment/Building	Corland Construction, LLC	Terminal Building Remodel and Expansion	5/21/2022	Approved
Type III Equipment/Building	M-B Companies, Inc.	replacement snow removal plow truck, and sander, sweeper and snow blower	5/21/2022	Approved
Type III Equipment/Building	McCall Commercial Fencing, Inc	Wild Life Exclusion Fence Fabric, Pedestrian Gate, Manually Operated Double Swing Gate, and a Manually Operated Sliding Cantilever Gate	5/21/2022	Approved
Type III Equipment/Building	Eaton Corporation, Electrical Group	Power Distribution System for PCA/GPU Equipment	5/21/2022	Approved
Type III Equipment/Building	Hy-Tec Construction of Brainerd, Inc.	ARFF/SRE Building	5/21/2022	Approved
Type III Equipment/Building	M-B Companies, Inc.	MB 4 Chassis and Rotary Blower	5/21/2022	Approved
Type III Equipment/Building	Emerging Growth Enterprise, LLC (dba NoFoam Systems)	P-574 Portable Testing System	5/21/2022	Approved
Type III Equipment/Building	Oshkosh Airport Products, LLC	Oshkosh Striker 4x4 ARFF Vehicle	5/21/2022	Approved
Type III Equipment/Building	Market & Johnson	Aircraft rescue & fire fighting building (ARFF)	4/9/2022	Approved
Type III Equipment/Building	Dormakaba	ESA300 Automatic Sliding Door	4/9/2022	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	HitchDoc	HDS9200 HitchDoc Hydraulic Snow Blower Attachment	4/9/2022	Approved
Type III Equipment/Building	Brice Incorporated	Fuel Dispensing System	3/26/2022	Approved
Type III Equipment/Building	Gray Construction Company	Snow Removal Equipment Building	3/26/2022	Approved
Type III Equipment/Building	Xenex Disinfection Services, Inc.	LightStrike Robot	3/26/2022	Approved
Type III Equipment/Building	M-B Companies, Inc.	Loader Mounted Snow Blower	3/26/2022	Approved
Type III Equipment/Building	RDO Equipment Company	John Deere 744L	3/26/2022	Approved
Type III Equipment/Building	ICS, Inc.	18-Unit T-Hangar	3/26/2022	Approved
Type III Equipment/Building	Oshkosh Defense, LLC	Oshkosh Defense H Series SRE	3/26/2022	Approved
Type III Equipment/Building	Emerging Growth Enterprise, LLC dba NoFoam Systems	NoFoam Testing System	3/26/2022	Approved
Type III Equipment/Building	Caterpillar	D-3 Dozer	3/26/2022	Approved
Type III Equipment/Building	Caterpillar	D-3 Dozer	3/26/2022	Approved
Type III Equipment/Building	Caterpillar	D-3 Dozer	3/26/2022	Approved
Type III Equipment/Building	J&J Contractors, Inc.	Terminal Building	3/26/2022	Approved
Type III Equipment/Building	John Deere	744L Loader	3/26/2022	Approved
Type III Equipment/Building	Erskine Attachments, LLC	Snowblower attachment for 925FM	3/26/2022	Approved
Type III Equipment/Building	Municipal Emergency Services, Inc.	ARFF Gear (suits)	2/26/2022	Approved
Type III Equipment/Building	Brice Incorporated	Electrical Enclosure Building	2/26/2022	Approved
Type III Equipment/Building	Airport Lighting Company	L-881 LED Abbreviated Precision Approach Path Indicator	2/26/2022	Approved
Type III Equipment/Building	Airport Lighting Company	L-880 LED Precision Approach Path Indicator	2/26/2022	Approved
Type III Equipment/Building	Airport Lighting Company	L-821 Airport Lighting Control Panel	2/26/2022	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Eutaw Construction Company	Airfield Lighting Control Equipment Building	1/24/2022	Approved
Type III Equipment/Building	Rosenbauer, Minnesota LLC	ARFF Vehicle Model A144	1/22/2022	Approved
Type III Equipment/Building	Strong Tower Construction	Doors, Windows and HVAC units	1/22/2022	Approved
Type III Equipment/Building	Rocky Mountain Reclamation	Hydroseeding and Fertilizer	1/8/2022	Approved
Type III Equipment/Building	Ingersoll Rand	Air Compressor	1/8/2022	Approved
Type III Equipment/Building	Vacutech, LLC.	Central vacuum system for carwash	1/8/2022	Approved
Type III Equipment/Building	FCI Constructors, Inc.	Expand Terminal Building	1/8/2022	Approved
Type III Equipment/Building	Oshkosh Aiport Products, LLC	ARFF Vehicle (Striker 4x4)	12/18/2021	Approved
Type III Equipment/Building	M-B Companies, Inc.	Model TKH broom with frame assembly	12/4/2021	Approved
Type III Equipment/Building	Oshkosh Airport Products, LLC	Striker 4x4 ARFF vehicle	12/4/2021	Approved
Type III Equipment/Building	none	New Terminal Building	12/4/2021	Approved
Type III Equipment/Building	Brooks Tractor	Snow removal equipment (SRE)	11/27/2021	Approved
Type III Equipment/Building	Swiderski Equipment, Inc.	Snow removal equipment (SRE) and tractor transmission part # 9044404.	11/27/2021	Revoked
Type III Equipment/Building	Swiderski Equipment, Inc.	Snow removal equipment (SRE) and tractor transmission part # 9044404	11/27/2021	Approved
Type III Equipment/Building	Roger Hickel Contracting	Escalator Enclosure	11/27/2021	Approved
Type III Equipment/Building	M-B Companies, Inc.	MB4 Chassis and Snow Blower	11/27/2021	Approved
Type III Equipment/Building	M-B Companies, Inc.	MB3 Chassis and Broom	11/27/2021	Approved
Type III Equipment/Building	Tesla	Tesla Model 3 SR RWD Electric Vehicle	11/27/2021	Approved
Type III Equipment/Building	Catrerpillar	Wheeled Loader, Caterpillar Model 962M, 966M and 980M	11/27/2021	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Oshkosh Airport Products	Stryker 4x4 ARFF Vehicle	11/27/2021	Approved
Type III Equipment/Building	Bonnell Industries, Inc.	Snow removal equipment	11/27/2021	Approved
Type III Equipment/Building	Webasto Charging Systems Incorportated	Posicharge DVS 300 Electric Vehicle Charger	11/27/2021	Approved
Type III Equipment/Building	ADB Safegate	High Intensity Runway Edge L-862(L) ERES2YW33S00002	11/27/2021	Approved
Type III Equipment/Building	ADB Safegate	High Intensity Runway Edge Light L-862(L) ERES2WY33S00002	11/27/2021	Approved
Type III Equipment/Building	ADB Safegate	High Intensity Runway Edge Light L-862(L) ERES2GR13SF0002	11/27/2021	Approved
Type III Equipment/Building	E-ONE, Inc.	ARFF P802 4X4 E-ONE TITAN	11/27/2021	Approved
Type III Equipment/Building	John Deere	744P 4 Wheel Drive Loader	11/27/2021	Approved
Type III Equipment/Building	SALFORD/BBI	BBI TROOPER TRP08	11/27/2021	Approved
Type III Equipment/Building	Caterpillar	Model 950M or equivalent	11/27/2021	Approved
Type III Equipment/Building	John Deere	JD 670 Grader	11/27/2021	Approved
Type III Equipment/Building	John Deere	JD 850L Dozer	11/27/2021	Approved
Type III Equipment/Building	John Deere	724P Articulating Wheel Loader	11/27/2021	Approved
Type III Equipment/Building	MSA Safety	G1 SCBA	11/27/2021	Approved
Type III Equipment/Building	Rosenbaurer Minnesota, LLC	Aircraft Rescue and Firefighting Vehicle - Class 4 vehicle with 1,500 gallon tank	11/27/2021	Approved
Type III Equipment/Building	Daimler Trucks North America, LLC	Snow Removal Equipment - Carrier Vehicle with 14' Plow	11/27/2021	Approved
Type III Equipment/Building	Oasis Charging Corporation	JuiceBar 3rd Generation 32 amp dual networked electric vehicle charger	10/2/2021	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	JBT Aerotech	65/133, 72/150 APRON DRIVE PASSENGER BOARDING BRIDGES	10/2/2021	Approved
Type III Equipment/Building	JBT Aerotech	90 KVA 28 VDC Combo Ground Power Units for Passenger Bridges	10/2/2021	Approved
Type III Equipment/Building	JBT Aerotech	SJ 115 (60 Ton), SJ 90 (45 Ton) Preconditioned Air Unit for Passenger Bridges	10/2/2021	Approved
Type III Equipment/Building	Midwest Petroleum and Excavating	Terminal improvement	10/2/2021	Approved
Type III Equipment/Building	McBride Mack Sales, Inc.	MACK tandem axle dump truck with plow	10/2/2021	Approved
Type III Equipment/Building	Brooks Tractor	Snow removal equipment (SRE)	10/2/2021	Approved
Type III Equipment/Building	Brooks Tractor	Snow removal equipment (SRE)	10/2/2021	Approved
Type III Equipment/Building	Case, Erskine	Case IH Magnum 180, Erskine Rotary Plow Attachment & Broom	9/24/2021	Approved
Type III Equipment/Building	M-B Companies, Inc.	MB5 Chassis, Plow and Broom MTE	9/18/2021	Approved
Type III Equipment/Building	Multi-Electric Manufacturing	LED E Runway Elevated Threshold End Light	9/18/2021	Approved
Type III Equipment/Building	Multi-Electric Manufacturing	LED Runway Elevated Edge - L-862 (L)	9/18/2021	Approved
Type III Equipment/Building	M-B Companies, Inc.	Airport Airfield Painting Vehicle	9/12/2021	Approved
Type III Equipment/Building	M-B Companies	Tractor -MB2 Chassis and Plow SEF-2284	9/12/2021	Approved
Type III Equipment/Building	M-B Companies	Cradling Broom	9/12/2021	Approved
Type III Equipment/Building	Oshkosh Defense, LLC	Oshkosh H-Series Snow Blower Vehicle	9/4/2021	Approved
Type III Equipment/Building	Case IH	Case IH Magnum Tractor	9/4/2021	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Grouser Products, Inc.	Dozer Blade/Hitch Support	9/4/2021	Approved
Type III Equipment/Building	Fair Manufacturing, Inc.	Snow Blower	9/4/2021	Approved
Type III Equipment/Building	M-B Companies, Inc.	M-B Model TKH Broom	9/4/2021	Approved
Type III Equipment/Building	Clark Equipment dba Bobcat Company	5610 Bobcat Toolcat	8/28/2021	Approved
Type III Equipment/Building	M-B Companies, Inc.	MB4 Chassis and Snow Blower	8/28/2021	Approved
Type III Equipment/Building	M-B Companies, Inc.	Multi-Tasking Snow Removal Vehicle	8/28/2021	Approved
Type III Equipment/Building	Oshkosh Airport Products, LLC	Oshkosh Striker 4x4 ARFF Vehicle	8/28/2021	Approved
Type III Equipment/Building	Rosenbauer Minnesota, LLC	Airwolf C2 RIV	8/28/2021	Approved
Type III Equipment/Building	John Deere	744L Loader	8/28/2021	Approved
Type III Equipment/Building	S&K Mountain Construction Inc.	Snow Removal Equipment Building	8/28/2021	Approved
Type III Equipment/Building	Halliday Technologies, Inc	RT3 Flight Pavement Friction Tester	8/28/2021	Approved
Type III Equipment/Building	Johnson Controls, Inc.	Building Command Center	8/14/2021	Approved
Type III Equipment/Building	Johnson Controls, Inc.	Security Enhancement System	8/14/2021	Approved
Type III Equipment/Building	M-B Companies, Inc.	Carrier vehicle with displacement plow and spreader	8/14/2021	Approved
Type III Equipment/Building	F & W Construction Company, Inc.	Snow Removal Equipment Building	8/14/2021	Approved
Type III Equipment/Building	John Deere	444P	8/14/2021	Approved
Type III Equipment/Building	Erskine Attachments	Snow Blower	8/14/2021	Approved
Type III Equipment/Building	M-B Companies, Inc.	M-B Model TKH	8/14/2021	Approved
Type III Equipment/Building	Emerging Growth Enterprise LLC dba NoFoam Systems	NoFoam Testing System	8/14/2021	Approved
Type III Equipment/Building	Oshkosh Defense LLC	Airport Runway Snowblower	8/14/2021	Approved
Type III Equipment/Building	Bush Hog	Bush Hog 2215 Flex Wing Rotary Cutter	8/14/2021	Approved
Type III Equipment/Building	M-B Companies	Runway Broom	7/31/2021	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Oshkosh	Striker 4X4 ARFF Vehicle	7/24/2021	Approved
Type III Equipment/Building	Oshkosh	Striker 4X4 ARFF Vehicle	7/24/2021	Approved
Type III Equipment/Building	Oshkosh	Striker 4X4 ARFF Vehicle	7/24/2021	Approved
Type III Equipment/Building	Solid Rock Gate Supply, Inc.	Gate A - Vertical Pivot Gate	7/17/2021	Approved
Type III Equipment/Building	Solid Rock Gate Supply, Inc.	Gate A and 9 - 8' Pivot Gates	7/17/2021	Approved
Type III Equipment/Building	A & H Equipment	Snow Removal Vehicle with Broom attachment	7/17/2021	Approved
Type III Equipment/Building	Airport Lighting Company	L-890 Lighting Control & Monitoring System	7/17/2021	Approved
Type III Equipment/Building	Oshkosh Corporation / M-B Companies, Inc.	Oshkosh P-Series Truck/Carrier vehicle w/ plow & spreader / Model TKH broom	7/10/2021	Approved
Type III Equipment/Building	Wausau Equipment Company, Inc.	SNOGO WK snow blower head	7/10/2021	Approved
Type III Equipment/Building	Oshkosh Airport Products, LLC	Oshkosh Striker 4x4 ARFF vehicle	7/10/2021	Approved
Type III Equipment/Building	Rosenbauer Minnesota, LLC	ARFF vehicle	7/10/2021	Approved
Type III Equipment/Building	Oshkosh Airport Products, LLC	4x4 ARFF vehicle	7/10/2021	Approved
Type III Equipment/Building	Holland Construction Services	Miscellaneous: concrete, masonry, metals, woods, etc.	7/3/2021	Approved
Type III Equipment/Building	Case IH	Magnum Tractor	7/3/2021	Approved
Type III Equipment/Building	Kage Innovation	Snow Plow Attachment	7/3/2021	Approved
Type III Equipment/Building	HitchDoc	Snow Blower Attachment	7/3/2021	Approved
Type III Equipment/Building	M-B Companies, Inc.	MB3 chassis and broom	7/3/2021	Approved
Type III Equipment/Building	Oshkosh Defense, LLC	4x4 Carrier Vehicle with plow	7/3/2021	Approved
Type III Equipment/Building	New Flyer of America Inc.	Passenger Shuttle Buses (5)	7/3/2021	Approved
Type III Equipment/Building	Sitka Electric Co.	Access Controls for Vehicle Gate 9	7/3/2021	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Sikta Electric Co.	Access Controls for Gate A	7/3/2021	Approved
Type III Equipment/Building	Sitka Electric Co.	Access Controls for Gate D	7/3/2021	Approved
Type III Equipment/Building	Sitka Electric Co.	Access Controls for Gate G	7/3/2021	Approved
Type III Equipment/Building	Sitka Electric Co.	Interface system for Site and State System Managers	7/3/2021	Approved
Type III Equipment/Building	Sitka Electric Co.	Network Equipment for Access Controls	7/3/2021	Approved
Type III Equipment/Building	Olgoonik Construction Services, LLC	Combined Snow Removal Equipment and Chemical Storage Building	7/3/2021	Approved
Type III Equipment/Building	Oshkosh Airport Products, LLC	Aircraft Rescue and Fire Fighting Vehicle - Oshkosh Stinger Q4 ARFF Vehicle	7/3/2021	Approved
Type III Equipment/Building	Tymetal	Cantilever Slide Gate TYM-2000	7/3/2021	Approved
Type III Equipment/Building	Oshkosh Airport Products, LLC	Aircraft Rescue and Fire Fighting Vehicle (ARFF)	7/3/2021	Approved
Type III Equipment/Building	ARBOC Specialty Vehicles, LLC	25-ft electric bus	6/13/2021	Approved
Type III Equipment/Building	JBT Aerotech, JBT AeroTech - Jetway Systems	APRON DRIVE PASSENGER BOARDING BRIDGE	6/13/2021	Approved
Type III Equipment/Building	Rosenbauer Minnesota, LLC	ARFF Truck Class IV (Panther 4X4)	6/5/2021	Approved
Type III Equipment/Building	Rosenbauer Minnesota LLC	Panther 6X6 HRET ARFF Truck	6/5/2021	Approved
Type III Equipment/Building	LN Curtis an Sons	Airgraft Rescue and Fire Fighting Safety Equipment	6/5/2021	Approved
Type III Equipment/Building	Collins & Hermann	Class E fence	5/22/2021	Approved
Type III Equipment/Building	ADFORS Saint-Gobain	GlasGrid (R) 8502	5/22/2021	Approved

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Cleveland Brothers Equipment Company	Snow Removal Carrier Vehicle, Blower, Henke plow and Root plow	5/22/2021	Approved
Type III Equipment/Building	M-B Companies, Inc.	Runway Deicer Vehicle, MB 2500	5/22/2021	Approved
Type III Equipment/Building	John Deere, Inc.	Snow Removal Equipment Loader with Snow Bucket, 624P	5/8/2021	Expired
Type III Equipment/Building	M-B Companies, Inc.	Deicing Liquid Material Spreader, MB-2 Deicer	5/8/2021	Expired
Type III Equipment/Building	Rosenbauer Minnesota, LLC	Aircraft Rescue & Fire Fighting Vehicle, Class 4	5/8/2021	Expired
Type III Equipment/Building	M-B Companies, Inc.	Snow Removal Equipment Broom, MB-3	5/8/2021	Expired
Type III Equipment/Building	M-B Companies, Inc.	Snow Removal Vehicle with Broom, MB3	5/8/2021	Expired
Type III Equipment/Building	Oshkosh Airport Products, LLC.	Aircraft Rescue & Fire Fighting Vehicle, Striker 4x4	5/8/2021	Expired
Type III Equipment/Building	Airport Lighting Company	High Intensity Runway Edge Light, L-862 LED	5/8/2021	Expired
Type III Equipment/Building	Airport Lighting Company	L-862 E LED HIgh Intensity Runway Threshold Light	5/8/2021	Expired
Type III Equipment/Building	Airport Lighting Company	L-861SE LED Medium Intensity Runway & Taxiway Edge Light	5/8/2021	Expired
Type III Equipment/Building	KFT Fire Trainer, LLC	ARFF Building and Fire Training Complex	4/24/2021	Expired
Type III Equipment/Building	McQueen Equipment, LLC, Oshkosh, WI	Oshkosh HB2723 front broom unit	4/24/2021	Expired
Type III Equipment/Building	Cherokee Manufacturing, Athens, GA	SKAPS W250 polypropylene woven fabric	4/24/2021	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Woods Equipment Co., Oregon, IL	BW 15.50 woods batwing cutter	4/24/2021	Expired
Type III Equipment/Building	M-B Companies, New Holstein, WI	Snow Removal Equipment Broom, FMC-3614 and 172989 core	4/24/2021	Expired
Type III Equipment/Building	Hali-Brite Incorporated	L-801 A (LED) Medium Intensity Beacon	4/24/2021	Expired
Type III Equipment/Building	Hali-Brite Incorportated	L-802 A (LED) High Intensity Beacon	4/24/2021	Expired
Type III Equipment/Building	Larson Manufacturing, Sound Control Systems, Silverwood Company	Doors and windows	4/17/2021	Expired
Type III Equipment/Building	JB Sash & Door Company, Larson Manufacturing, Sound Control Systems, Silverwood Company, Sierra Pacific Windows,	Windows and Doors	4/11/2021	Expired
Type III Equipment/Building	Musco Lighting	TLC for LED® Light-Structure System™ Apron Flood Lighting	4/11/2021	Expired
Type III Equipment/Building	Flight Light Inc.	L-810 Obstruction Light Single Head LED	4/3/2021	Expired
Type III Equipment/Building	Flight Light Inc.	L-810 Obstuctruction Light Double Head LED	4/3/2021	Expired
Type III Equipment/Building	M-B Companies, Inc.	Deicer Liquid Material Spreader, M-B 3000 Deicer with Snow Plow	4/3/2021	Expired
Type III Equipment/Building	Oshkosh Airport Products	Aircraft Rescue and Firefighting Vehicle, Striker 4x4	4/3/2021	Expired
Type III Equipment/Building	Airport Lighting Company	L-847 Switch, Circuit Selector	3/20/2021	Expired
Type III Equipment/Building	Bonnell Industries	Snow removal equipment, plow truck	3/13/2021	Expired
Type III Equipment/Building	M-B Companies, Inc.	Snow Removal Carrier with Broom Attachment	3/5/2021	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Bruckner Truck Sales, Inc	Snow Removal Truck and Plow	2/27/2021	Expired
Type III Equipment/Building	Caterpillar	930 Caterpillar small wheel loader	2/27/2021	Expired
Type III Equipment/Building	New Holstein, WI	MB sweeper	2/27/2021	Expired
Type III Equipment/Building	KONE Escalator	Ecomod Escalator	2/27/2021	Expired
Type III Equipment/Building	Caterpillar	930 Caterpillar small wheel loader	1/30/2021	Expired
Type III Equipment/Building	Fence Masters, Inc.	Nuts & bolts	1/30/2021	Expired
Type III Equipment/Building	L.N. Curtis and Sons	ARFF Vehicle Tools	1/26/2021	Expired
Type III Equipment/Building	Oshkosh Airport Products, LLC	Aircraft rescue fire fighting vehicle (ARFF)	1/23/2021	Expired
Type III Equipment/Building	Oshkosh Airport Products, LLC	Oschkosh Striker 4x4 ARFF vehicle	1/23/2021	Expired
Type III Equipment/Building	JBT Aero Tech	Passenger boarding bridge, apron drive model.	1/23/2021	Expired
Type III Equipment/Building	Sherwin Williams	Hotline Fastdry Waterborne TM2303 yellow paint	1/2/2021	Expired
Type III Equipment/Building	M-B Companies, Inc.	MB4 chassis and snow blower	1/2/2021	Expired
Type III Equipment/Building	Carterpillar, Inc.	Carterpillar small wheel loader	12/19/2020	Expired
Type III Equipment/Building	Swiderski Equipment, Inc.	Snow removal equipment (SRE)	12/19/2020	Expired
Type III Equipment/Building	Wausau Equipment Company, Inc.	Snow removal equipment	12/19/2020	Expired
Type III Equipment/Building	Globe Manufacturing, MSA Fire, PGI Globe Footwear, Shelby Specialty Gloves	Boots, Turnout Coat and Pant, Hood, Helmet, Gloves	12/18/2020	Expired
Type III Equipment/Building	Master Halco	Truck Assembly for Aluminum Slide Gates	11/14/2020	Expired
Type IV	J.A. Larue, Inc.	Larue D30 Snowblower	11/8/2020	Expired
Type IV	J.A. Larue, Inc.	2021 Larue D30	11/7/2020	Expired
Type III Equipment/Building	ITW GSE Inc	Ground Power Units (GPUs)	11/7/2020	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Clark Equipment dba Bobcat Company	Bobcat ToolCat 5600	11/7/2020	Expired
Type III Equipment/Building	Polaris Industries	Polaris GEM - Electric Utility Vehicle	10/16/2020	Expired
Type III Equipment/Building	Navistar, Inc.	International Truck Model HV51300	10/16/2020	Expired
Type III Equipment/Building	CNH Indutrial	Snow Removal Equipment Carrier Vehicle	10/16/2020	Expired
Type III Equipment/Building	Clausen and Sons	SRE Building	10/16/2020	Expired
Type III Equipment/Building	Proterra	40’ Low Floor Electric Transit Bus	10/4/2020	Expired
Type III Equipment/Building	CNH Industrial	Case 1021G Wheel Loader	10/3/2020	Expired
Type III Equipment/Building	TYMCO, Inc.	Model 600 Airport Sweeper mounted on Freightliner M2 Chassis	10/3/2020	Expired
Type III Equipment/Building	Wausau	Carrier Vehicle, Displacement Plow Blade, and Material Spreader	9/14/2020	Expired
Type III Equipment/Building	OshKosh Airport Products, LLC	OshKosh Striker 4x4 HRET	9/14/2020	Expired
Type III Equipment/Building	Caterpillar	CAT 926M Wheel Loader	9/14/2020	Expired
Type III Equipment/Building	Wausau	Carrier Vehicle and Rotary Plow (SNODOZER SD3131/SNOGO RFR5923)	9/5/2020	Expired
Type III Equipment/Building	Rosenbauer Minnesota, LLC	ARFF Vehicle - Airwolf Class 2	9/5/2020	Expired
Type III Equipment/Building	M-B Companies, Inc.	High Speed Rotary Plow	8/30/2020	Expired
Type III Equipment/Building	Kirby Nagelhout Construction Company (KNCC)	Snor Removal Equipment Building	8/30/2020	Expired
Type III Equipment/Building	Daimler Trucks North America LLC	Freightliner 114SD	8/29/2020	Expired
Type III Equipment/Building	M-B Companies, Inc.	Multi-tasking snow removal equipment	8/22/2020	Expired
Type III Equipment/Building	New Flyer of America Inc	ZEV Buses	8/22/2020	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Batts Inc.	Batts Inc. DI-5000 Liquid Deicing Material Spreader	8/22/2020	Expired
Type III Equipment/Building	Batts Incorporated	Batts Incorporated DI-5000 Liquid Deicing Material Spreader	8/22/2020	Expired
Type III Equipment/Building	Batts Incorporated	Batts Incorporated DI 5000 Liquid Deicing Material Spreader	8/22/2020	Expired
Type III Equipment/Building	Batts Incorporated	Batts Incorporated DI 5000 Liquid Deicing Material Spreader	8/22/2020	Expired
Type III Equipment/Building	A&H Equipment Co. 241 E. Garrett St., Somerset, PA	Dump Body and Spreader	8/22/2020	Expired
Type III Equipment/Building	Navistar Inc. - International Truck and Engine Brand	Carrier Vehicle, 12' Plow, 12' Broom, Anti Ice System, Hydraulic System	8/8/2020	Expired
Type III Equipment/Building	ADB Safegate	L-849 -L Runway End Identification Lights - E1101012	8/8/2020	Expired
Type III Equipment/Building	M-B Companies, Inc	MB5 - Airport Multi-Tasking Equipment	7/27/2020	Expired
Type III Equipment/Building	Oshkosh	Oshkosh HB2723 Front Broom Unit	7/27/2020	Expired
Type III Equipment/Building	John Deere	John Deer Wheel Loader 744L	7/26/2020	Expired
Type III Equipment/Building	M-B Companies, Inc.	MB1 Chassis (Carrier Vehicle), Reversible Plow and Spreader (SRE)	7/25/2020	Expired
Type III Equipment/Building	Catapillar/Fabick Cat	Wheel Loader Plus Attachments	7/4/2020	Expired
Type III Equipment/Building	Friede & Associates, LLC	New Terminal Building	7/4/2020	Expired
Type III Equipment/Building	J.A. Larue Inc.	Carrier Vehicle with Rotary Snow Plow	6/28/2020	Expired
Type III Equipment/Building	New Holland	Tractor TS 350	6/28/2020	Expired
Type III Equipment/Building	Rosenbauer Minnesota, LLC	ARFF Class 2	6/28/2020	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	M-B Companies, Inc.	MB3 Carrier Vehicle with Broom	6/28/2020	Expired
Type III Equipment/Building	Erect-A-Tube	Door Opener Hardware	6/28/2020	Expired
Type III Equipment/Building	International Trucks and Wausau Equipment	Snow Removal Equipment (Truck, Dump Body, Blade and Broom	6/13/2020	Expired
Type III Equipment/Building	Daimler Trucks North America, LLC	Snow Plow and Dump Truck	6/13/2020	Expired
Type III Equipment/Building	Oshkosh Airport Products LLC	Oshkosh Striker 4x4	6/13/2020	Expired
Type III Equipment/Building	Oshkosh Airport Products, LLC	Oshkosh Striker 4x4	5/16/2020	Expired
Type III Equipment/Building	Oshkosh Airport Products, LLC	Oshkosh Striker 4x4 Aircraft Rescue and Firefighting Vehicle	5/16/2020	Expired
Type III Equipment/Building	John Deere	Front End Loader	5/2/2020	Expired
Type III Equipment/Building	Rylind	Bucket - Front End Loader	5/2/2020	Expired
Type III Equipment/Building	Verslues Construction Co., Inc	Hanger Door	5/2/2020	Expired
Type III Equipment/Building	Webasto Charging Systems, Incorporated	DVS 400 Electric Charging Station	5/2/2020	Expired
Type III Equipment/Building	Webasto Charging Systems, Incorporated	MVS 400 Electric Charging Station	5/2/2020	Expired
Type III Equipment/Building	Webasto Charging Systems, Incorporated	MVS 800 Electric Charging Station	5/2/2020	Expired
Type III Equipment/Building	Hali-Brite Incorporated	L-893, Lighted Visual Aid to Indicate Temporary Runway Closure LED RCM-D L-893 (L)	4/26/2020	Expired
Type III Equipment/Building	Hali-Brite incorporated	L-893, Lighted Visual Aid to Indicate Temporary Runway Closure, LED RCM-D	4/26/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2RG28SF0002	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2RN01S00002	4/11/2020	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2RY33S00102	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2RY35S00002	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2WW31S00002	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2WW31S00102	4/11/2020	Expired
Type III Equipment/Building	ADb Safegate	L-862 Lights, Runway Edge, High Intensity ERES2RR03S00002	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2RR03S00102	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2RR35S00002	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2RR38S00002	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2RY28S00002	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2RY31S00002	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2RY33S00002	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2YG31SF0002	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2WW33S00002	4/11/2020	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2WW33S00102	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2RY35S00002	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2NG02S00000	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2NG01S00000	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2NG01S00100	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2NG01SF0000	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2NG0BSL0000	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2NG0CSL0000	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2NG0CSM0000	4/11/2020	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2NG0ASL0000	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RG04S00100	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RG04SF0000	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RG01S00100	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RG01SF0000	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RG02S00000	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RG02S00100	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RG03S00000	4/11/2020	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RG03S00100	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RG03SF0000	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RG03SF0100	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RG04S00000	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RG04SF0100	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RG05S00000	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RG05SC0000	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RG05SC0100	4/11/2020	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RG06SC0000	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RG07S00000	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RG07SC0000	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RG07SF0000	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RG0CSL0000	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RG09S00000	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RG0BSM0000	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RN09SL0000	4/11/2020	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2YG01S00100	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2YR01S00100	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2YR03S00100	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2YY02S00100	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS6WY09S00000	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS8RR05S00000	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS8RG05SC0000	4/11/2020	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS8RN05SC0000	4/11/2020	Expired
Type III Equipment/Building	M-B Companies Inc.	ITB AFM-2019-056 Three All-Wheel Drive, All-Wheel Steer.Dual Engine	4/4/2020	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
		Cab Forward Chassis With High Speed 7500 TPH Blowers		
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GR13MF0102	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GR13SF0102	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GN15SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GR11SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GR11MF0102	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GR08SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GN11SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GN09MI0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GN09MI0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GN05SF0102	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GN05SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GN05MI0002	4/4/2020	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GY35SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GR13SM0102	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GR15MF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GR15SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GR25MF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GY33SF0102	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GR15MF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GR29SF0002	4/4/2020	Expired
Type III Equipment/Building	AERO Bridgeworks, Inc.	Passenger Boarding Bridge	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862(L) High Intensity Runway Edge Light EREL2GN13SF0102	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GN09MI002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GN15SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GR11SF0002	4/4/2020	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GR11MF0102	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GR08SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GN11SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GN09MI0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GN05SF0102	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GN05SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GN05MI0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GY35SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GR13SM0102	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GR25MF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GR15SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GY33SF0102	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GR15MF0002	4/4/2020	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GR29SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GR15MF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GR15SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GR19SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GR25MF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GR25SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GR29SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GW31SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GY33SF0102	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GY35SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2RG23MF0102	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2RG23SF0102	4/4/2020	Expired
Type III Equipment/Building	ADB safegate	L-862 Lights, Runway Edge, High Intensity EREL2RG25SF0002	4/4/2020	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2RG25SF0102	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2NG21SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2NG23SF0102	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2NG25SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2NG25SF0102	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2RG21MF0102	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2RG21SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2RG21SF0102	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2RR25S00002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2RG29SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2RG31SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2RN01M00002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2RN05S00002	4/4/2020	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2RN09M00002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2RR01S00002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2RR03S00102	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2RR15S00002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2WW31M00002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2RR31M00002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2RR31S00002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2RR35S00002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2RW31S00002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2RY23S00102	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2RY31M00002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2RY31S00002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2RY35S00002	4/4/2020	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2WG31SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2WR31S00002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2WW35S01102	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2WW39M00002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2WW31S00002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2WW31S00102	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2WW33M00102	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2WW33S00002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2WW33S00102	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2WW35M00002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2WW35S00002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2YR13S00102	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2WY31M00002	4/4/2020	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2WY31S00002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2WY31S00102	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2WY33M00102	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2WY33S00102	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2WY35S00002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2WY39M00002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2WY39S00002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2YG33SF0102	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2YG35SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2YW35S00002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2YR31M00002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2YR31S00002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2YR35S00002	4/4/2020	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2YR39M00002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2YR39S00002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2YW31S00002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2YW33M00102	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2YW33S00102	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2YW35M00002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2GR12SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2YW39M00002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2YW39S00002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2GN05SI0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2GN11SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2GN13SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2GN13SF0102	4/4/2020	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2GN18SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2GR05SI0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2GR11SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2GR11SF0102	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2NG23SF0102	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2GR13SF0102	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2GR15SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2GR18SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2GY31SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2GY33SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2GY33SF0102	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2GY35SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2NG21SF0002	4/4/2020	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2NG23SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2RN05S00002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2RR01S00002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2NG28SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2RG21SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2RG21SF0102	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2RG22SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2RG23SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2RG23SF0102	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity ERES2RG25SF0002	4/4/2020	Expired
Type III Equipment/Building	ADB Safegate	L-826 L L-862 Lights, Runway Edge, High Intensity EREL 24 IN N/G W/ARC 1.5 CPLG 12 FAA	3/15/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL 24 IN G/Y W/ARC 1.5 CPLG 12 FAA	3/15/2020	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL 14 IN G/R W/ARC 2 CPLG 11.5 FAA	3/15/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL 14 IN G/N W/ARC 2 CPLG 11.5	3/15/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL 14 IN G/N N/ARC 2 CPLG 11.5	3/15/2020	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL 24 IN G/N W/ARC 1.5 CPLG 12	3/15/2020	Expired
Type III Equipment/Building	Crown USA Inc.	Marking TTP-1952F Type I Black	3/15/2020	Expired
Type III Equipment/Building	Crown USA Inc.	Marking TTP-1952F Type I Blue	3/15/2020	Expired
Type III Equipment/Building	Crown USA Inc.	Marking TTP-1952F Type I Red	3/15/2020	Expired
Type III Equipment/Building	Crown USA Inc.	Marking TTP1952F Type I L.F. Yellow	3/15/2020	Expired
Type III Equipment/Building	Crown USA Inc.	Marking Type 1952F Type I White	3/15/2020	Expired
Type III Equipment/Building	C&C MFG LLC	All Wheel Drive, All Wheel Steer, Dual Engine Cab, Forward Chasis with High Speed 7500 TPH Blowers	3/15/2020	Expired
Type III Equipment/Building	Diamond Vogel	Marking - UC 1509 White Waterborne Traffic Paint	2/17/2020	Expired
Type III Equipment/Building	Diamond Vogel	Marking - UC 5503 Red Waterborne Traffic Paint	2/17/2020	Expired
Type III Equipment/Building	Diamond Vogel	Marking - 7503 Blue Waterborne Traffic Paint	2/17/2020	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Diamond Vogel	Marking - UC 9507 Black Waterborne Traffic Paint	2/17/2020	Expired
Type III Equipment/Building	Diamond Vogel	Marking - UC 3584 Yellow Waterborne Traffic Paint	2/17/2020	Expired
Type III Equipment/Building	Stephens Pipe & Steel, LLC	Fencing with Gate	2/17/2020	Expired
Type III Equipment/Building	Avlite Systems	L-880 LED Precision Approach Path Indicator	1/24/2020	Expired
Type III Equipment/Building	Avlite Systems	L-881 LED Abbreviated Precision Approach Path Indicator	1/24/2020	Expired
Type III Equipment/Building	Solid Rock Gate Supply, Inc	Vertical Lift Pivot Gate	1/24/2020	Expired
Type III Equipment/Building	Daimler Trucks North America, LLC	4WD Single Axle Snow Removal Truck with 14-ft Reversible Snowplow	1/24/2020	Expired
Type III Equipment/Building	Oshkosh	H-Series Blower	12/14/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WG04S00000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WG04S00100	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WG07S00000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WR01S00000	12/7/2019	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WR01S00100	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WR03S00000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WR03S00100	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WR04S00000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WW03S00000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WW03S00100	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WW04S00000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WW04S00100	12/7/2019	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WW05S00000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WW05S00100	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WW06S00000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WW07S00000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WW09S00000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WR07S00000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WW0ASL0000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WW0ASM0000	12/7/2019	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WW0BSL0000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WW0BSM0000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WW0CSL0000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WW0CSM0000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WW01S00000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WW01S00100	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WW02S00000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WW02S00100	12/7/2019	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2YG03S00100	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WW09SL0000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WW09SM0000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WY01S00000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WY01S00100	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WY02S00000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WY02S00100	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WY03S00000	12/7/2019	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WY03S00100	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WY04S00000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WY04S00100	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WY05S00000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WY05S00100	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WY06S00000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WY07S00000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WY09S00000	12/7/2019	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2YG01S00000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2YG02S00000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2YG03S00000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS6WW09S00000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2YG04S00000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2YG04S00100	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2YN03S00100	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2YR01S00000	12/7/2019	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2YR03S00000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2YR04S00000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2YY01S00000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2YY01S00100	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2YY03S00000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2YY03S00100	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2YY04S00000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2YY04S00100	12/7/2019	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS6NG09S00000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS6NR09S00000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS6RG09S00000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS8RR05SC0000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS8WW05S00000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS8WY05S00000	12/7/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RN09SM0000	11/23/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RN09SM0000	11/23/2019	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RN0ASL0000	11/23/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RN0BSL0000	11/23/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RN0BSM0000	11/23/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RN0ASM0000	11/23/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RN0CSL0000	11/23/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RG09SM0000	11/23/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RN0CSM0000	11/23/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WG03S00000	11/23/2019	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RW0ASM0000	11/23/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RW0BSL0000	11/23/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RW0BSM0000	11/23/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RW0CSL0000	11/23/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RW0CSM0000	11/23/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RW09SL0000	11/23/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RW09SM0000	11/23/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WG01S00000	11/23/2019	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WG01S00100	11/23/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RW0ASL0000	11/23/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RR01S00000	11/23/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RR01S00100	11/23/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RR02S00000	11/23/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RR03S00000	11/23/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RR03S00100	11/23/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RR04S00000	11/23/2019	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RR04S00100	11/23/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RR07S00000	11/23/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2RR09S00000	11/23/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WR04S00100	11/23/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 Lights, Runway & Taxiway Edge, Medium Intensity EMIS2WG03S00100	11/23/2019	Expired
Type III Equipment/Building	M-B Companies, Inc.	MB5 Multi-Tasking Carrier Vehicle with Plow and Broom	11/16/2019	Expired
Type III Equipment/Building	Vaisala	In-Pavement Stationary Runway Weather Information System RWS200	11/16/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861(L) Medium Intensity Runway Edge Light EMIS2NR01S00100	11/16/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861(L) Medium Intensity Runway Edge Light EMIS2NG03S00000	11/16/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861(L) Medium Intensity Runway Edge Light EMIS2NG03S00100	11/16/2019	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	ADB Safegate	L-861(L) Medium Intensity Runway Edge Light EMIS2NG03SF0000	11/16/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861(L) Medium Intensity Runway Edge Light EMIS2NG04S00000	11/16/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861(L) Medium Intensity Runway Edge Light EMIS2NG04S00100	11/16/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861(L) Medium Intensity Runway Edge Light EMIS2NG07S00000	11/16/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861(L) Medium Intensity Runway Edge Light EMIS2NG09SL0000	11/16/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861(L) Medium Intensity Runway Edge Light EMIS2NG09SM0000	11/16/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861(L) Medium Intensity Runway Edge Light EMIS2NR01S00000	11/16/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861(L) Medium Intensity Runway Edge Light EMIS2RG0CSM0000	11/16/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861(L) Medium Intensity Runway Edge Light EMIS2NR03S00000	11/16/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861(L) Medium Intensity Runway Edge Light EMIS2NR03S00100	11/16/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861(L) Medium Intensity Runway Edge Light EMIS2NR04S00000	11/16/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861(L) Medium Intensity Runway Edge Light EMIS2NR04S00100	11/16/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861(L) Medium Intensity Runway Edge Light EMIS2RG0ASL0000	11/16/2019	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	ADB Safegate	L-861(L) Medium Intensity Runway Edge Light EMIS2RG0ASM0000	11/16/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861(L) Medium Intensity Runway Edge Light EMIS2RG0BSL0000	11/16/2019	Expired
Type III Equipment/Building	Security Contractor Svcs	Fencing and Gate Security Equipment and Materials	11/4/2019	Expired
Type III Equipment/Building	OshKosh Airport Products, LLC	ARFF Vehicle, Striker 4x4	10/26/2019	Expired
Type III Equipment/Building	Franklin Paint Company	P-620 White Waterborne Traffic Paint	10/26/2019	Expired
Type III Equipment/Building	Franklin Paint Company	P-620 Yellow Waterborne Traffic Paint	10/26/2019	Expired
Type III Equipment/Building	Franklin Paint Company	P-620 Black Waterborne Traffic Paint	10/26/2019	Expired
Type III Equipment/Building	Franklin Paint Company	P-620 Green Waterborne Traffic Paint	10/26/2019	Expired
Type III Equipment/Building	Franklin Paint Company	P-620 Red Waterborne Traffic Paint	10/26/2019	Expired
Type III Equipment/Building	Wix Support Equipment	Electric Vehicle Charging Station Cable Mangement System	10/26/2019	Expired
Type III Equipment/Building	Millerbernd Manufacturing Company	L-894 Elevated Light Cover 16"	10/26/2019	Expired
Type III Equipment/Building	Millerbernd Manufacturing Company	L-867 Light Base, Non-Load Bearing	10/26/2019	Expired
Type III Equipment/Building	Millerbernd Manufacturing Company	L-868 Light Base, Load Bearing	10/26/2019	Expired
Type III Equipment/Building	Millerbernd Manufacturing Company	L-894 Elevated Light Cover 12"	10/26/2019	Expired
Type III Equipment/Building	Astronics DME	L-852S Inpavement Taxiway Lights L-R-1-0	10/26/2019	Expired
Type III Equipment/Building	Astronics DME	L-852X Inpavement Taxiway Lights L-G2	10/26/2019	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Astronics DME	L-862L HIgh Intensity runway Edge Lights	10/26/2019	Expired
Type III Equipment/Building	Astronics DME	L-852T-L 1 G2 Inpavement Taxiway Lights	10/26/2019	Expired
Type III Equipment/Building	Astronics DME	L-852X-L G2 Inpavement Taxiway Lights	10/26/2019	Expired
Type III Equipment/Building	M-B Companies, Inc.	Snow Removal Equipment - MB5 Multi-Tasking Carrier Vehicle with Plow and Broom	10/19/2019	Expired
Type III Equipment/Building	ADB Safegate	L-862 (L) High Intensity Runway Edge Light EREL2GN13SF0102	10/19/2019	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GN13SF0102	10/19/2019	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GN15SF0002	10/19/2019	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GN15SF0102	10/19/2019	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GR15SF0102	10/19/2019	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2GY33SF0102	10/19/2019	Expired
Type III Equipment/Building	ADB Safegate	L-862 Lights, Runway Edge, High Intensity EREL2NG23SF0102	10/19/2019	Expired
Type III Equipment/Building	Minit charger, LLC	ALT22-480-1 Altus 22kW Dual Port Charger with BIW Cables	10/1/2019	Expired
Type III Equipment/Building	Oshkosh Airport Products, LLC	ARFF Vehicle - Class II Stinger-MSS	10/1/2019	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Caterpillar	Snow Removal Equipment - Model 966M-LR Wheel Loader	10/1/2019	Expired
Type III Equipment/Building	Daimler Trucks North America	Wester Star Snow Plow	10/1/2019	Expired
Type III Equipment/Building	John Deere Davenport Works	Snow Removal Equipment- Model 524 L	10/1/2019	Expired
Type III Equipment/Building	John Bean Technologies	Apron Drive Passenger Boarding Bridge	10/1/2019	Expired
Type III Equipment/Building	John Deere	544L 4WD Loader	10/1/2019	Expired
Type III Equipment/Building	Oshkosh Airport Products, LLC	Aircraft Rescue and Fire Fighting Vehicle, Class 4	10/1/2019	Expired
Type III Equipment/Building	ADB Safegate	L-862 Runway Edge High Intensity Lights EREL2RG21SF0002	10/1/2019	Expired
Type III Equipment/Building	ADB Safegate	L-862 E L Runway Edge High Intensity Lights ERES2WW35S00002	10/1/2019	Expired
Type III Equipment/Building	ADB Safegate	L-861 L Runway & Taxiway Edge Medium Intensity Lights	10/1/2019	Expired
Type III Equipment/Building	ADB Safegate	L-862 Runway Edge High Intensity Lights EREL2WW35S00002	10/1/2019	Expired
Type III Equipment/Building	Multi-Electric Mfg., Inc.	L-852 E LED Inpavement Taxiway Light	10/22/2018	Expired
Type III Equipment/Building	Multi-Electric Mfg., Inc.	L-852 F LED Inpavement Taxiway Light	10/22/2018	Expired
Type III Equipment/Building	Multi-Electric Mfg., Inc.	L-852 S LED Inpavement Taxiway Light	10/22/2018	Expired
Type III Equipment/Building	Multi-Electric Mfg., Inc.	L-852 T LED Inpavement Taxiway Light	10/22/2018	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Astronics DME Corporation	L-850 A LED Runway Inpavement Lights	8/27/2018	Expired
Type III Equipment/Building	Astronics DME Corporation	L-850 B LED Runway Inpavement Lights	8/27/2018	Expired
Type III Equipment/Building	Astronics DME Corporation	L-829 Monitored Constant Current Regulator	8/27/2018	Expired
Type III Equipment/Building	Astronics DME Corporation	L-858 Runway and Taxiway Signs	8/27/2018	Expired
Type III Equipment/Building	Astronics DME Corporation	L-804 V Holding Poisition Edge Light	8/27/2018	Expired
Type III Equipment/Building	Astronics DME Corporation	L-849 I LED Runway End Indentification Lights	8/27/2018	Expired
Type III Equipment/Building	Astronics DME Corporation	L-850 T Runway Inpavement Light	8/27/2018	Expired
Type III Equipment/Building	Kodiack America, LLC	Snow Removal Equipment - Dual Engine Chassis w/ Rwy Broom & Air Blast	8/27/2018	Expired
Type III Equipment/Building	Multi-Electric Mfg., Inc.	L-850 A LED Inpavement Runway Light	8/27/2018	Expired
Type III Equipment/Building	Multi-Electric Mfg., Inc.	L-850 B LED Inpavement Runway Light	8/27/2018	Expired
Type III Equipment/Building	Multi-Electric Mfg., Inc.	L-850 C LED Inpavement Runway Light	8/27/2018	Expired
Type III Equipment/Building	Multi-Electric Mfg., Inc.	L-850 D LED Inpavement Runway Light	8/27/2018	Expired
Type III Equipment/Building	Multi-Electric Mfg., Inc.	L-850 E LED Inpavement Runway Light	8/27/2018	Expired
Type III Equipment/Building	Multi-Electric Mfg., Inc.	L-850 T LED Inpavement Runway Light	8/27/2018	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Ennis-Flint Company	P-620 AirMark Preformed Thermoplastic Pavement Markings	8/4/2018	Expired
Type III Equipment/Building	Multi-Electric Mfg., Inc.	L-852 A LED Inpavement Taxiway Light	7/29/2018	Expired
Type III Equipment/Building	Multi-Electric Mfg., Inc.	L-852 B LED Inpavement Taxiay Light	7/29/2018	Expired
Type III Equipment/Building	Multi-Electric Mfg., Inc.	L-852 C LED Inpavement Taxiway Light	7/29/2018	Expired
Type III Equipment/Building	Multi-Electric Mfg., Inc.	L-852 D LED Inpavement Taxiway Light	7/29/2018	Expired
Type III Equipment/Building	Multi-Electric Mfg., Inc.	L-852 J LED Inpavement Taxiway Light	7/29/2018	Expired
Type III Equipment/Building	Multi-Electric Mfg., Inc.	L-852 K LED Inpavement Taxiway Light	7/29/2018	Expired
Type III Equipment/Building	Airport Lighting Company	L-828 Constant Current Regulator	7/24/2018	Expired
Type III Equipment/Building	Airport Lighting Company	L-829 Monitored Constant Current Regulator	7/24/2018	Expired
Type III Equipment/Building	Eaton Crouse-Hinds	L-852 G LED Inpavement Taxiaway Light	7/22/2018	Expired
Type III Equipment/Building	Hughey & Phillips	L-810 Low Intensity LED , Double, VAC	1/21/2017	Expired
Type III Equipment/Building	Hughey & Phillips	L-810 Low Intensity LED, Single, VAC	1/21/2017	Expired
Type III Equipment/Building	Astronics DME Corporation	L-858 R LED Runway & Taxiway Signs	10/17/2016	Expired
Type III Equipment/Building	Astronics DME Corporation	L-858 L LED Runway & Taxiway Signs	10/17/2016	Expired
Type III Equipment/Building	Astronics DME Corporation	L-858 B LED Runway Runway & Taxiway Signs	10/17/2016	Expired
Type III Equipment/Building	Eaton Crouse-Hinds	L-850 C Runway Inpavement Lights	10/10/2016	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Vaisala	AW20-SPLIT, AWOS A	8/1/2016	Expired
Type III Equipment/Building	Vaisala	AW20-SPLIT, AWOS AV	8/1/2016	Expired
Type III Equipment/Building	Vaisala	AW20-SPLIT, AWOS I	8/1/2016	Expired
Type III Equipment/Building	Vaisala	AW20-SPLIT, AWOS II	8/1/2016	Expired
Type III Equipment/Building	Vaisala	AW20-SPLIT, AWOS III	8/1/2016	Expired
Type III Equipment/Building	Vaisala	AW20-SPLIT, AWOS IIIP	8/1/2016	Expired
Type III Equipment/Building	Vaisala	AW20-SPLIT, AWOS IIIPT	8/1/2016	Expired
Type III Equipment/Building	Vaisala	AW20-SPLIT, AWOS IIIT	8/1/2016	Expired
Type III Equipment/Building	Vaisala	AW20-SPLIT, AWOS IV Z	8/1/2016	Expired
Type III Equipment/Building	Vaisala	AW20-STA, AWOS A	8/1/2016	Expired
Type III Equipment/Building	Vaisala	AW20-STA, AWOS AV	8/1/2016	Expired
Type III Equipment/Building	Vaisala	AW20-STA, AWS I	8/1/2016	Expired
Type III Equipment/Building	Vaisala	AW20-STA, AWOS II	8/1/2016	Expired
Type III Equipment/Building	Vaisala	AW20, AWOS III	8/1/2016	Expired
Type III Equipment/Building	Vaisala	AW20-STA, AWOS IIIP	8/1/2016	Expired
Type III Equipment/Building	Vaisala	AW20-STA, AWOS IIIPT	8/1/2016	Expired
Type III Equipment/Building	Vaisala	AW20-STA, AWOS IIIT	8/1/2016	Expired
Type III Equipment/Building	Vaisala	AW20-STA, AWOS IV Z	8/1/2016	Expired
Type III Equipment/Building	Jaquith Industries	L-894 16" Elevated Light Cover Baseplate	5/17/2016	Expired
Type III Equipment/Building	Jaquith Industries	L-894 12" Elevated Light Cover Baseplate	5/17/2016	Expired
Type III Equipment/Building	Jaquith Industries	L-895 Light Mounting Stake	5/17/2016	Expired
Type III Equipment/Building	The Sherwin-Williams Company	P-620, TT-P-1952, Hotline Waterborne Type III w Algaecide,	5/14/2016	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
		Fungicide, & Rust Inhibitor - Yellow Marking Paint TM2565		
Type III Equipment/Building	The Sherwin-Williams Company	P-620, TT-P-1952 Hotline Waterborne Type III w Algaecide, Fungicide, & Rust Inhibitor - White Marking Paint TM2564	5/14/2016	Expired
Type III Equipment/Building	The Sherwin-Williams Company	P-620, TT-P-1952, Hotline Waterborne Type III w Algaecide, Fungicide, & Rust Inhibitor - Blue Marking Paint TM2545	5/14/2016	Expired
Type III Equipment/Building	The Sherwin-Williams Company	P-620, TT-P-1952 Hotline Waterborne Type I/II - White Marking Paint TM2152	5/14/2016	Expired
Type III Equipment/Building	The Sherwin-Williams Company	P-620, TT-P-1952, Hotline Waterborne Type I/II - Yellow Marking Paint TM2153	5/14/2016	Expired
Type III Equipment/Building	The Sherwin-Williams Company	P-620, TT-P-1952 Hotline Waterborne Type I/II w Algaecide, Fungicide, & Rust Inhibitor - Red Marking Paint TM2544	5/14/2016	Expired
Type III Equipment/Building	The Sherwin-Williams Company	P-620, TT-P-1952, Hotline Waterborne Type I/II w Algaecide, Fungicide, & Rust Inhibitor - Black Marking Paint TM2543	5/14/2016	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	The Sherwin-Williams Company	P-620, TT-P-1952, Type III w Agaecide & Rust Inihibitor - Black Marking Paint TM2540	5/14/2016	Expired
Type III Equipment/Building	The Sherwin-Williams Company	P-620, TT-P-1952, Type III w Algaecide, Fungicide, & Rust Inihibitor - Yellow Marking Paint TM2539	5/14/2016	Expired
Type III Equipment/Building	The Sherwin-Williams Company	P-620, TT-P-1952, Type III w Algaecide, Fungicide & Rust Inhibitor - White Marking Paint TM2538	5/14/2016	Expired
Type III Equipment/Building	The Sherwin-Williams Company	P-620, 1952, TT-P-Hotline Waterborne Durable Type III - White Marking Paint TM2452	5/14/2016	Expired
Type III Equipment/Building	The Sherwin-Williams Company	P-620, 1952, TT-P-Hotline Waterborne Durable Type III - Yellow Marking Paint TM2453	5/14/2016	Expired
Type III Equipment/Building	The Sherwin-Williams Company	P-620, TT-P-1952, Hotline Waterborne Type I/II - Red Marking Paint TM2222	5/14/2016	Expired
Type III Equipment/Building	The Sherwin-Williams Company	P-620, TT-P-1952, Hotline Waterborne Type I/II - Blue Marking Paint TM2224	5/14/2016	Expired
Type III Equipment/Building	The Sherwin-Williams Company	P-620, TT-P-1952, Hotline Waterborne Type I/II - Green Marking Paint TM2226	5/14/2016	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	The Sherwin-Williams Company	P-620, TT-P-1952, Hotline Waterborne Type I/II - Black Marking Paint TM2221	5/14/2016	Expired
Type III Equipment/Building	The Sherwin-Williams Company	P-620, TT-P- 1952, Hotline Waterborne Type I/II - Yellow Marking Paint TM2259	5/14/2016	Expired
Type III Equipment/Building	The Sherwin-Williams Company	P-620, TT-P-1952, Hotline Waterborne Durable Type III - Green Marking Paint TM2143	5/14/2016	Expired
Type III Equipment/Building	The Sherwin-Williams Company	P-620, TT-P-1952, Hotline Waterborne, Type I/II - White Marking Paint TM2248	5/14/2016	Expired
Type III Equipment/Building	The Sherwin-Williams Company	P-620, TT-P-1952, Hotline Waterborne Durable Type III - Blue Marking Paint TM2142	5/14/2016	Expired
Type III Equipment/Building	The Sherwin-Williams Company	P-620, TT-P-1952, Hotline Waterborne Durable Type III - Black Marking Paint TM2140	5/14/2016	Expired
Type III Equipment/Building	The Sherwin-Williams Company	P-620, TT-P-1952, Hotline Waterborne Durable Type III - Red Marking Paint TM2141	5/14/2016	Expired
Type III Equipment/Building	Boshchung America, LLC	Airport Winter Safety and Operations, RWIS	1/2/2016	Expired
Type III Equipment/Building	Astronics DME Corporation	L-804 Holding Position Edge Light	8/4/2015	Expired
Type III Equipment/Building	ADB Safegate	L-806 Wind Cones - Frangible	5/15/2015	Expired
Type III Equipment/Building	ADB Safegate	L-806 LED, Wind Cones-Frangible	5/15/2015	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	ADB Safegate	L-850 D, Incandescent Inpavement Lights	5/15/2015	Expired
Type III Equipment/Building	ADB Safegate	L-850 E, Incandescent Inpavement Lights	5/15/2015	Expired
Type III Equipment/Building	ADB Safegate	L-850 F, Incandescent Inpavement Lights	5/15/2015	Expired
Type III Equipment/Building	ADB Safegate	L-861 E, LED Runway Edge, Medium Intensity Lights	5/15/2015	Expired
Type III Equipment/Building	ADB Safegate	L-861 LED, Medium Intensity Runway Edge Lights	5/15/2015	Expired
Type III Equipment/Building	ADB Safegate	L-804 LED, Holding Position Edge Light	5/5/2015	Expired
Type III Equipment/Building	ADB Safegate	L-810 LED, Obstruction Lights	5/5/2015	Expired
Type III Equipment/Building	ADB Safegate	L-849 C, LED, Runway End Identification Lights	5/5/2015	Expired
Type III Equipment/Building	ADB Safegate	L-849 E, LED, Runway End Identification Lights	5/5/2015	Expired
Type III Equipment/Building	ADB Safegate	L-850 A, Q/I, Runway, Inpavement Lights	5/5/2015	Expired
Type III Equipment/Building	ADB Safegate	L-850 B, Q/I Runway, Inpavement Lights	5/5/2015	Expired
Type III Equipment/Building	ADB Safegate	L-850 C LED, Runway, Inpavement Lights	5/5/2015	Expired
Type III Equipment/Building	ADB Safegate	L-850 C, Q/I Runway, Inpavement Lights	5/5/2015	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	ADB Safegate	L-850 D, LED Runway, Inpavement Lights	5/5/2015	Expired
Type III Equipment/Building	ADB Safegate	L-852 A, LED, Taxiway, Inpavement Lights	5/5/2015	Expired
Type III Equipment/Building	ADB Safegate	L-852 A, Q, Taxiway, Inpavement Lights	5/5/2015	Expired
Type III Equipment/Building	ADB Safegate	L-852 B, LED Taxiway, Inpavement Lights	5/5/2015	Expired
Type III Equipment/Building	ADB Safegate	L-852 B, Q, Taxiway, Inpavement Lights	5/5/2015	Expired
Type III Equipment/Building	ADB Safegate	L-852 C, LED Taxiway, Inpavement Lights	5/5/2015	Expired
Type III Equipment/Building	ADB Safegate	L-852 C, Q, Taxiway, Inpavement Lights	5/5/2015	Expired
Type III Equipment/Building	ADB Safegate	L-852 D, LED Taxiway, Inpavement Lights	5/5/2015	Expired
Type III Equipment/Building	ADB Safegate	L-852 D, Q, Taxiway, Inpavement Lights	5/5/2015	Expired
Type III Equipment/Building	ADB Safegate	L-852 E, Q, Taxiway, Inpavement Lights	5/5/2015	Expired
Type III Equipment/Building	ADB Safegate	L-852 G, LED, Taxiway, Inpavement Lights	5/5/2015	Expired
Type III Equipment/Building	ADB Safegate	L-852 G, Q, Taxiway, Inpavement Lights	5/5/2015	Expired
Type III Equipment/Building	ADB Safegate	L-852 J, LED Taxiway, Inpavement Lights	5/5/2015	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	ADB Safegate	L-852 S, Q, Taxiway, Inpavement Lights	5/5/2015	Expired
Type III Equipment/Building	ADB Safegate	L-852 T, LED Taxiway, Inpavement Lights	5/5/2015	Expired
Type III Equipment/Building	ADB Safegate	L-858, LED, Runway and Taxiway Signs	5/5/2015	Expired
Type III Equipment/Building	ADB Safegate	L-861 SE, Q, Runway Edge, Medium Intensity Lights	5/5/2015	Expired
Type III Equipment/Building	ADB Safegate	L-861 T, LED Taxiway Edge, Medium Intensity Lights	5/5/2015	Expired
Type III Equipment/Building	ADB Safegate	L-861, Q, Runway Edge, Medium Intensity Lights	5/5/2015	Expired
Type III Equipment/Building	ADB Safegate	L-861E, Q, Runway Edge, Medium Intensity Lights	5/5/2015	Expired
Type III Equipment/Building	ADB Safegate	L-862 E, Q, Runway Edge, High Intensity Lights	5/5/2015	Expired
Type III Equipment/Building	ADB Safegate	L-862, Q, Runway Edge, High Intensity Lights	5/5/2015	Expired
Type III Equipment/Building	ADB Safegate	L-880 LED, Precision Approach Path Indicator	5/5/2015	Expired
Type III Equipment/Building	ADB Safegate	L-881 LED, Abbreviated Precision Approach Path Indicator	5/5/2015	Expired
Type III Equipment/Building	Atg Airports, Ltd.	L-850 B Runway Inpavement Lights	2/2/2015	Expired
Type III Equipment/Building	Atg Airports, Ltd.	L-850 A Runway Inpavement Lights	1/20/2015	Expired
Type III Equipment/Building	Atg Airports, Ltd.	L-850 C Runway Inpavement Lights	1/17/2015	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Astronics DME Corporation	L-849 A LED Runway End Identification Lights	10/27/2014	Expired
Type III Equipment/Building	Rheinmetall Defence	DEBRA FOD	10/21/2014	Expired
Type III Equipment/Building	Ennis-Flint Company	TT-P-1952E Green Type III Runway Marking Paint	8/16/2014	Expired
Type III Equipment/Building	Ennis-Flint Company	TT-P-1952E Blue Type III Runway Marking Paint	8/16/2014	Expired
Type III Equipment/Building	Ennis-Flint Company	TT-P-1952E Red Type III Runway Marking Paint	8/16/2014	Expired
Type III Equipment/Building	Ennis-Flint Company	TT-P-1952E Black Type III Runway Marking Paint	8/16/2014	Expired
Type III Equipment/Building	Ennis-Flint Company	TT-P-1952E Yellow Type III Runway Marking Paint	8/16/2014	Expired
Type III Equipment/Building	Ennis-Flint Company	TT-P-1952E White Type III Runway Marking Paint	8/16/2014	Expired
Type III Equipment/Building	Ennis-Flint Company	TT-P-1952E Green Type I/II Fast Dry Runway Marking Paint	8/16/2014	Expired
Type III Equipment/Building	Ennis-Flint Company	TT-P-1952E Blue Type I/II Fast Dry Runway Marking Paint	8/16/2014	Expired
Type III Equipment/Building	Ennis-Flint Company	TT-P-1952E Red Type I/II Fast Dry Runway Marking Paint	8/16/2014	Expired
Type III Equipment/Building	Ennis-Flint Company	TT-P-1952E Black Type I/II Fast Dry Runway Marking Paint	8/16/2014	Expired
Type III Equipment/Building	Ennis-Flint Company	TT-P-1952E Yellow Type I/II Fast Dry Runway Marking Paint	8/16/2014	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Ennis-Flint Company	TT-P-1952E White Type I/II Fast Dry Runway Marking Paint	8/16/2014	Expired
Type III Equipment/Building	Ennis-Flint Company	A-A-2886B Blue Runway Marking Paint	8/16/2014	Expired
Type III Equipment/Building	Ennis-Flint Company	A-A-2886B Red Runway Marking Paint	8/16/2014	Expired
Type III Equipment/Building	Ennis-Flint Company	A-A-2886B Black Runway Marking Paint	8/16/2014	Expired
Type III Equipment/Building	Ennis-Flint Company	A-A-2886B Yellow Runway Marking Paint	8/16/2014	Expired
Type III Equipment/Building	Ennis-Flint Company	A-A-2886B White Runway Marking Paint	8/16/2014	Expired
Type III Equipment/Building	Manairco	L-861 T LED Runway & Taxiway Edge, Medium Intensity Lights	6/27/2014	Expired
Type III Equipment/Building	Eaton Crouse-Hinds	L-850 A LED Runway Inpavement Lights	6/16/2014	Expired
Type III Equipment/Building	Eaton Crouse-Hinds	L-850 B LED Runway Inpavement Lights	6/16/2014	Expired
Type III Equipment/Building	Containment Solutions	CSI Tank 4 - 600 Gallon DWT Fuel Storage Tank	5/13/2014	Expired
Type III Equipment/Building	Containment Solutions	CSI Tank 4 - 1,000 Gallon DWT Fuel Storage Tank	5/13/2014	Expired
Type III Equipment/Building	Containment Solutions	CSI Tank 6 - 2,500 Gallon DWT Fuel Storage Tank	5/13/2014	Expired
Type III Equipment/Building	Containment Solutions	CSI Tank 6 - 3,000 Gallon DWT Fuel Storage Tank	5/13/2014	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Containment Solutions	CSI Tank 6 - 4,000 Gallon DWT Fuel Storage Tank	5/13/2014	Expired
Type III Equipment/Building	Containment Solutions	CSI Tank 6 - 5,000 Gallon DWT Fuel Storage Tank	5/13/2014	Expired
Type III Equipment/Building	Containment Solutions	CSI Tank 6 - 6,000 Gallon DWT Fuel Storage Tank	5/13/2014	Expired
Type III Equipment/Building	Containment Solutions	CSI Tank 8 -5,000 Gallon DWT Fuel Storage Tank	5/13/2014	Expired
Type III Equipment/Building	Containment Solutions	CSI Tank 8 - 8,000 Gallon DWT Fuel Storage Tank	5/13/2014	Expired
Type III Equipment/Building	Containment Solutions	CSI Tank 8 - 12,000 Gallon Tank DWT Fuel Storage Tank	5/13/2014	Expired
Type III Equipment/Building	Containment Solutions	CSI Tank 8 -15,000 Gallon Tank DWT Fuel Storage Tank	5/13/2014	Expired
Type III Equipment/Building	Containment Solutions	CSI Tank 10 - 10,000 Gallon Tank DWT Fuel Storage Tank	5/13/2014	Expired
Type III Equipment/Building	Containment Solutions	CSI Tank 10 - 12,000 Gallon Tank DWT Fuel Storage Tank	5/13/2014	Expired
Type III Equipment/Building	Containment Solutions	CSI Tank 10 - 15,000 Gallon Tank DWT Fuel Storage Tank	5/13/2014	Expired
Type III Equipment/Building	Containment Solutions	CSI Tank 10 - 20,000 Gallon Tank DWT Fuel Storage Tank	5/13/2014	Expired
Type III Equipment/Building	Containment Solutions	CSI Tank 10 - 25,000 Gallon Tank DWT Fuel Storage Tank	5/13/2014	Expired
Type III Equipment/Building	Containment Solutions	CSI Tank 10 - 30,000 Gallon Tank DWT Fuel Storage Tank	5/13/2014	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Containment Solutions	CSI Tank 10 - 35,000 Gallon DWT Fuel Storage Tank	5/13/2014	Expired
Type III Equipment/Building	Containment Solutions	CSI Tank 10 - 2,000 Gallon DWT Fuel Storage Tank	5/13/2014	Expired
Type III Equipment/Building	Service Wire Company	L-824, Underground Electrical Cables for Airfield Circuits	5/4/2014	Expired
Type III Equipment/Building	Airport Lighting Company	L-861 LED Runway & Taxiway Edge, Medium Intensity Lights	3/29/2014	Expired
Type III Equipment/Building	Davies Imperial Coatings, Inc.	A-A-2886B Black Runway Marking Paint (5385)	3/24/2014	Expired
Type III Equipment/Building	Eaton Crouse-Hinds	L-852 A LED Taxiway Inpavement Lights	2/25/2014	Expired
Type III Equipment/Building	Eaton Crouse-Hinds	L-852 B LED Taxiway Inpavement Lights	2/25/2014	Expired
Type III Equipment/Building	Eaton Crouse-Hinds	L-852 C LED Taxiway Inpavement Lights	2/25/2014	Expired
Type III Equipment/Building	Eaton Crouse-Hinds	L-852 D LED Taxiway Inpavement Lights	2/25/2014	Expired
Type III Equipment/Building	Eaton Crouse-Hinds	L-852 J LED Taxiway Inpavement Lights	2/25/2014	Expired
Type III Equipment/Building	Eaton Crouse-Hinds	L-852 K LED Taxiway Inpavement Lights	2/25/2014	Expired
Type III Equipment/Building	Astronics DME Corporation	L-861 SE LED Runway & Taxiway Edge, Medium Intensity Lights	11/16/2013	Expired
Type III Equipment/Building	Astronics DME Corporation	L-861 E LED Runway & Taxiway Edge, Medium Intensity Lights	11/16/2013	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Astronics DME Corporation	L-852 B LED Taxiway, Inpavement Lights	11/16/2013	Expired
Type III Equipment/Building	Astronics DME Corporation	L-852 C LED Taxiway, Inpavement Lights	11/16/2013	Expired
Type III Equipment/Building	Davies Imperial Coatings, Inc.	A-A-2886B Black Runway Marking Paint (5383)	10/19/2013	Expired
Type III Equipment/Building	Davies Imperial Coatings, Inc.	A-A-2886B Blue Runway Marking Paint (5384)	10/19/2013	Expired
Type III Equipment/Building	Davies Imperial Coatings, Inc.	A-A-2886B Blue Runway Marking Paint (5344)	10/19/2013	Expired
Type III Equipment/Building	Davies Imperial Coatings, Inc.	A-A-2886B Blue Runway Marking Paint (5274)	10/19/2013	Expired
Type III Equipment/Building	Davies Imperial Coatings, Inc.	A-A-2886B Green Runway Marking Paint (5386)	10/19/2013	Expired
Type III Equipment/Building	Davies Imperial Coatings, Inc.	A-A-2886B Green Runway Marking Paint (5376)	10/19/2013	Expired
Type III Equipment/Building	Davies Imperial Coatings, Inc.	A-A-2886B Red Runway Marking Paint (5375)	10/19/2013	Expired
Type III Equipment/Building	Davies Imperial Coatings, Inc.	A-A-2886B Red Runway Marking Paint (5345)	10/19/2013	Expired
Type III Equipment/Building	Davies Imperial Coatings, Inc.	A-A-2886B White Runway Marking Paint (5281)	10/19/2013	Expired
Type III Equipment/Building	Davies Imperial Coatings, Inc.	A-A-2886B Yellow Runway Marking Paint (5382)	10/19/2013	Expired
Type III Equipment/Building	Davies Imperial Coatings, Inc.	A-A-2886B Yellow Runway Marking Paint (5342)	10/19/2013	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Davies Imperial Coatings, Inc.	A-A-2886B Yellow Runway Marking Paint (5372)	10/19/2013	Expired
Type III Equipment/Building	Davies Imperial Coatings, Inc.	IL SPEC Red Runway Marking Paint (5408)	10/19/2013	Expired
Type III Equipment/Building	Davies Imperial Coatings, Inc.	IL SPEC Yellow Runway Marking Paint (4636)	10/19/2013	Expired
Type III Equipment/Building	Davies Imperial Coatings, Inc.	TT-P-1952E Type II Yellow Runway Marking Paint (9511)	10/19/2013	Expired
Type III Equipment/Building	Davies Imperial Coatings, Inc.	TT-P-1952E Type II Yellow Runway Marking Paint (8511)	10/19/2013	Expired
Type III Equipment/Building	Davies Imperial Coatings, Inc.	TT-P-1952E Type II Yellow Runway Marking Paint (4477)	10/19/2013	Expired
Type III Equipment/Building	Davies Imperial Coatings, Inc.	TT-P-1952E Type II Blue Runway Marking Paint (4834)	10/19/2013	Expired
Type III Equipment/Building	Davies Imperial Coatings, Inc.	TT-P-1952E Type II Green Runway Marking Paint (5192)	10/19/2013	Expired
Type III Equipment/Building	Davies Imperial Coatings, Inc.	TT-P-1952E Type II Red Runway Marking Paint (4836)	10/19/2013	Expired
Type III Equipment/Building	Davies Imperial Coatings, Inc.	TT-P-1952E Type III Blue Runway Marking Paint (5433)	10/19/2013	Expired
Type III Equipment/Building	Davies Imperial Coatings, Inc.	TT-P-1952E Type III Green Runway Marking Paint (5435)	10/19/2013	Expired
Type III Equipment/Building	Davies Imperial Coatings, Inc.	TT-P-1952E Type III Red Runway Marking Paint (5434)	10/19/2013	Expired
Type III Equipment/Building	Davies Imperial Coatings, Inc.	TT-P-1952E Type III Yellow Runway Marking Paint (5431)	10/19/2013	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Airport Lighting Company	L-804, Holding Position Edge Light	9/21/2013	Expired
Type III Equipment/Building	Honeywell Airport Systems	L-828 W10 Constant Current Regulator	9/21/2013	Expired
Type III Equipment/Building	Honeywell Airport Systems	L-828 F20 Constant Current Regulator	9/21/2013	Expired
Type III Equipment/Building	Honeywell Airport Systems	L-829 S04 Constant Current Regulator with Monitor	9/21/2013	Expired
Type III Equipment/Building	Honeywell Airport Systems	L-829-F70, Constant Current Regulator	9/9/2013	Expired
Type III Equipment/Building	Honeywell Airport Systems	L-829-S70, Constant Current Regulator	9/9/2013	Expired
Type III Equipment/Building	Honeywell Airport Systems	L-829-S30, Constant Current Regulator	9/9/2013	Expired
Type III Equipment/Building	Honeywell Airport Systems	L-829-F30, Constant Current Regulator	9/9/2013	Expired
Type III Equipment/Building	Honeywell Airport Systems	L-829-F04, Constant Current Regulator	9/9/2013	Expired
Type III Equipment/Building	Amerace - Thomas & Betts Corporation	L-830-17 Isolation Transformer, 60Hz, 20/25 Watts, 6.6A/6.6A Amperes	7/9/2013	Expired
Type III Equipment/Building	Amerace - Thomas & Betts Corporation	L-830-16 Isolation Transformer, 60Hz, 10/15 Watts, 6.6/6.6 Amperes	7/9/2013	Expired
Type III Equipment/Building	Astronics DME Corporation	L-852 D LED Taxiway, Inpavement Lights	7/7/2013	Expired
Type III Equipment/Building	Astronics DME Corporation	L-861 T LED Runway & Taxiway Edge, Medium Intensity Lights	3/26/2013	Expired
Type III Equipment/Building	Astronics DME Corporation	L-861 Halogen Lights	3/26/2013	Expired
Type III Equipment/Building	Astronics DME Corporation	L-861 E Halogen Edge Light	3/26/2013	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Astronics DME Corporation	L-861 T - Halogen Taxiway Light	3/26/2013	Expired
Type III Equipment/Building	Astronics DME Corporation	L-861 LED Runway & Taxiway Edge, Medium Intensity Lights	3/26/2013	Expired
Type III Equipment/Building	Astronics DME Corporation	L-852 A LED Taxiway, Inpavement Lights	3/26/2013	Expired
Type III Equipment/Building	Point Light Corporation	L-861 SE LED Runway & Taxiway Edge, Medium Intensity Lights	3/26/2013	Expired
Type III Equipment/Building	Point Light Corporation	L-861 T LED Runway & Taxiway Edge, Medium Intensity Lights	3/26/2013	Expired
Type III Equipment/Building	Point Light Corporation	L-861 E LED Runway & Taxiway Edge, Medium Intensity Lights	3/26/2013	Expired
Type III Equipment/Building	Point Light Corporation	L-862 E LED Runway & Taxiway Edge, Medium Intensity Lights	3/26/2013	Expired
Type III Equipment/Building	Advanced Drainage Systems (ADS)	D-705 4" Pipe Underdrain w/sock	3/10/2013	Expired
Type III Equipment/Building	Advanced Drainage Systems (ADS)	D-705 6" Pipe Underdrain w/sock	3/10/2013	Expired
Type III Equipment/Building	Advanced Drainage Systems (ADS)	D-705 8" Pipe Underdrain w/sock	3/10/2013	Expired
Type III Equipment/Building	Advanced Drainage Systems (ADS)	D-705 10" Pipe Underdrain w/sock	3/10/2013	Expired
Type III Equipment/Building	DME (Astronics)	L-852T-L-X LED, Inpavement, OMNI	3/9/2013	Expired
Type III Equipment/Building	Vaisala	AWOS A	1/6/2013	Expired
Type III Equipment/Building	Vaisala	AWOS A/V	1/6/2013	Expired
Type III Equipment/Building	Vaisala	AWOS I	1/6/2013	Expired
Type III Equipment/Building	Vaisala	AWOS II	1/6/2013	Expired
Type III Equipment/Building	Vaisala	AWOS III, III-T, III-P, III-PT, III-PTZ	1/6/2013	Expired
Type III Equipment/Building	Kodiack America, LLC	Snow Blower & Runway Broom Equipment	10/10/2012	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	ADB Safegate	L-830, Isolation Transformer, 60Hz	7/28/2012	Expired
Type III Equipment/Building	TREX Aviation Systems	FOD Finder XM-Mobile	5/25/2012	Expired
Type III Equipment/Building	Stratech Systems Limited	iFerret TM FOD System	5/5/2012	Expired
Type III Equipment/Building	ADB Safegate	L-849 A, LED Runway End Identification Lights	5/4/2012	Expired
Type III Equipment/Building	ADB Safegate	L-850 A, LED Runway Inpavement Lights	5/4/2012	Expired
Type III Equipment/Building	ADB Safegate	L-850 B, LED Runway Inpavement Lights	5/4/2012	Expired
Type III Equipment/Building	ADB Safegate	L-852 K, LED Taxiway Inpavement Lights	5/4/2012	Expired
Type III Equipment/Building	ADB Safegate	L-852 S, LED Taxiway Inpavement Lights	5/4/2012	Expired
Type II - Insufficient Quantity and/or Quality	Eaton Crouse-Hinds	L-852 J LED Taxiway Inpavement Lights	5/4/2012	Expired
Type II - Insufficient Quantity and/or Quality	Metalite Aviation Lighting	L-880, Precision Approach Path Indicator, LEDs	5/4/2012	Expired
Type II - Insufficient Quantity and/or Quality	Metalite Aviation Lighting	L-881, Abbreviated Precision Approach Path Indicator, LEDs	5/4/2012	Expired
Type III Equipment/Building	Vaisala	Inpavement Runway Sensors	5/4/2012	Expired
Type III Equipment/Building	Precision Control Systems	L-890, Lighting Control & Monitoring System	4/3/2012	Expired
Type III Equipment/Building	All Weather, Inc.	AWOS III - 3000 Series	11/27/2011	Expired
Type III Equipment/Building	All Weather, Inc.	AWOS I - 900 Series	11/27/2011	Expired
Type III Equipment/Building	All Weather, Inc.	AWOS II - 900 Series	11/27/2011	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	All Weather, Inc.	AWOS III - 900 Series	11/27/2011	Expired
Type III Equipment/Building	FlexStake, Inc.	L-853, Retro reflective Markers	9/11/2011	Expired
Type III Equipment/Building	QinetiQ	Tarsier FOD System	9/11/2011	Expired
Type III Equipment/Building	TREX Aviation Systems	FOD Finder XF -Fixed	9/11/2011	Expired
Type III Equipment/Building	X-Sight	FODetect Systems	7/26/2011	Expired
Type III Equipment/Building	Flash Technology	L-856, High Intensity Obstruction Lights	3/28/2011	Expired
Type III Equipment/Building	Flash Technology	L-864, Red Obstruction Lights	3/28/2011	Expired
Type III Equipment/Building	Sherwin Industries, Inc.	L-893, Lighted Visual Aid for Runway Closure	3/28/2011	Expired
Type III Equipment/Building	ADB Safegate	L-854, Radio Controls	2/1/2011	Expired
Type III Equipment/Building	ADB Safegate	L-860, Low Intensity Runway Edge Lights	2/1/2011	Expired
Type III Equipment/Building	Flight Light	L-810, Lights-Obstruction (Various Types)*	1/18/2011	Expired
Type III Equipment/Building	Flight Light	L-828, Constant Current Regulators (Various Types)*	1/18/2011	Expired
Type III Equipment/Building	Flight Light	L-861 LED Runway & Taxiway Edge, Medium Intensity Lights	1/18/2011	Expired
Type III Equipment/Building	Southwire Company	L-824, Underground Electrical Cables for Airfield Circuits	1/16/2011	Expired
Type III Equipment/Building	Nehring Electrical Works	L-824, Underground Electrical Cables for Airfield Circuits	11/23/2010	Expired
Type III Equipment/Building	Point Light Corporation	L-806, Wind Cones-Frangible	11/20/2010	Expired
Type III Equipment/Building	Point Light Corporation	L-807, Wind Cones-Rigid	11/20/2010	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Point Light Corporation	L-810, Lights-Obstruction	11/20/2010	Expired
Type III Equipment/Building	Point Light Corporation	L-861 LED Runway & Taxiway Edge, Medium Intensity Lights	11/20/2010	Expired
Type III Equipment/Building	Point Light Corporation	L-862, Runway Edge-Threshold-Stop Bar Lights	11/20/2010	Expired
Type III Equipment/Building	Point Light Corporation	L-864, Red Obstruction Lights	11/20/2010	Expired
Type III Equipment/Building	Amerace - Thomas & Betts Corporation	L-830-1, Isolation Transformer, 60Hz 30/45 Watts, 6.6/6.6A	9/19/2010	Expired
Type III Equipment/Building	Amerace - Thomas & Betts Corporation	L-830-3, Isolation Transformer, 60Hz 65 Watts, 6.6/6.6A	9/19/2010	Expired
Type III Equipment/Building	Amerace - Thomas & Betts Corporation	L-830-4, Isolation Transformer, 60Hz 100 Watts, 6.6/6.6A	9/19/2010	Expired
Type III Equipment/Building	Amerace - Thomas & Betts Corporation	L-830-18, Isolation Transformer, 60Hz 150 Watts, 6.6/6.6A	9/19/2010	Expired
Type III Equipment/Building	Amerace - Thomas & Betts Corporation	L-830-6, Isolation Transformer, 60Hz 200 Watts, 6.6/6.6A	9/19/2010	Expired
Type III Equipment/Building	Amerace - Thomas & Betts Corporation	L-830-10, Isolation Transformer, 60Hz 300 Watts, 6.6/6.6A	9/19/2010	Expired
Type III Equipment/Building	Tenco Industries Inc.	202 LMM Snow Blower	8/27/2010	Expired
Type III Equipment/Building	Flash Technology	L-865, White Obstruction Lights	8/17/2010	Expired
Type III Equipment/Building	Rural Electric	L-854, Radio Controls	8/17/2010	Expired
Type III Equipment/Building	ADB Safegate	L-821, Airport Lighting Control Panel	8/7/2010	Expired
Type III Equipment/Building	Flash Technology	L-849, Runway End Identification Lights	6/21/2010	Expired
Type III Equipment/Building	Flash Technology	L-859, Flashing Omnidirectional Lights	6/21/2010	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Airport Lighting Company	L-880, Precision Approach Path Indicator	4/27/2010	Expired
Type III Equipment/Building	Airport Lighting Company	L-881, Abbreviated Precision Approach Path Indicator	4/27/2010	Expired
Type III Equipment/Building	Neubert Aero Corp	Dynamic Friction Tester	4/27/2010	Expired
Type III Equipment/Building	Neubert Aero Corp	Dynamic Friction Decelerometer	4/27/2010	Expired
Type III Equipment/Building	Rural Electric	L-821, Airport Lighting Control Panel	4/27/2010	Expired
Type III Equipment/Building	Rural Electric	L-890, Lighting Control & Monitoring System	4/27/2010	Expired
Type III Equipment/Building	Safe-Hit	L-853, Retroreflective Markers	3/20/2010	Expired
Type III Equipment/Building	Daimler	Freightliner M2 Carrier Vehicle	1/12/2010	Expired
Type III Equipment/Building	Millard Towers Limited	L-891 - Low Impact Resistant Structures	12/22/2009	Expired
Type III Equipment/Building	Millard Towers Limited	L-892 - Frangible Support Structure	12/22/2009	Expired
Type II - Insufficient Quantity and/or Quality	OCEM	L-852 S LED Taxiway Inpavement Lights	12/1/2009	Expired
Type III Equipment/Building	Prysmian Cables and Systems, Inc.	L-824, Underground Electrical Cables for Airfield Circuits	10/4/2009	Expired
Type III Equipment/Building	Airport Lighting Company	L-861 Runway & Taxiway Edge, Medium Intensity Lights	9/13/2009	Expired
Type III Equipment/Building	Airport Lighting Company	L-862, Runway Edge-Threshold-Stop Bar Lights	9/13/2009	Expired
Type III Equipment/Building	Strobe Approach Lighting Technology, LLC	L-849, Runway End Identification Lights	8/25/2009	Expired
Type III Equipment/Building	Strobe Approach Lighting Technology, LLC	L-859, Flashing Omnidirectional Lights	8/25/2009	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	LoneStar	P-632, Bituminous Pavement Rejuvenator	8/17/2009	Expired
Type III Equipment/Building	Pavement Rejuvenation International, LP	P-632, Bituminous Pavement Rejuvenator	8/16/2009	Expired
Type III Equipment/Building	Soundproof Windows	Single Hung 36 X 72 Window	8/14/2009	Expired
Type III Equipment/Building	Airfield Guidance Sign Manufacturers, Inc.	L-858, Runway & Taxiway Signs	7/28/2009	Expired
Type III Equipment/Building	ADB Safegate	L-828, Constant Current Regulators	7/28/2009	Expired
Type III Equipment/Building	ADB Safegate	L-829, Monitored Constant Current Regulators	7/28/2009	Expired
Type III Equipment/Building	ADB Safegate	L-890, Lighting Control & Monitoring System	7/28/2009	Expired
Type III Equipment/Building	Rural Electric	L-867, Non-Load Bearing Light Box	7/24/2009	Expired
Type III Equipment/Building	Rural Electric	L-868, Load Bearing Light Box	7/24/2009	Expired
Type III Equipment/Building	ADB Safegate	L-890, Lighting Control & Monitoring System	7/20/2009	Expired
Type III Equipment/Building	Olson Industries	L-867, Non-Load Bearing Light Box	7/19/2009	Expired
Type III Equipment/Building	Olson Industries	L-868, Load Bearing Light Box	7/19/2009	Expired
Type III Equipment/Building	Standard Signs, Inc.	L-858, Runway & Taxiway Signs	7/10/2009	Expired
Type III Equipment/Building	Eaton Crouse-Hinds	L-890, Lighting Control & Monitoring System	6/30/2009	Expired
Type III Equipment/Building	Airport Lighting Equipment	L-867, Non-Load Bearing Light Box	6/29/2009	Expired
Type III Equipment/Building	Airport Lighting Equipment	L-868, Load Bearing Light Box	6/29/2009	Expired
Type III Equipment/Building	Eaton Crouse-Hinds	L-801, Beacons-Medium Intensity	6/28/2009	Expired
Type III Equipment/Building	Eaton Crouse-Hinds	L-802, Beacons-High Intensity	6/28/2009	Expired
Type III Equipment/Building	Eaton Crouse-Hinds	L-804 Holding Position Edge Light	6/28/2009	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Eaton Crouse-Hinds	L-806, Wind Cones-Frangible	6/28/2009	Expired
Type III Equipment/Building	Eaton Crouse-Hinds	L-807, Wind Cones-Rigid	6/28/2009	Expired
Type III Equipment/Building	Eaton Crouse-Hinds	L-823, Primary Connector Kits	6/28/2009	Expired
Type III Equipment/Building	Eaton Crouse-Hinds	L-828, Constant Current Regulators	6/28/2009	Expired
Type III Equipment/Building	Eaton Crouse-Hinds	L-829, Regulators, Constant Current with Monitor	6/28/2009	Expired
Type III Equipment/Building	Eaton Crouse-Hinds	L-830, Isolation Transformers, 60Hz	6/28/2009	Expired
Type III Equipment/Building	Eaton Crouse-Hinds	L-847, Circuit Selector Switch	6/28/2009	Expired
Type III Equipment/Building	Eaton Crouse-Hinds	L-852, Taxiway Inpavement Lights	6/28/2009	Expired
Type III Equipment/Building	Eaton Crouse-Hinds	L-858, Runway & Taxiway Signs	6/28/2009	Expired
Type III Equipment/Building	Eaton Crouse-Hinds	L-861 LED Runway & Taxiway Edge, Medium Intensity Lights	6/28/2009	Expired
Type III Equipment/Building	Eaton Crouse-Hinds	L-862, Runway Edge-Threshold-Stop Bar Lights	6/28/2009	Expired
Type III Equipment/Building	Eaton Crouse-Hinds	L-880, Precision Approach Path Indicator	6/28/2009	Expired
Type III Equipment/Building	Eaton Crouse-Hinds	L-881, Abbreviated Precision Approach Path Indicator	6/28/2009	Expired
Type III Equipment/Building	Eaton Crouse-Hinds	L-884, Power & Control Unit	6/28/2009	Expired
Type III Equipment/Building	ADB Safegate	L-804, Holding Position Edge Light	6/26/2009	Expired
Type III Equipment/Building	ADB Safegate	L-807, Wind Cones-Rigid	6/26/2009	Expired
Type III Equipment/Building	ADB Safegate	L-810, Lights-Obstruction	6/26/2009	Expired
Type III Equipment/Building	ADB Safegate	L-827, Monitors-Regulator	6/26/2009	Expired
Type III Equipment/Building	ADB Safegate	L-828, Constant Current Regulators	6/26/2009	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	ADB Safegate	L-829, Monitored Constant Current Regulators	6/26/2009	Expired
Type III Equipment/Building	ADB Safegate	L-847, Circuit Selector Switch	6/26/2009	Expired
Type III Equipment/Building	ADB Safegate	L-853, Retroreflective Markers	6/26/2009	Expired
Type III Equipment/Building	ADB Safegate	L-858, Runway & Taxiway Signs	6/26/2009	Expired
Type III Equipment/Building	ADB Safegate	L-861 Runway & Taxiway Edge, Medium Intensity Lights	6/26/2009	Expired
Type III Equipment/Building	ADB Safegate	L-862, Runway Edge-Threshold-Stop Bar Lights	6/26/2009	Expired
Type III Equipment/Building	ADB Safegate	L-880, Precision Approach Path Indicator	6/26/2009	Expired
Type III Equipment/Building	ADB Safegate	L-881, Abbreviated Precision Approach Path Indicator	6/26/2009	Expired
Type III Equipment/Building	ADB Safegate	L-884, Power & Control Unit	6/26/2009	Expired
Type III Equipment/Building	Halibrite	L-801, Beacons-Medium Intensity	6/23/2009	Expired
Type III Equipment/Building	Halibrite	L-802, Beacons-High Intensity	6/23/2009	Expired
Type III Equipment/Building	Halibrite	L-806, Wind Cones-Frangible	6/23/2009	Expired
Type III Equipment/Building	Halibrite	L-807, Wind Cones-Rigid	6/23/2009	Expired
Type III Equipment/Building	Halibrite	L-893, Lighted Visual Aid for Runway Closure	6/23/2009	Expired
Type III Equipment/Building	Manairco	L-801, Beacons-Medium Intensity	6/23/2009	Expired
Type III Equipment/Building	Manairco	L-828, Constant Current Regulators	6/23/2009	Expired
Type III Equipment/Building	Manairco	L-861 Runway & Taxiway Edge, Medium Intensity Lights	6/23/2009	Expired
Type III Equipment/Building	Multi-Electric	L-804, Holding Position Edge Light	6/23/2009	Expired

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Applicant	Project	Effective Date	Status
Type III Equipment/Building	Multi-Electric	L-861 LED Runway & Taxiway Edge, Medium Intensity Lights	6/23/2009	Expired
Type III Equipment/Building	Multi-Electric	L-862, Runway Edge-Threshold-Stop Bar Lights	6/23/2009	Expired
Type III Equipment/Building	Multi-Electric	L-880, Precision Approach Path Indicator	6/23/2009	Expired
Type III Equipment/Building	Multi-Electric	L-881, Abbreviated Precision Approach Path Indicator	6/23/2009	Expired
Type III Equipment/Building	DME	L-861 LED Runway & Taxiway Edge, Medium Intensity Lights	6/21/2009	Expired
Type III Equipment/Building	DME	L-862, Runway Edge-Threshold-Stop Bar Lights	6/21/2009	Expired
Type III Equipment/Building	Integro	L-830, Isolation Transformers, 60Hz	6/21/2009	Expired
Type III Equipment/Building	Jaquith Industries	L-867, Non-Load Bearing Light Box	6/21/2009	Expired
Type III Equipment/Building	Jaquith Industries	L-868, Load Bearing Light Box	6/21/2009	Expired
Type III Equipment/Building	Jaquith Industries	L-891 - Low Impact Resistant Structures	6/21/2009	Expired
Type III Equipment/Building	Jaquith Industries	L-892 - Frangible Support Structure	6/21/2009	Expired

The following components or subcomponents are steel or manufactured goods that have an FAA specification number and have been determined to be 1) 100% United States product and 2) produced in the United States.

Waiver Type	Manufacturer	Product	Effective Date
100% US and US Final Assembly	Integro	L-823 Plug and Receptacle, Cable Connectors	6/10/2009

Type I, II, III Equipment / Building, and IV Buy American Waivers Issued (As of 1/22/2025)

The following manufacturer's equipment was issued a Buy American Waiver under 49 U.S.C. 50101(b) and can be used on AIP Funded Projects.

Waiver Type	Manufacturer	Product	Effective Date
100% US and US Final Assembly	MCB Industries	EB-83 bolts	1/31/2011
100% US and US Final Assembly	MCB Industries	2-part washers (used with 3/8" x 16 by various length bolts)	10/14/2015
100% US and US Final Assembly	MCB Industries	18-8 fasteners (various length bolts)	12/27/2016

APPENDIX 6

CONTRACTOR SHOP DRAWING COVER PAGE

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CONTRACTOR SHOP DRAWING COVER PAGE

AIP: AP024-9052-44(285)

Project Name: Taxiway 'A' Pavement Rehabilitation & Lighting Project

Airport: LaGrange Callaway Airport (LGC), LaGrange, Georgia

Contractor/Subcontractor Name: _____

Submittal Date: _____

Submittal Item (i.e. Rebar, HDPE Duct, PCCMix Design, etc.)	**Related Contract Bid Item(s) No(s)**	**Clear Buy American Info Attached (Circle One)**	**Original Submittal Or Re-Submittal (Circle One)**
		Yes / No	Original / Re-Submittal
		Yes / No	Original / Re-Submittal
		Yes / No	Original / Re-Submittal
		Yes / No	Original / Re-Submittal
		Yes / No	Original / Re-Submittal
		Yes / No	Original / Re-Submittal
		Yes / No	Original / Re-Submittal
		Yes / No	Original / Re-Submittal
		Yes / No	Original / Re-Submittal

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APPENDIX 7

GEOTECHNICAL REPORT

BORING LOGS

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REPORT OF GEOTECHNICAL ENGINEERING SERVICES

LGC Parallel Taxiway

LaGrange, Georgia

WSP Project No. 6162232410

Benesch Project No. 19023049.04

Prepared for:

Ms. Sonya Ceballos, P.E
Alfred Benesch & Company
600 Peachtree Street NE, Suite 940
Atlanta, Georgia 30308
sceballos@benesch.com

5/1/2023

2677 Buford Highway
Atlanta, Georgia, 30324
404-873-4761
wsp.com

5/1/2023

Ms. Sonya Ceballos, P.E.
Alfred Benesch & Company
600 Peachtree Street NE, Suite 940
Atlanta, Georgia 30308
sceballos@benesch.com

Subject: **Report for Geotechnical Engineering Services**
LGC Parallel Taxiway
LaGrange, Georgia
WSP Project No. 6162232410
Benesch Project No. 19023049.04

Dear Ms. Ceballos:

WSP USA Environment & Infrastructure Inc. (WSP) is pleased to submit this subsurface exploration and geotechnical engineering evaluation report for the above-referenced subject property located in LaGrange, Georgia. This exploration was conducted in general accordance with our proposal dated March 23, 2023. This report briefly discusses our understanding of the project, describes our exploratory procedures and results, and presents our conclusions and recommendations related to the project design and construction.

We appreciate the opportunity of working with you on this project and look forward to our continued association during the final geotechnical exploration and construction phases of the project. Please contact us if you have any questions about this report or if we may be of further service.

Sincerely,

WSP USA Environment & Infrastructure Inc.

Digitally signed by daniel.wang
Date: 2023.05.01 16:54:47 -04'00'

Daniel Wang, PE
Senior Geotechnical Engineer

Yanbo Huang, PE
Principal Geotechnical Engineer

REPORT OF GEOTECHNICAL ENGINEERING SERVICES

LGC Parallel Taxiway
LaGrange, Georgia
WSP Project No. 6162232410
Benesch Project No. 19023049.04

Prepared for:

Ms. Sonya Ceballos, P.E
Alfred Benesch & Company
600 Peachtree Street NE, Suite 940
Atlanta, Georgia 30308

Prepared by:

WSP USA Environment & Infrastructure Inc.
2677 Buford Highway, NE
Atlanta, Georgia 30324
T: 404-873-4761

5/1/2023

Copyright and non-disclosure notice

Third-party disclaimer

Table of Contents

Appendix

1.0 Introduction

WSP has completed a geotechnical exploration for the existing taxiway located at the LaGrange Callaway Airport in LaGrange, Georgia. The objective of this study was to explore the general subsurface conditions in the area of the existing taxiway and to analyze the soil subsurface conditions as they relate to foundation design and construction. This report briefly discusses our understanding of the project, describes our exploratory procedures and presents our conclusions and recommendations.

1.1 Project Information

We understand that LaGrange Callaway Airport (LGC) requires information related to the rehabilitation of the pavements in the existing Taxiway "A". The taxiway is located parallel to primary Runway 13/31. The site consists of approximately 5,400 linear feet of parallel taxiway pavement, 40 feet wide and includes 4 stub taxiways.

2.0 Field Exploration

2.1 Standard Penetration Tests

In order to explore the general subsurface conditions in the areas of the planned construction, a total of twenty (20) soil test borings (designated C-1 through C-20) were performed at the proposed locations shown on the attached boring location plan. The asphalt was cored at each location prior to drilling. The borings were drilled to a depth of 5 feet below the grade.

All standard penetration tests were performed using a CME-55 drill rig utilizing an automatic hammer. The borings were performed by Bridger Drilling, subcontracted by WSP. Prior to the commencement of drilling operations, an 811 ticket was created to check for the presence of underground utilities at the site.

The boring locations were staked in the field by a geotechnical engineer using existing landmarks. The boring locations are shown on the Boring Location Plan (Figure 2) in the Appendix and should be considered approximate. A topographic map was not provided; therefore, all boring depths were recorded as from the ground surface at the time of drilling.

The Soil Test Boring Records, in the Appendix, graphically show the penetration resistances and present the soil descriptions for selected SPT borings. The stratification lines and depth designations on the boring records represent the approximate boundaries between soil types. In some instances, the transition between types may be gradual.

3.0 Site and Subsurface Conditions

3.1 Area and Site Geology

The site is located in the Piedmont Physiographic Province, an area underlain by metamorphic rocks with localized igneous intrusions. Published geologic maps (USGS) indicate the site is underlain by Mica Schist, Gneiss and Amphibolite from the Precambrian-Paleozoic age.

The residual soils encountered in the Piedmont Physiographic Province are the product of in-place chemical and physical weathering of the parent rock. Typically, weathering is most advanced at the surface and decreases with depth. This results in a residual soil profile consisting of slightly clayey soils near the surface underlain by sandy silts and silty sands that generally become harder or denser and coarser with depth to the top of the unweathered bedrock.

The boundary between soil and rock in the Piedmont Physiographic Province is typically not sharply defined. A transitional zone termed "partially weathered rock" is normally found overlying bedrock. Partially weathered rock (PWR) is defined for engineering purposes as residual material with a standard penetration resistance exceeding 100 blows per foot (bpf). Weathering is facilitated by fractures, joints, and by the presence of less resistant rock types. Consequently, the surface elevation of PWR and unweathered rock can vary significantly over short horizontal distances. Lenses and boulders of hard rock and zones of PWR may be present within the soil mantle, above the general bedrock layer.

3.2 Subsurface Conditions

3.2.1 General

The subsurface conditions discussed in the following paragraphs and those shown on the Soil Test Boring Records represent an interpretation of the boring and other data using normally accepted geotechnical engineering judgments considering local geology and experience.

The Boring Records represent our interpretation of the field conditions based on the driller's field logs and an engineer's examination of the split-spoon samples. The groundwater condition indicated on the Soil Test Boring Records represent observations at the time of drilling. The lines designating the interfaces between various strata represent approximate boundaries only, as transitions between materials may be gradual. Soil conditions may vary between and away from the boring locations. Soil samples will be discarded after 30 days from the date of this report unless otherwise requested.

3.2.2 Subsurface Soils

The borings encountered asphalt pavement underlain by, graded aggregate base (GAB) with large stones, fill material, alluvial soils, residual soils and partially weathered rock (PWR). Subsurface materials encountered by the borings performed for this exploration are summarized below with more detailed

information shown on the Soil Test Boring Records located in the Appendix along with an asphalt core summary and asphalt core photos.

Asphalt Pavement: Asphalt pavement thickness ranged from 2 ¼ to 7 inches.

Stone/GAB: Graded Aggregate Base thickness ranged from 2 to 10 inches.

Existing Fill: Existing fill was encountered in C-04, C-05 and C-08 to a depth of 3 feet below the ground surface. The fill soils were described as sandy clay and clayey sand (CL and SC). Standard penetration test (SPT) N-values in the fill soils varied from 6 to 9 blows per foot (bpf). Possible fill was encountered in C-07 and C-18 up to 5 feet where soils consisted of silty sands and sandy silts with SPT N-values ranging from 15 to 43 bpf.

Alluvial Soils: Alluvial soils, formed by river deposits typically found along rivers, floodplains, and deltas, were encountered in C-01, C-02, C-03, C-04, C-13, C-14, and C-15 ranging from 1 to 5 feet. Typical soils encountered were described as sandy clay, high plasticity clay, and sandy silt (CL, CH, and ML). SPT N-values ranged from 4 to 11 bpf. High plasticity clays were encountered at C-01, C-02, C-03, C-13 and C-15 with SPT N-values ranging from 4 to 10 bpf.

Residual Soils: Residual soils, formed by in-place weathering of the parent rock, were encountered below the fill or GAB. Residual soils were typical of the area, composed mainly of silty sands and sandy silts (SM and ML). SPT N-values ranged from 7 to 88 bpf.

Partially Weathered Rock (PWR): PWR was encountered in borings C-06, C-09, and C-19 at depths varying from 1 to 5 feet below the existing surface. The PWR was typically sampled as Very Dense Gray Black Slightly Micaceous Silty SAND.

3.2.3 Groundwater

Groundwater was encountered at a depth of 5 feet at boring location C-8. Groundwater levels can fluctuate with changes in weather, climate, local drainage, and with construction activity in the area. Since groundwater level variations are anticipated, design drawings and specifications should accommodate such possibilities and construction planning should be based on the assumption that variations will occur.

4.0 Conclusions and Recommendations

The following preliminary conclusions and recommendations are based on the previously discussed project information, our observations at the site, interpretation of the field data obtained during the exploration, and our experience with similar subsurface conditions. Subsurface conditions in unexplored locations may vary from those encountered at the specific boring locations. If the construction scheme should vary significantly from that previously described, we request the opportunity to review these recommendations and amend them if necessary.

4.1 Site Preparation

We anticipate construction will be initiated by removing existing pavements, and or stabilizing loose, soft, or otherwise unsuitable material identified. Therefore, we anticipate that some remedial earthwork will be required. Remedial measures could include reworking or undercutting and are best determined at the time of construction. Stripped materials consisting of vegetation and organic materials should be wasted off site or used to vegetate landscaped areas or exposed slopes after completion of grading operations. Stripping depths across the site could vary considerably and as such, we recommend actual stripping depths be evaluated by a representative of WSP during construction to aid in preventing removal of excess material.

The fine-grained soil (silts and clays) encountered in the borings will be sensitive to disturbance from the construction activity and water seepage. If precipitation occurs prior to or during construction, the near surface soils could increase in moisture content and become more susceptible to disturbance. Construction activity should be monitored and should be curtailed if the construction activity is causing subgrade disturbance. A WSP representative can help with monitoring and developing recommendations to aid in limiting the extent of undercutting and subgrade disturbance.

Depending on the final site grades, undercutting of high plasticity (CH) soils may be necessary in the vicinity of borings C-01, C-02, C-03, C-13 and C-15. High plasticity soils are likely present in other areas of the site as well. In general, due to the shrink-swell potential of these soils, it is recommended that a vertical separation on the order of one to two feet be maintained between pavements and the high plasticity soils. The amount of separation will depend on the results of more detailed geotechnical studies including additional laboratory testing. If the high plasticity soils are present at the level of the final grade, we recommend that they be undercut and replaced with properly compacted fill. All undercut areas should be backfilled with structural fill as described in Section 4.3, *Fill Placement*, of this report.

After stripping, proofrolling should be performed with heavy rubber tire construction equipment such as a loaded scraper or fully loaded tandem-axle truck. A geotechnical engineer or their representative should observe proofrolling to aid in locating unstable subgrade materials. Proofrolling should be performed after a suitable period of dry weather to avoid degrading an otherwise acceptable subgrade and to reduce the amount of undercutting/remedial work required. Unstable materials located should be stabilized as directed by the engineer based on conditions observed during construction. Undercut and replacement and densification in place are typical remediation methods.

4.2 Excavation and Earthwork Construction Considerations

Although auger refusal was not encountered during the field exploration, here are our typical recommendations for excavation. Excavation of auger refusal material (apparent rock) typically requires blasting. Mass excavation by blasting is generally less expensive on a cubic yard basis than blasting in trenches, therefore, it may be more cost effective to over-excavate (overshoot) the auger refusal materials below planned footings and utilities and backfill the overexcavated area with engineered soil fill. This will allow conventional installation of foundation and utilities. In addition, support of the pavement on

engineered fill will aid in limiting differential settlement between areas supported on rock and engineered fill.

Rock excavation can be defined in many ways. A method specification based on the grading equipment commonly used in the project area is typical. The following is a guideline rock excavation specification for your review.

In Mass Excavation:	Any material occupying an original volume of more than 1 cubic yard which cannot be excavated with a single-tooth ripper drawn by a crawler tractor having a minimum draw bar pull rating of not less than 56,000 pounds usable pull (Caterpillar D-8K or larger) or the excavator listed below.
In Trench Excavation:	Any material occupying an original volume of more than ½ cubic yard which cannot be excavated with a track excavator having a bucket curling rate of not less than 25,700 pounds, using a rock bucket and rock teeth (Caterpillar 225 or larger).

In addition, we recommend pricing for mass and trench rock excavation be obtained prior to award of the grading contract. Excavation limits beyond those required to install utilities should also be defined.

It should be noted that boulders and/or discontinuous rock lenses will likely be encountered during grading. Boulders will likely need to be reduced in size prior to placement, wasted on site in non-developed areas or hauled off site. This could result in a reduction of the excavated material available for use as engineered fill material.

Upon completion of filling and grading, care should be taken to maintain the subgrade moisture content prior to construction of pavements. Construction traffic over the completed subgrade should be avoided to the extent practical. The site should also be graded to prevent ponding of surface water on the prepared subgrades or in excavations. If the subgrade should become frozen, desiccated, saturated, or disturbed, the affected material should be removed or these materials should be scarified, moisture conditioned, and recompacted prior to pavement construction and observed by a WSP representative.

Surface water should not be allowed to pond on the site and soak into the soil during construction. Construction staging should provide drainage of surface water and precipitation away from the pavement areas. Any water that collects over or adjacent to construction areas should be promptly removed, along with any softened or disturbed soils. Surface water control in the form of sloping surfaces, drainage ditches and trenches, and sump pits and pumps will be important to avoid ponding and associated delays due to precipitation and seepage.

Groundwater was encountered in the borings during our exploration at 5 feet at boring C-08. However, groundwater levels may vary and may affect construction if conditions significantly change from the time of our exploration. If groundwater is encountered during construction, some form of temporary or permanent dewatering may be required. Conventional dewatering methods, such as pumping from sumps, should likely be adequate for temporary removal of any groundwater encountered during excavation at the site. More significant groundwater control could require the use of underdrains in low lying areas of the site to lower groundwater levels.

If earthwork is conducted in hot, dry weather favorable for drying soils, issues with wet unstable soils tend to be less of a concern. However, if the required treatment effort and volumes for stabilization become widespread or grading is performed during unfavorable weather conditions, additional measures such as lime or cement stabilization might be required to dry and stabilize the soils in wet or unfavorable weather.

All excavations should be sloped or braced as required by OSHA regulations to provide stability and safe working conditions. Temporary excavations will probably be required during grading operations. The grading contractor, by his contract, is usually responsible for designing and constructing stable, temporary excavations and should shore, slope or bench the sides of the excavations as required to maintain stability of both the excavation sides and bottom. All excavations should comply with applicable local, state and federal safety regulations, including the current Occupational Health and Safety Administration (OSHA) Excavation and Trench Safety Standards.

Construction site safety is the sole responsibility of the contractor who controls the means, methods and sequencing of construction operations. Under no circumstances shall the information provided herein be interpreted to mean that WSP is assuming any responsibility for construction site safety or the contractor's activities; such responsibility shall neither be implied nor inferred.

4.3 Fill Placement

Fill to replace undercut areas or achieve finished grades should be low to moderate plasticity soil (PI less than 30), free of deleterious materials and rock fragments larger than about 3 inches in any dimension. All structural fill should be placed in maximum 8-inch thick loose lifts and compacted to at least 95 percent of the soil's maximum dry density as determined by the standard Proctor compaction test (ASTM D 698). Soil moisture during placement should be maintained within 3 percent of the optimum moisture content. The upper 2 feet of fill beneath foundations or pavements should be compacted to 98 percent. Fill should be placed in horizontal lifts and adequately keyed into stripped and scarified subgrade soils. In confined areas such as utility trenches or over anchor blocks, portable compaction equipment and thin lifts of 3 to 4 inches may be required to achieve specified degrees of compaction.

Fill placement should be observed by a qualified soils technician under the supervision of the geotechnical engineer and frequent fill density and moisture tests be performed to verify that the specified degree of compaction is being achieved. Areas that do not meet the compaction specifications should be reworked to achieve compliance and retested.

4.4 Pavement Recommendations

Pavements should be typical of the area. From our lab test, a California Bearing Ratio (CBR) of 3 should be considered for well-prepared subgrade consisting of site soils following remediation of any high-plasticity (CH) soils. For more information, please see laboratory testing results listed in the appendix. Pavement design should be based on traffic or other loading conditions.

We understand milling and overlaying was considered but it would be unlikely to be a long-term solution for the pavement. The variations of the existing pavement sections will persist resulting in a non-unform pavement section. According to GDOT pavement design manual 2005, often the milling depth is 1.5 inches. However, the designer should consider additional milling depths to remove existing rutting, cracking and/or other miscellaneous structural failures, and surface conditions.

The top 2 feet of soil subgrade should be compacted to at least 98% of the maximum dry density as determined by the standard Proctor (ASTM D698). The base course should be graded aggregate (GAB) compacted to at least 100% of the maximum dry density as determined by the modified Proctor (ASTM D1557). The exposed subgrade soils and GAB course should be thoroughly proofrolled and any unstable areas repaired prior to pavement installation.

A well-drained, uniform subgrade is critical to pavement performance. Sealing of pavement and joints is recommended, but experience shows that stormwater can typically reach the subgrade. We would recommend the site drainage be designed to maintain the groundwater at least two feet below the top of the subgrade but a sub drain system may not be necessary. The subgrade should be sloped to drain and graded aggregate base (GAB) should be provided with outlets at the low edges or into drop inlets to prevent accumulation of water in the subgrade which can lead to saturation of softening. Pavement subgrade drainage should be installed around the areas anticipated for frequent wetting or having poor natural drainage, such as landscaped islands, along curbs and gutters and around drainage structures.

5.0 Qualifications of Recommendations

Our evaluation of foundation design and construction conditions has been based on our understanding of the site, the available project information, our assumptions and the data obtained during our field exploration as described herein. The general subsurface conditions used were based on interpolation of the subsurface data at our borings. The design recommendations in this report have been developed on the basis of the previously described project characteristics and subsurface conditions. If project criteria or locations change, we must be permitted to determine if our recommendations are still applicable or if they must be modified. The findings of such a review will be presented in a supplemental report.

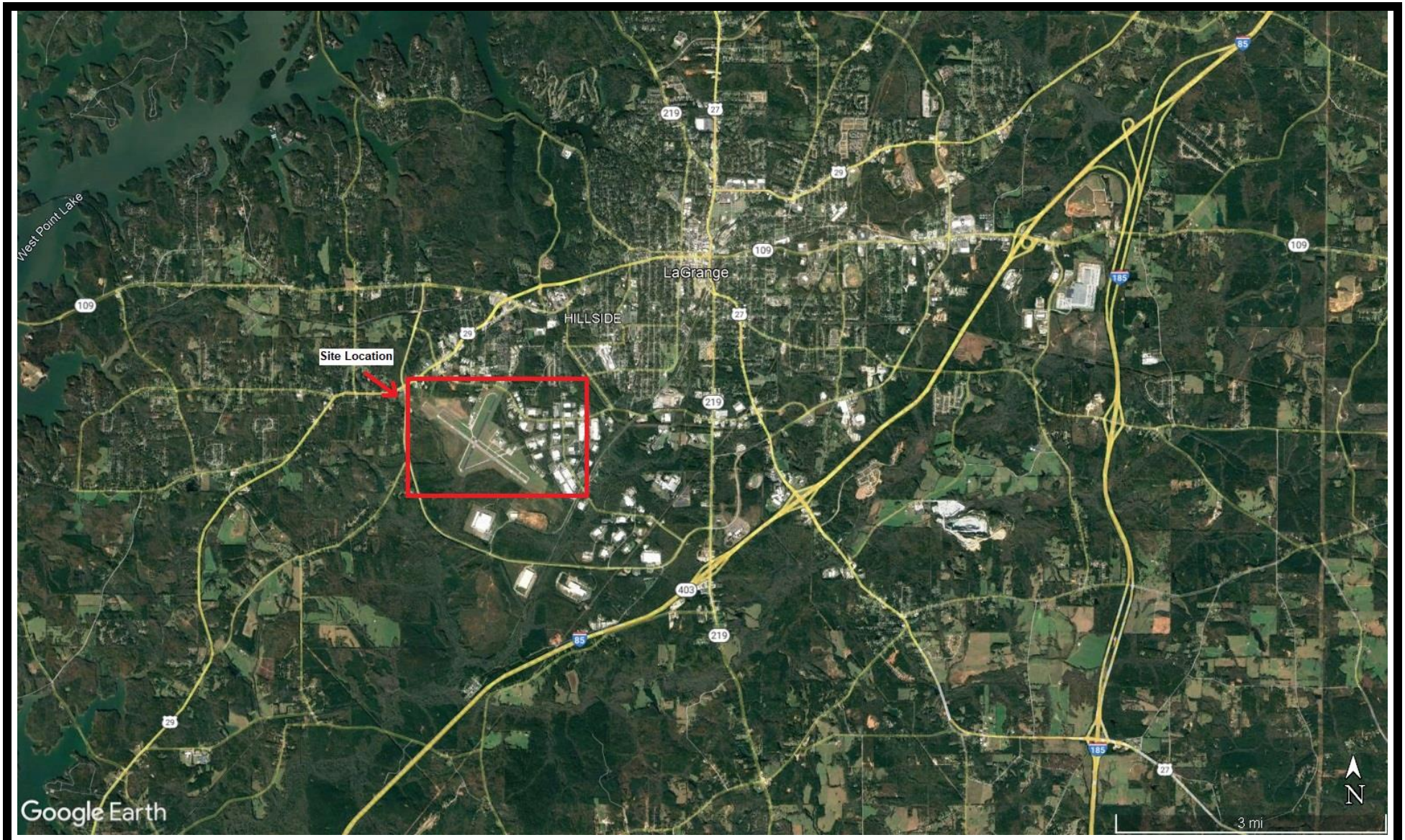
Subsurface conditions in unexplored locations may vary from those encountered at specific boring location. The nature and extent of variations may not become evident until the course of construction. If such variations then appear evident, it will be necessary to re-evaluate the recommendations of this report after on-site observations of the conditions.

Regardless of the thoroughness of a subsurface exploration, there is the possibility that conditions will differ from those at the boring location, that conditions are not as anticipated by the designers, or that the construction process has altered the soil conditions. Therefore, experienced geotechnical engineers must observe earthwork and foundation construction to assess if the conditions anticipated in design actually exist.

Our professional services have been performed, our findings derived, and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices. This warranty is in lieu of all other warranties either express or implied. This company is not responsible for the conclusions, opinions or recommendations of others based on these data.

Appendix

Figure 1 - Site Location Plan
Figure 2 – Boring Location Plan
Key to Symbols and Descriptions
Soil Test Boring Records (20)
Asphalt Coring Summary
Asphalt Core Photo Log (20)
Laboratory Test Results
GBA Information About Geotechnical Reports

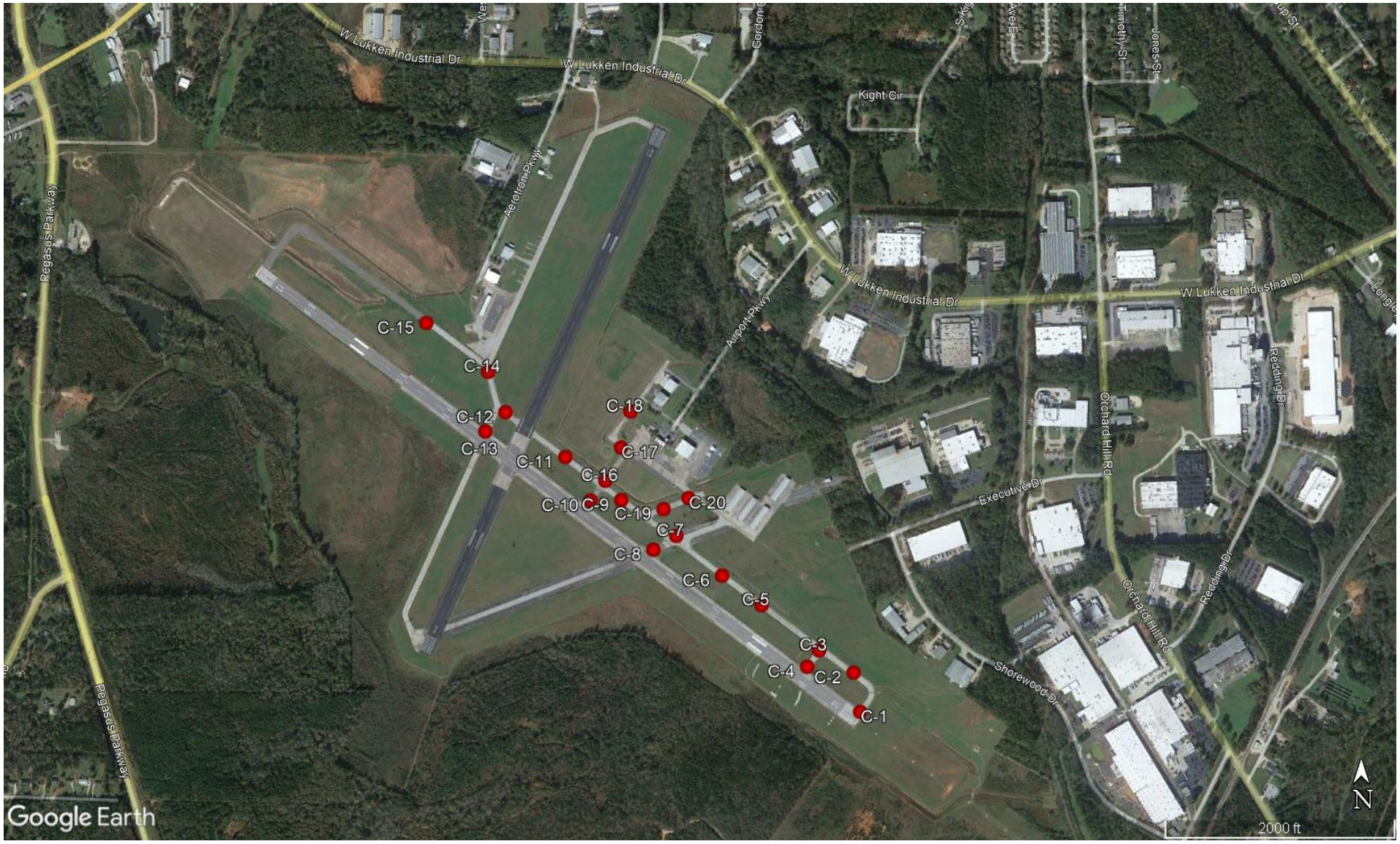


LGC Taxiway
LaGrange, Georgia

WSP
2677 Buford Highway
Atlanta, Georgia 30324 (404) 873 4761

SITE LOCATION PLAN

Drawn By: DW	DATE: April 2023	FIGURE 1



LGC Taxiway **LaGrange, Georgia**	WSP 2677 Buford Highway Atlanta, Georgia 30324 (404) 873 4761	**GEOTECHNICAL BORING LOCATION PLAN**	
		Drawn By: DW	DATE: April 2023	FIGURE 2

MAJOR DIVISIONS			GROUP SYMBOLS		TYPICAL NAMES
COARSE GRAINED SOILS (More than 50% of material is LARGER than No. 200 sieve size)	GRAVELS (More than 50% of coarse fraction is LARGER than the No. 4 sieve size)	CLEAN GRAVELS (Little or no fines)		GW	Well graded gravels, gravel - sand mixtures, little or no fines.
				GP	Poorly graded gravels or grave - sand mixtures, little or no fines.
		GRAVELS WITH FINES (Appreciable amount of fines)		GM	Silty gravels, gravel - sand - silt mixtures.
				GC	Clayey gravels, gravel - sand - clay mixtures.
	SANDS (More than 50% of coarse fraction is SMALLER than the No. 4 Sieve Size)	CLEAN SANDS (Little or no fines)		SW	Well graded sands, gravelly sands, little or no fines.
				SP	Poorly graded sands or gravelly sands, little or no fines.
		SANDS WITH FINES (Appreciable amount of fines)		SM	Silty sands, sand - silt mixtures
				SC	Clayey sands, sand - clay mixtures.
FINE GRAINED SOILS (More than 50% of material is SMALLER than No. 200 sieve size)	SILTS AND CLAYS (Liquid limit LESS than 50)			ML	Inorganic silts and very fine sands, rock flour, silty of clayey fine sands or clayey silts and with slight plasticity.
				CL	Inorganic lays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays.
				OL	Organic silts and organic silty clays of low plasticity.
	SILTS AND CLAYS (Liquid limit GREATER than 50)			MH	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts.
				CH	Inorganic clays of high plasticity, fat clays
				OH	Organic clays of medium to high plasticity, organic silts.
HIGHLY ORGANIC SOILS				PT	Peat and other highly organic soils.
FILL					Fill

	Undisturbed Sample		Auger Cuttings
	Standard Penetration Test or Dynamic Cone Penetration Test		Bulk Sample
	Rock Core		Crandall Sampler
	Dilatometer		Pressure Meter
	Packer		No Recovery
	Water Table at time of boring		Water Table after 24 hours

Correlation of Standard Penetration Resistance with Relative Density and Consistency

SAND & GRAVEL		SILT & CLAY	
No. of Blows	Relative Density	No. of Blows	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

Correlation of Dynamic Cone Penetration Resistance with Relative Density and Consistency (Piedmont Residual Soils)

SAND & GRAVEL		SILT & CLAY	
No. of Blows	Relative Density	No. of Blows	Consistency
0 - 4	Very Loose	0 - 2	Very Soft
5 - 15	Loose	3 - 4	Soft
16 - 30	Medium Dense	5 - 10	Firm
		11 - 30	Stiff

BOUNDARY CLASSIFICATIONS: Soils possessing characteristics of two groups are designated by combinations of group symbols.

SILT OR CLAY	SAND			GRAVEL		Cobbles	Boulders
	Fine	Medium	Coarse	Fine	Coarse		

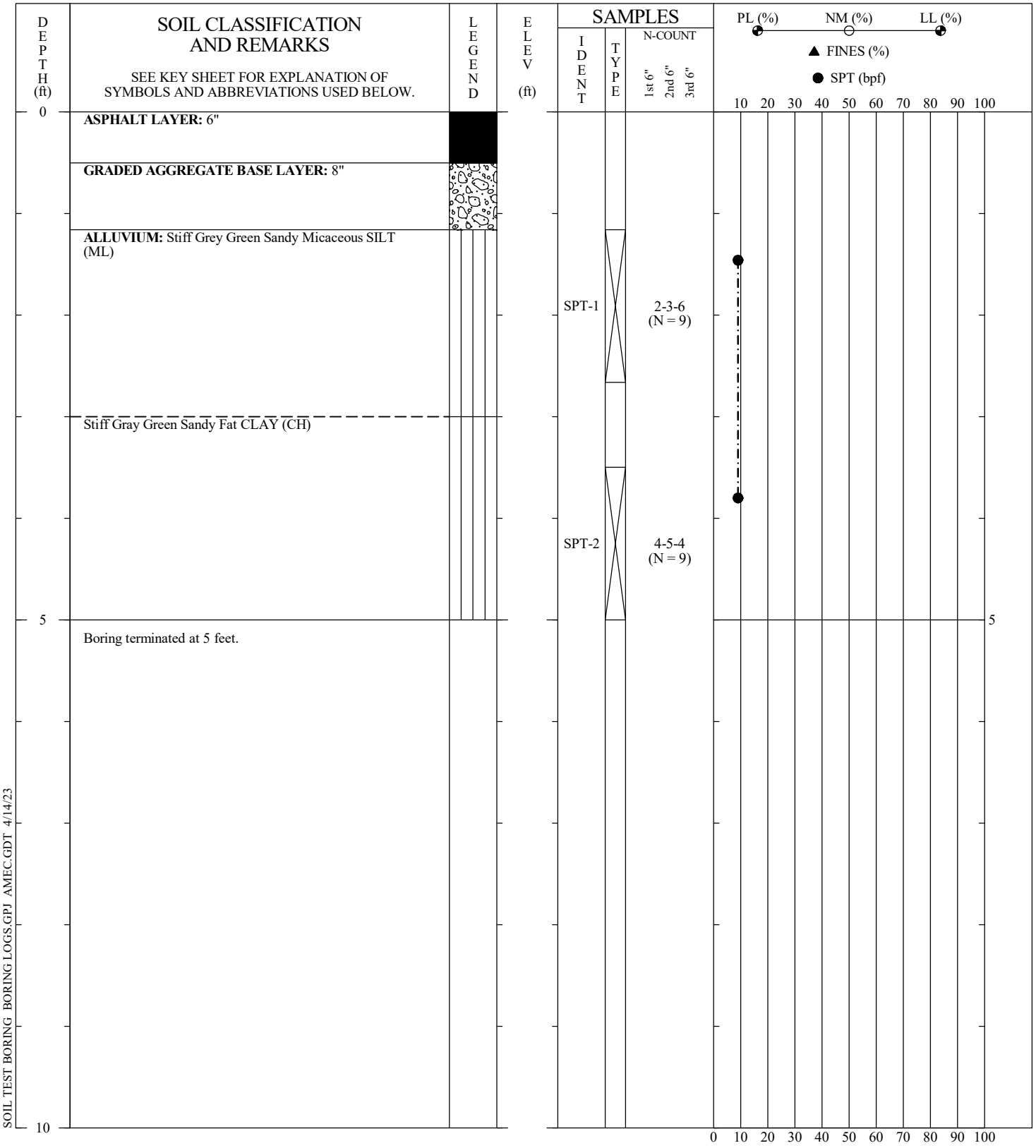
No.200 No.40 No.10 No.4 3/4" 3" 12"

U.S. STANDARD SIEVE SIZE

Reference: The Unified Soil Classification System, Corps of Engineers, U.S. Army Technical Memorandum No. 3-357, Vol. 1, March, 1953 (Revised April, 1960)

KEY TO SYMBOLS AND DESCRIPTIONS

wsp



SOIL TEST BORING BORING LOGS.GPJ AMEC.GDT 4/14/23

DRILLER:	Bridger Drilling
EQUIPMENT:	CME-55 (Auto-Hammer)
METHOD:	2 1/4" HSA
HOLE DIA.:	6 inches
REMARKS:	No groundwater was encountered.

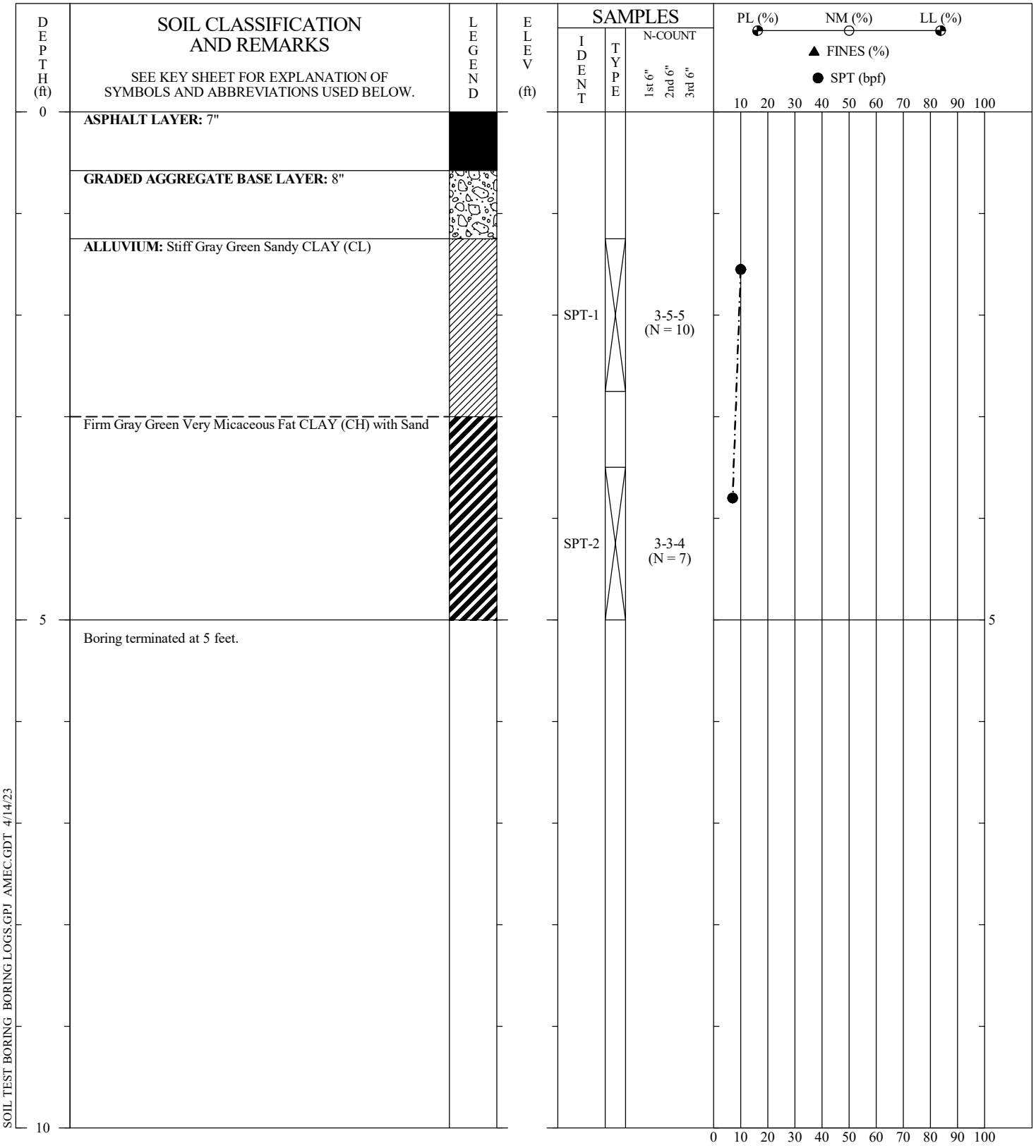
PREPARED BY: DW REVIEWED BY: YH

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BEWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

SOIL TEST BORING RECORD

BORING NO.: C-01
PROJECT: Lagrange Parallel Taxiway
LOCATION: Lagrange, GA
DRILLED: March 23, 2023
PROJECT NO.: 612232410 **PAGE** 1 **OF** 1

WSP



SOIL TEST BORING BORING LOGS.GPJ AMEC.GDT 4/14/23

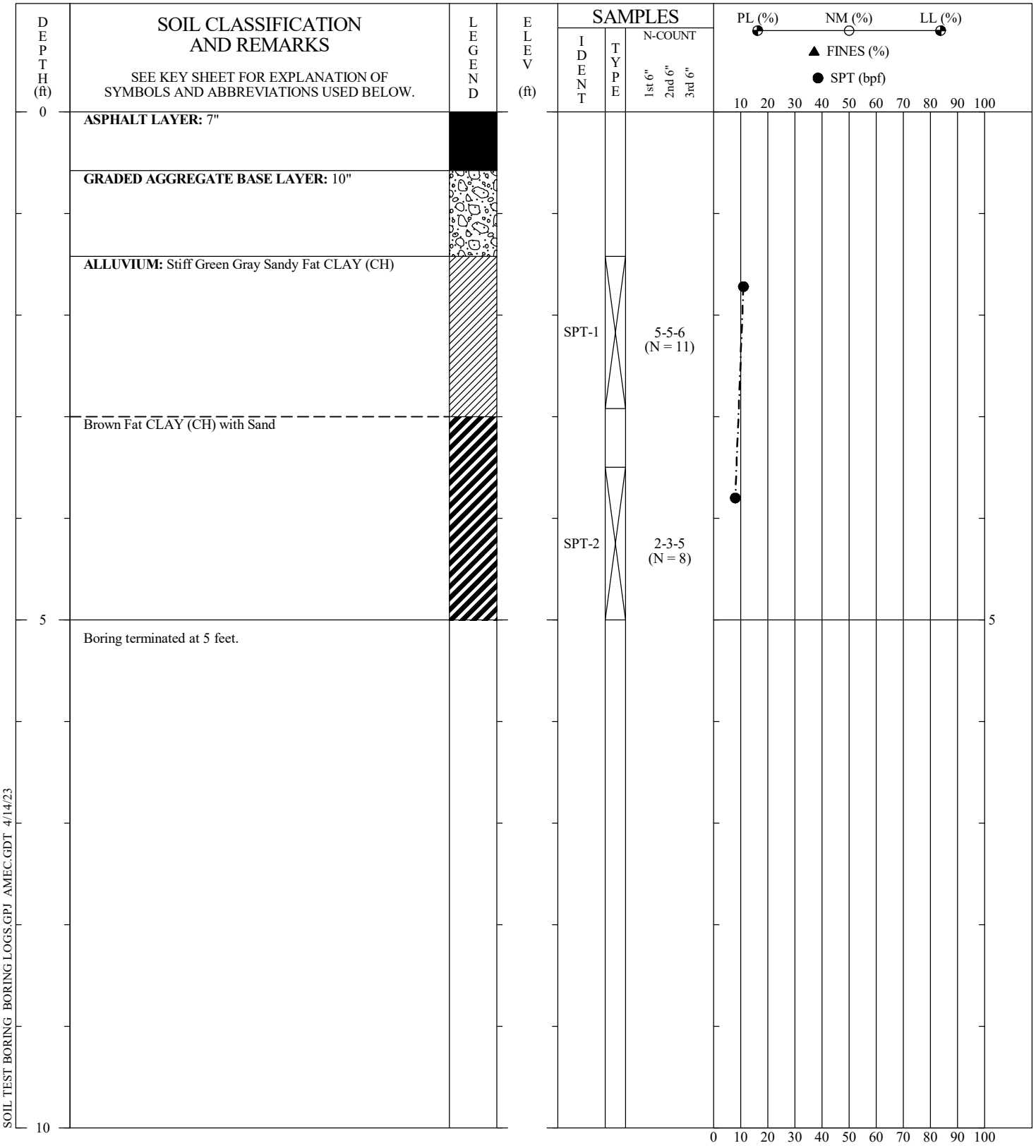
DRILLER:	Bridger Drilling
EQUIPMENT:	CME-55 (Auto-Hammer)
METHOD:	2 1/4" HSA
HOLE DIA.:	6 inches
REMARKS:	No groundwater was encountered.

PREPARED BY: DW REVIEWED BY: YH

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BEWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

SOIL TEST BORING RECORD

BORING NO.: C-02
PROJECT: Lagrange Parallel Taxiway
LOCATION: Lagrange, GA
DRILLED: March 23, 2023
PROJECT NO.: 612232410



SOIL TEST BORING BORING LOGS.GPJ AMEC.GDT 4/14/23

DRILLER:	Bridger Drilling
EQUIPMENT:	CME-55 (Auto-Hammer)
METHOD:	2 1/4" HSA
HOLE DIA.:	6 inches
REMARKS:	No groundwater was encountered.

PREPARED BY: DW REVIEWED BY: YH

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BEWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

SOIL TEST BORING RECORD

BORING NO.: C-03
PROJECT: Lagrange Parallel Taxiway
LOCATION: Lagrange, GA
DRILLED: March 23, 2023
PROJECT NO.: 612232410

DEPTH (ft)	SOIL CLASSIFICATION AND REMARKS	LEGEND	ELEV (ft)	SAMPLES IDENT	SAMPLES TYPE	SAMPLES N-COUNT 1st 6" 2nd 6" 3rd 6"	PL (%) NM (%) LL (%) FINES (%) SPT (bpf) 10 20 30 40 50 60 70 80 90 100
0	**ASPHALT LAYER:** 6"						
	GRADED AGGREGATE BASE LAYER: 6"						
	FILL: Firm Red Sandy CLAY (CL)			SPT-1		2-2-4 (N = 6)	
	ALLUVIUM: Firm Green Gray Sandy CLAY (CL)			SPT-2		2-3-4 (N = 7)	
5	Boring terminated at 5 feet.						5
10							0 10 20 30 40 50 60 70 80 90 100

SOIL TEST BORING BORING LOGS.GPJ AMEC.GDT 4/14/23

DRILLER:	Bridger Drilling
EQUIPMENT:	CME-55 (Auto-Hammer)
METHOD:	2 1/4" HSA
HOLE DIA.:	6 inches
REMARKS:	No groundwater was encountered.

PREPARED BY: DW REVIEWED BY: YH

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BEWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

SOIL TEST BORING RECORD

BORING NO.: C-04
PROJECT: Lagrange Parallel Taxiway
LOCATION: Lagrange, GA
DRILLED: March 23, 2023
PROJECT NO.: 612232410 **PAGE** 1 **OF** 1

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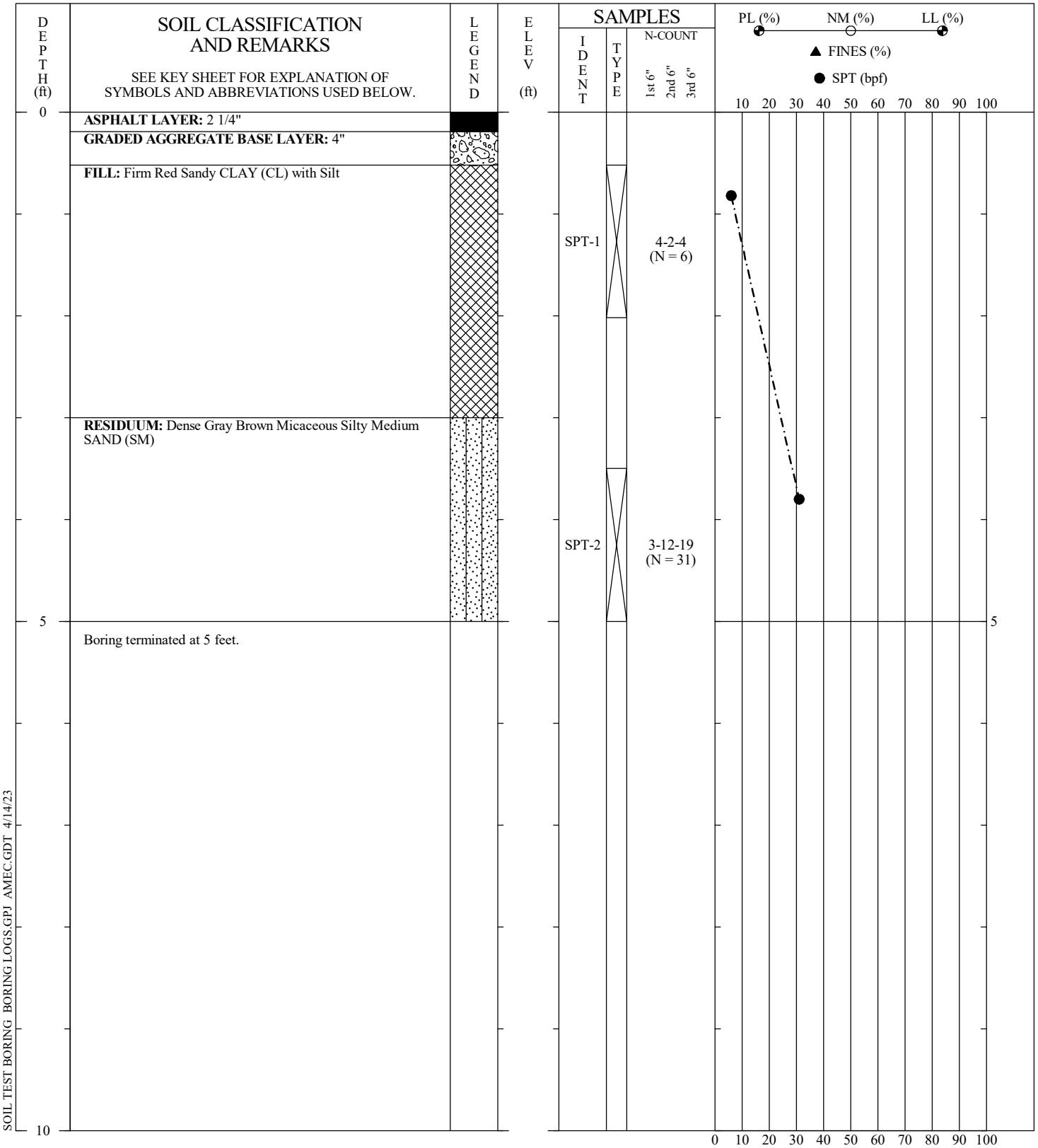


SOIL TEST BORING BORING LOGS.GPJ AMEC.GDT 4/14/23

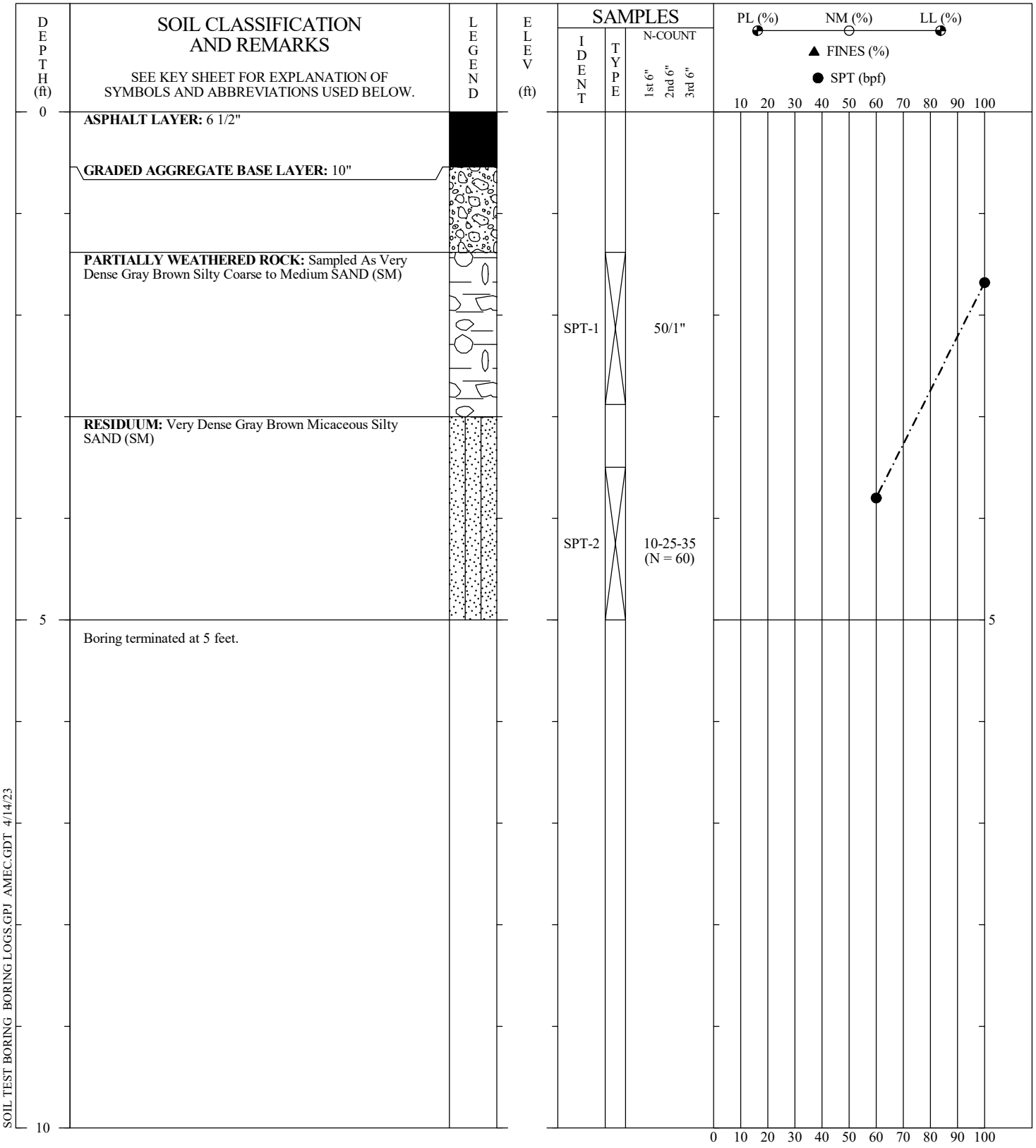
DRILLER:	Bridger Drilling
EQUIPMENT:	CME-55 (Auto-Hammer)
METHOD:	2 1/4" HSA
HOLE DIA.:	6 inches
REMARKS:	No groundwater was encountered.

PREPARED BY: DW REVIEWED BY: YH

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BEWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

SOIL TEST BORING RECORD

BORING NO.: C-05
PROJECT: Lagrange Parallel Taxiway
LOCATION: Lagrange, GA
DRILLED: March 23, 2023
PROJECT NO.: 612232410



SOIL TEST BORING BORING LOGS.GPJ AMEC.GDT 4/14/23

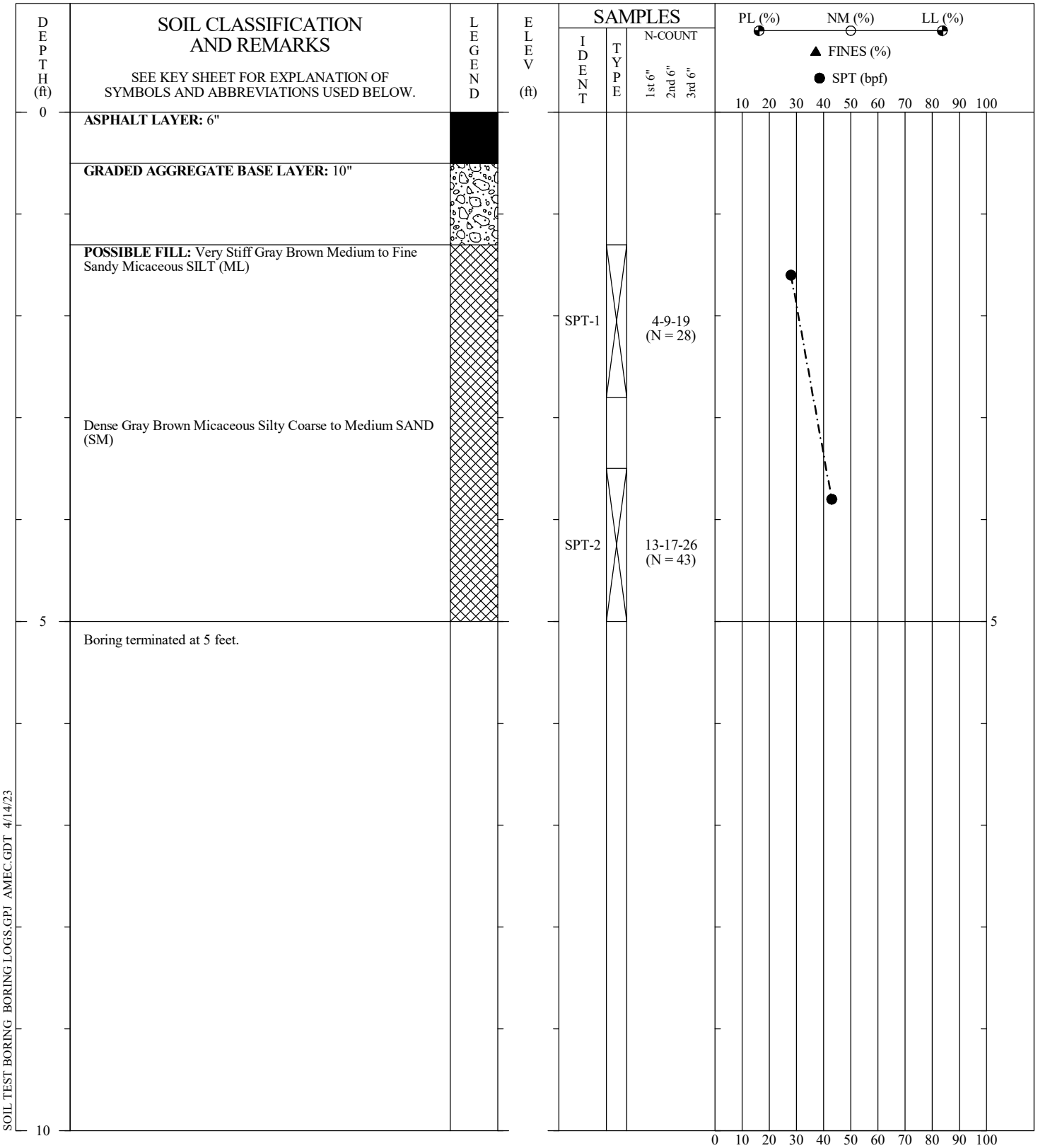
DRILLER:	Bridger Drilling
EQUIPMENT:	CME-55 (Auto-Hammer)
METHOD:	2 1/4" HSA
HOLE DIA.:	6 inches
REMARKS:	No groundwater was encountered.

PREPARED BY: DW REVIEWED BY: YH

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BEWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

SOIL TEST BORING RECORD

BORING NO.: C-06
PROJECT: Lagrange Parallel Taxiway
LOCATION: Lagrange, GA
DRILLED: March 23, 2023
PROJECT NO.: 612232410



SOIL TEST BORING BORING LOGS.GPJ AMEC.GDT 4/14/23

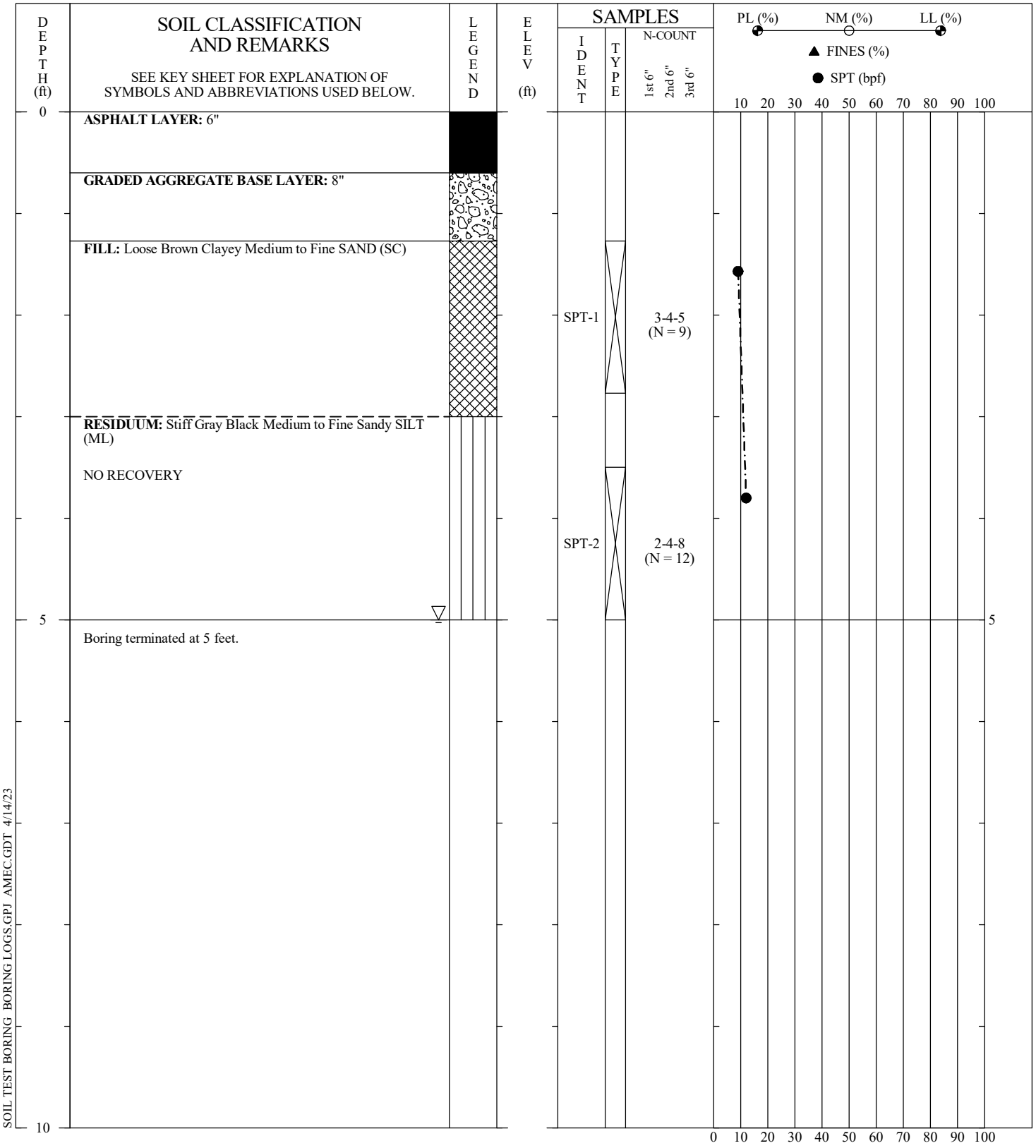
DRILLER:	Bridger Drilling
EQUIPMENT:	CME-55 (Auto-Hammer)
METHOD:	2 1/4" HSA
HOLE DIA.:	6 inches
REMARKS:	No groundwater was encountered.

PREPARED BY: DW REVIEWED BY: YH

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BEWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

SOIL TEST BORING RECORD

BORING NO.: C-07
PROJECT: Lagrange Parallel Taxiway
LOCATION: Lagrange, GA
DRILLED: March 23, 2023
PROJECT NO.: 612232410



SOIL TEST BORING BORING LOGS.GPJ AMEC.GDT 4/14/23

DRILLER:	Bridger Drilling
EQUIPMENT:	CME-55 (Auto-Hammer)
METHOD:	2 1/4" HSA
HOLE DIA.:	6 inches
REMARKS:	

PREPARED BY: DW REVIEWED BY: YH

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BEWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

SOIL TEST BORING RECORD

BORING NO.: C-08
PROJECT: Lagrange Parallel Taxiway
LOCATION: Lagrange, GA
DRILLED: March 23, 2023
PROJECT NO.: 612232410

DEPTH (ft)	SOIL CLASSIFICATION AND REMARKS	LEGEND	ELEV (ft)	SAMPLES IDENT	SAMPLES TYPE	SAMPLES N-COUNT 1st 6" / 2nd 6" / 3rd 6"
0	**ASPHALT LAYER:** 5"					
	GRADED AGGREGATE BASE LAYER: 8"					
	PARTIALLY WEATHERED ROCK: Sampled As Gray Brown Coard to Medium Silty SAND (SM)			SPT-1		50/6
	Medium SAND			SPT-2		50/5
5	Boring terminated at 5 feet.					
10						

PL (%) NM (%) LL (%)

▲ FINES (%)

● SPT (bpf)

10 20 30 40 50 60 70 80 90 100

0 10 20 30 40 50 60 70 80 90 100

SOIL TEST BORING BORING LOGS.GPJ AMEC.GDT 4/14/23

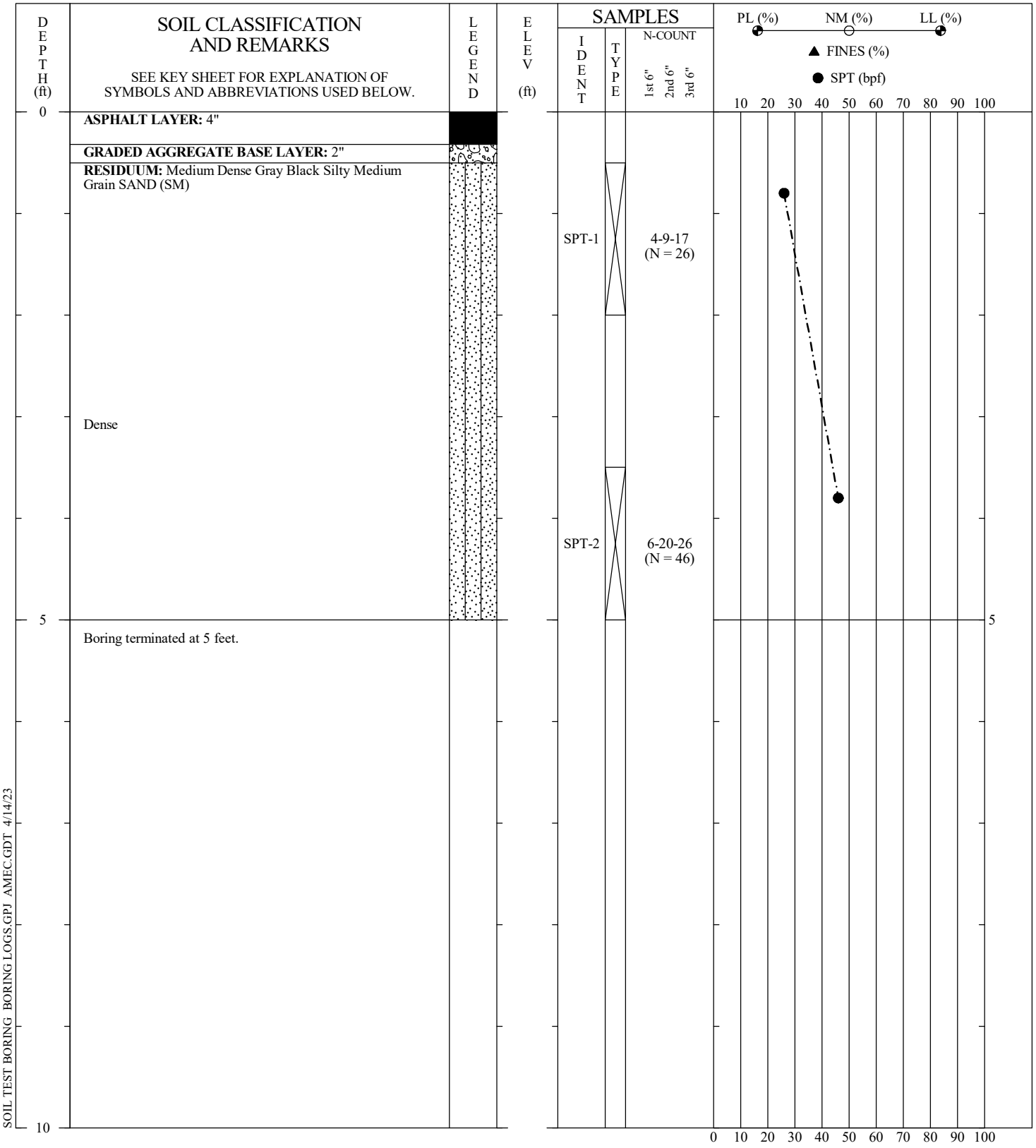
DRILLER:	Bridger Drilling
EQUIPMENT:	CME-55 (Auto-Hammer)
METHOD:	2 1/4" HSA
HOLE DIA.:	6 inches
REMARKS:	No groundwater was encountered.

PREPARED BY: DW REVIEWED BY: YH

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BEWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

SOIL TEST BORING RECORD

BORING NO.: C-09
PROJECT: Lagrange Parallel Taxiway
LOCATION: Lagrange, GA
DRILLED: March 22, 2023
PROJECT NO.: 612232410



SOIL TEST BORING BORING LOGS.GPJ AMEC.GDT 4/14/23

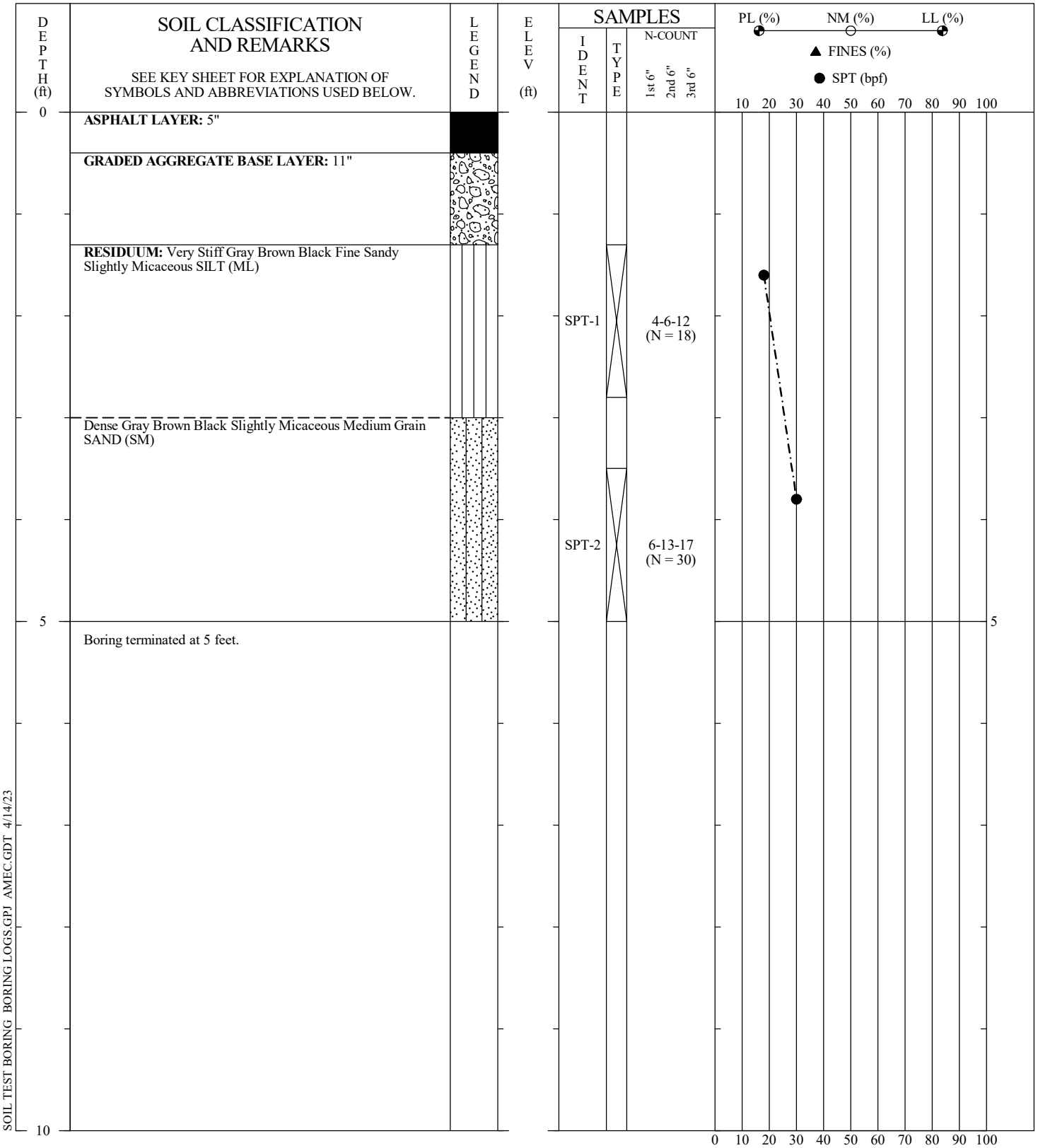
DRILLER:	Bridger Drilling
EQUIPMENT:	CME-55 (Auto-Hammer)
METHOD:	2 1/4" HSA
HOLE DIA.:	6 inches
REMARKS:	No groundwater was encountered.

PREPARED BY: DW REVIEWED BY: YH

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BEWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

SOIL TEST BORING RECORD

BORING NO.: C-10
PROJECT: Lagrange Parallel Taxiway
LOCATION: Lagrange, GA
DRILLED: March 22, 2023
PROJECT NO.: 612232410



SOIL TEST BORING BORING LOGS.GPJ AMEC.GDT 4/14/23

DRILLER:	Bridger Drilling
EQUIPMENT:	CME-55 (Auto-Hammer)
METHOD:	2 1/4" HSA
HOLE DIA.:	6 inches
REMARKS:	No groundwater was encountered.

PREPARED BY: DW REVIEWED BY: YH

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BEWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

SOIL TEST BORING RECORD

BORING NO.: C-11
PROJECT: Lagrange Parallel Taxiway
LOCATION: Lagrange, GA
DRILLED: March 22, 2023
PROJECT NO.: 612232410

DEPTH (ft)	SOIL CLASSIFICATION AND REMARKS	LEGEND	ELEV (ft)	SAMPLES IDENT	SAMPLES TYPE	SAMPLES N-COUNT 1st 6" 2nd 6" 3rd 6"
0	**ASPHALT LAYER:** 4 1/2"					
	GRADED AGGREGATE BASE LAYER: 8"					
	ALLUVIUM: Firm Gray Green Sandy SILT (ML)			SPT-1		2-3-4 (N = 7)
	Soft			SPT-2		1-2-2 (N = 4)
5	Boring terminated at 5 feet.					
10						

PL (%) NM (%) LL (%)
▲ FINES (%)
● SPT (bpf)
10 20 30 40 50 60 70 80 90 100
0 10 20 30 40 50 60 70 80 90 100

SOIL TEST BORING BORING LOGS.GPJ AMEC.GDT 4/14/23

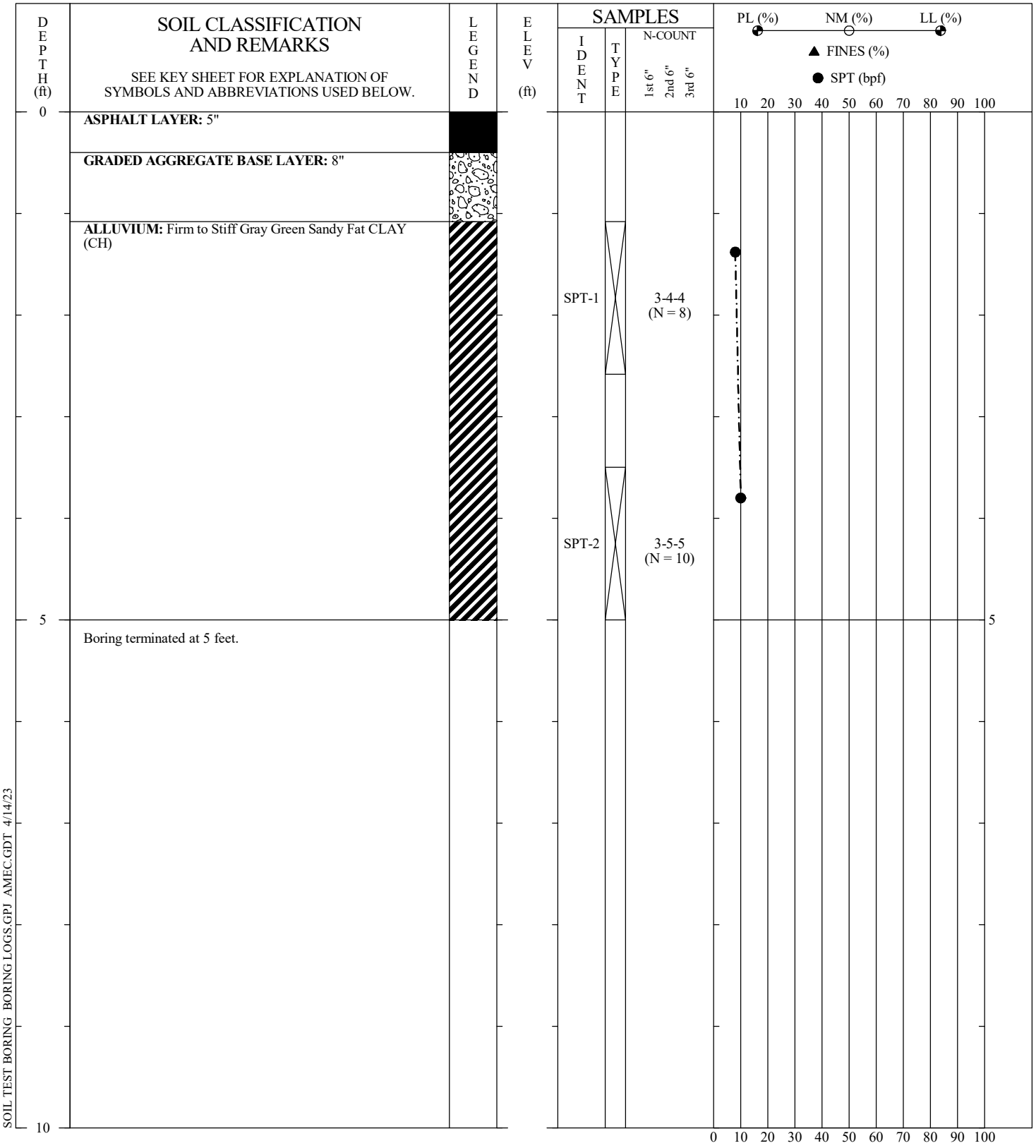
DRILLER:	Bridger Drilling
EQUIPMENT:	CME-55 (Auto-Hammer)
METHOD:	2 1/4" HSA
HOLE DIA.:	6 inches
REMARKS:	No groundwater was encountered.

PREPARED BY: DW REVIEWED BY: YH

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BEWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

SOIL TEST BORING RECORD

BORING NO.: C-12
PROJECT: Lagrange Parallel Taxiway
LOCATION: Lagrange, GA
DRILLED: March 24, 2023
PROJECT NO.: 612232410



SOIL TEST BORING BORING LOGS.GPJ AMEC.GDT 4/14/23

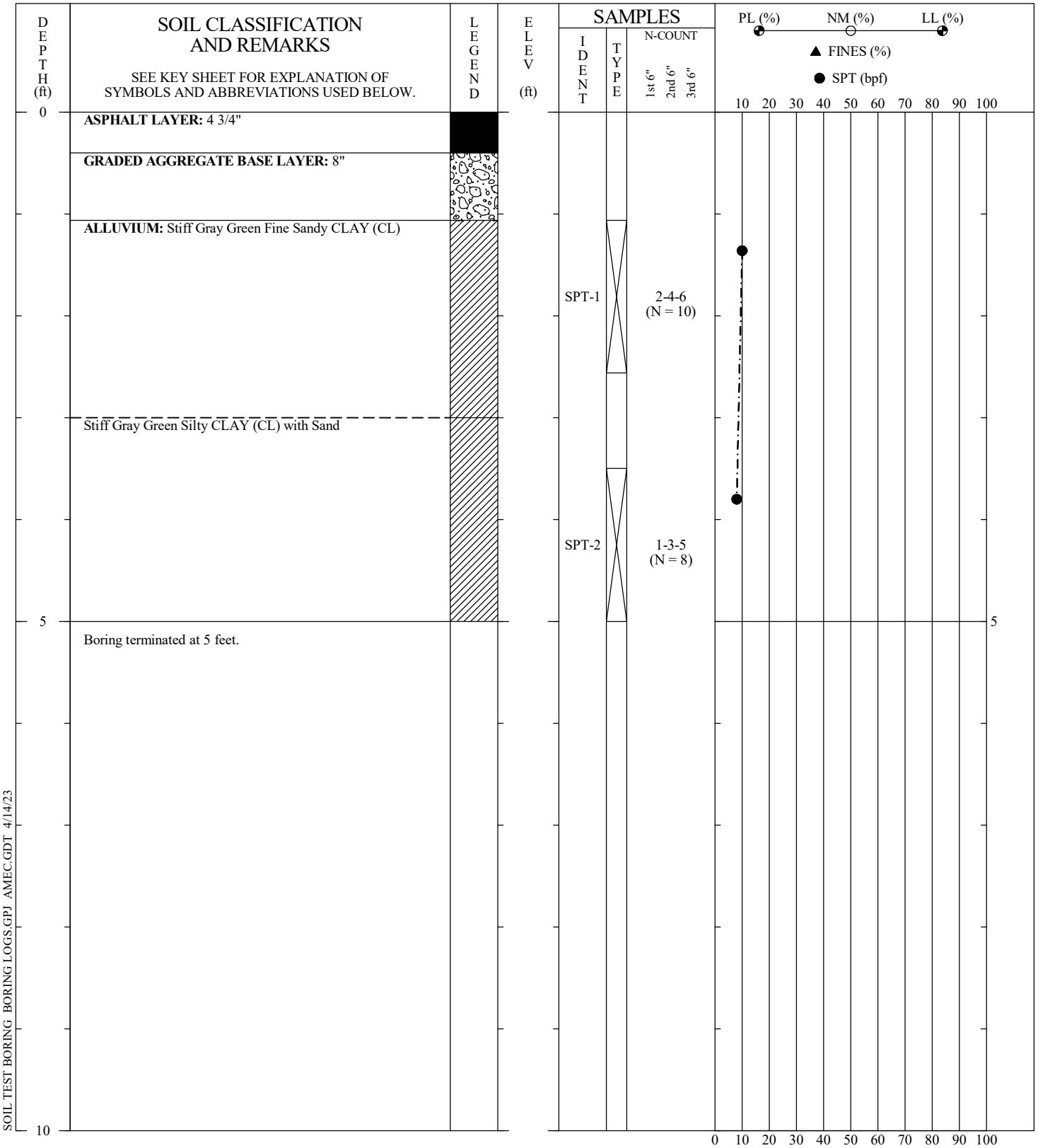
DRILLER:	Bridger Drilling
EQUIPMENT:	CME-55 (Auto-Hammer)
METHOD:	2 1/4" HSA
HOLE DIA.:	6 inches
REMARKS:	No groundwater was encountered.

PREPARED BY: DW REVIEWED BY: YH

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BEWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

SOIL TEST BORING RECORD

BORING NO.: C-13
PROJECT: Lagrange Parallel Taxiway
LOCATION: Lagrange, GA
DRILLED: March 24, 2023
PROJECT NO.: 612232410



SOIL TEST BORING BORING LOGS.GPJ AMEC.GDT 4/14/23

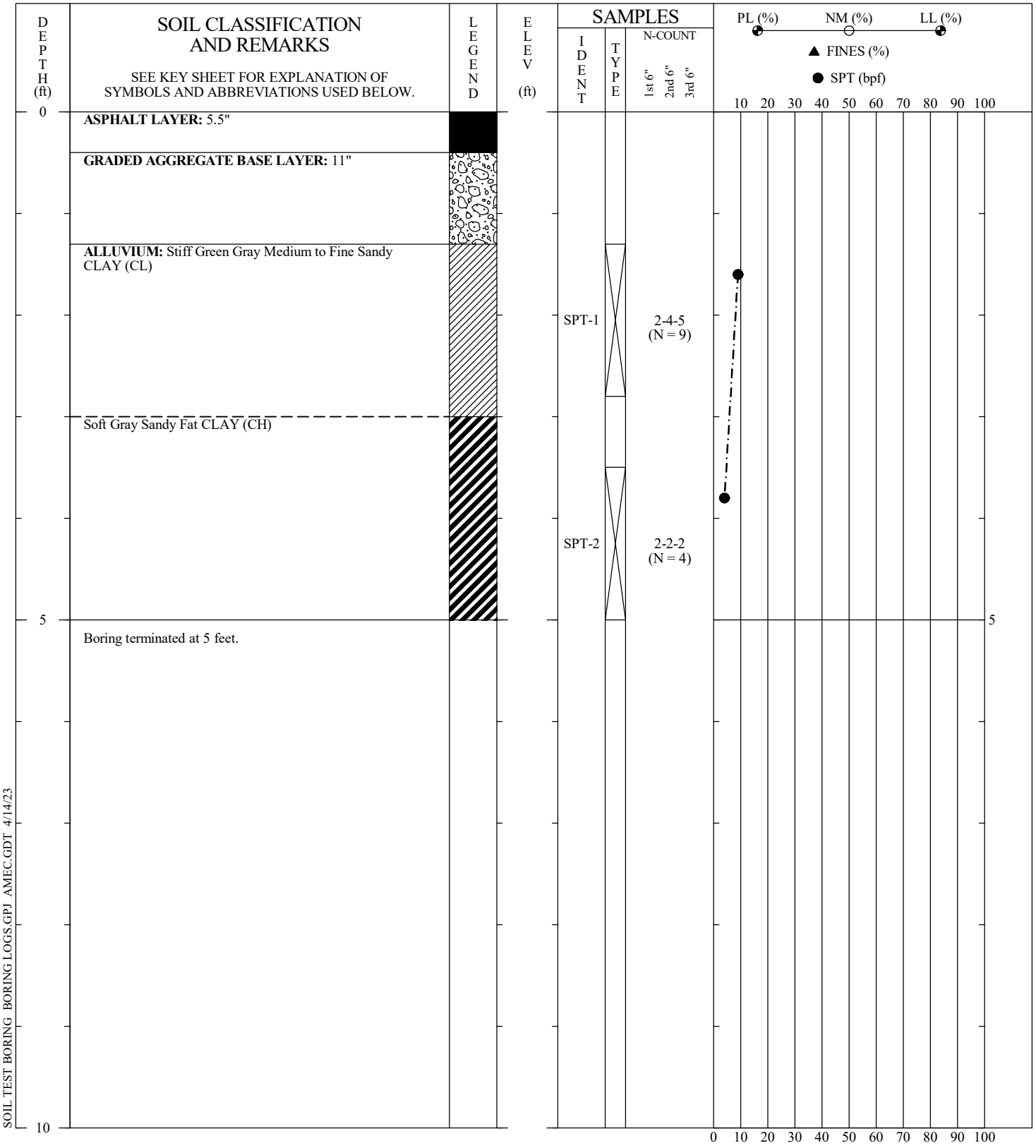
DRILLER:	Bridger Drilling
EQUIPMENT:	CME-55 (Auto-Hammer)
METHOD:	2 1/4" HSA
HOLE DIA.:	6 inches
REMARKS:	No groundwater was encountered.

PREPARED BY: DW REVIEWED BY: YH

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BEWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

SOIL TEST BORING RECORD

BORING NO.: C-14
PROJECT: Lagrange Parallel Taxiway
LOCATION: Lagrange, GA
DRILLED: March 24, 2023
PROJECT NO.: 612232410 **PAGE** 1 **OF** 1



SOIL TEST BORING BORING LOGS.GPJ AMEC.GDT 4/14/23

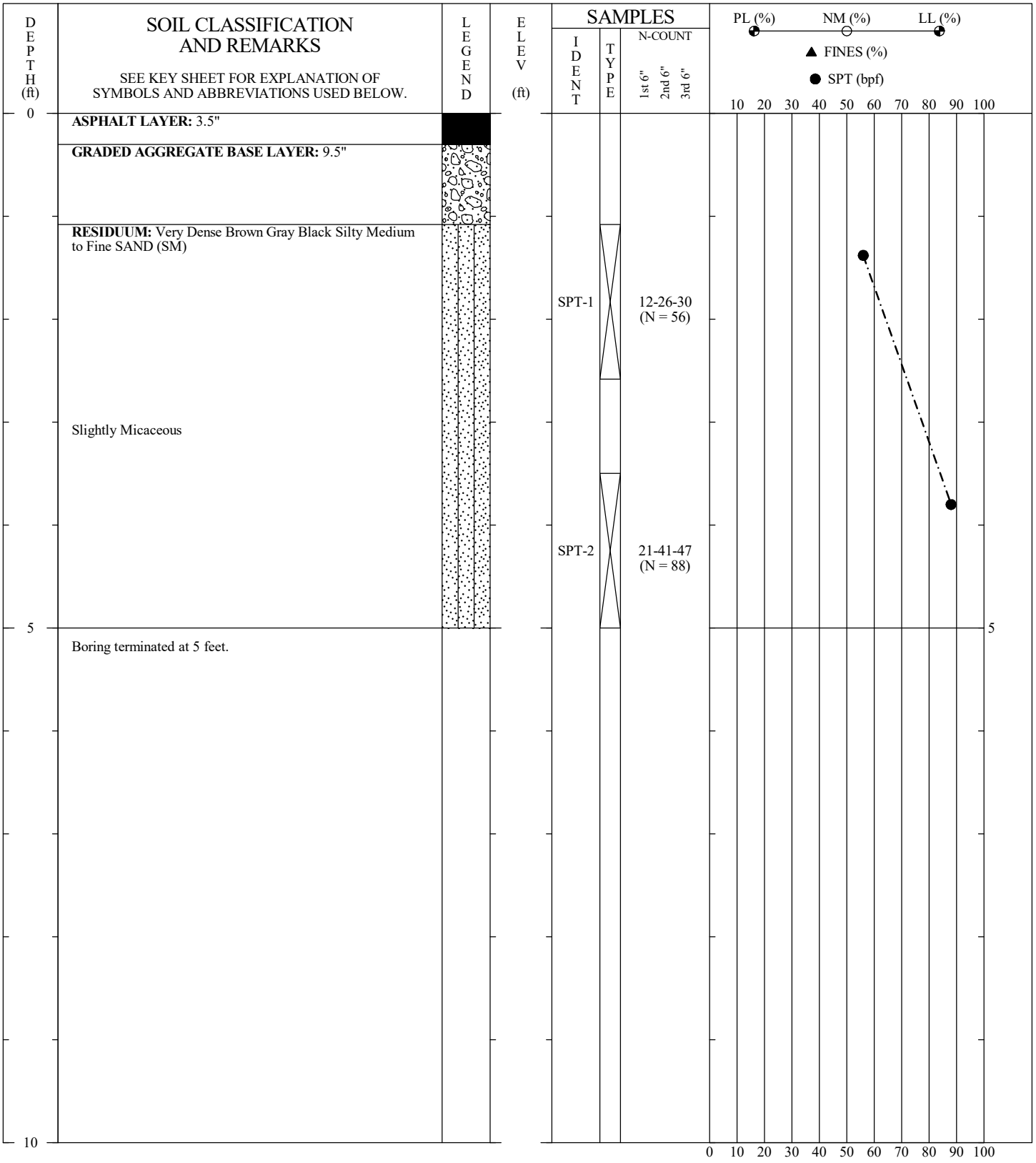
DRILLER:	Bridger Drilling
EQUIPMENT:	CME-55 (Auto-Hammer)
METHOD:	2 1/4" HSA
HOLE DIA.:	6 inches
REMARKS:	No groundwater was encountered.

PREPARED BY: DW REVIEWED BY: YH

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BEWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

SOIL TEST BORING RECORD

BORING NO.: C-15
PROJECT: Lagrange Parallel Taxiway
LOCATION: Lagrange, GA
DRILLED: March 24, 2023
PROJECT NO.: 612232410



SOIL TEST BORING BORING LOGS.GPJ AMEC.GDT 4/14/23

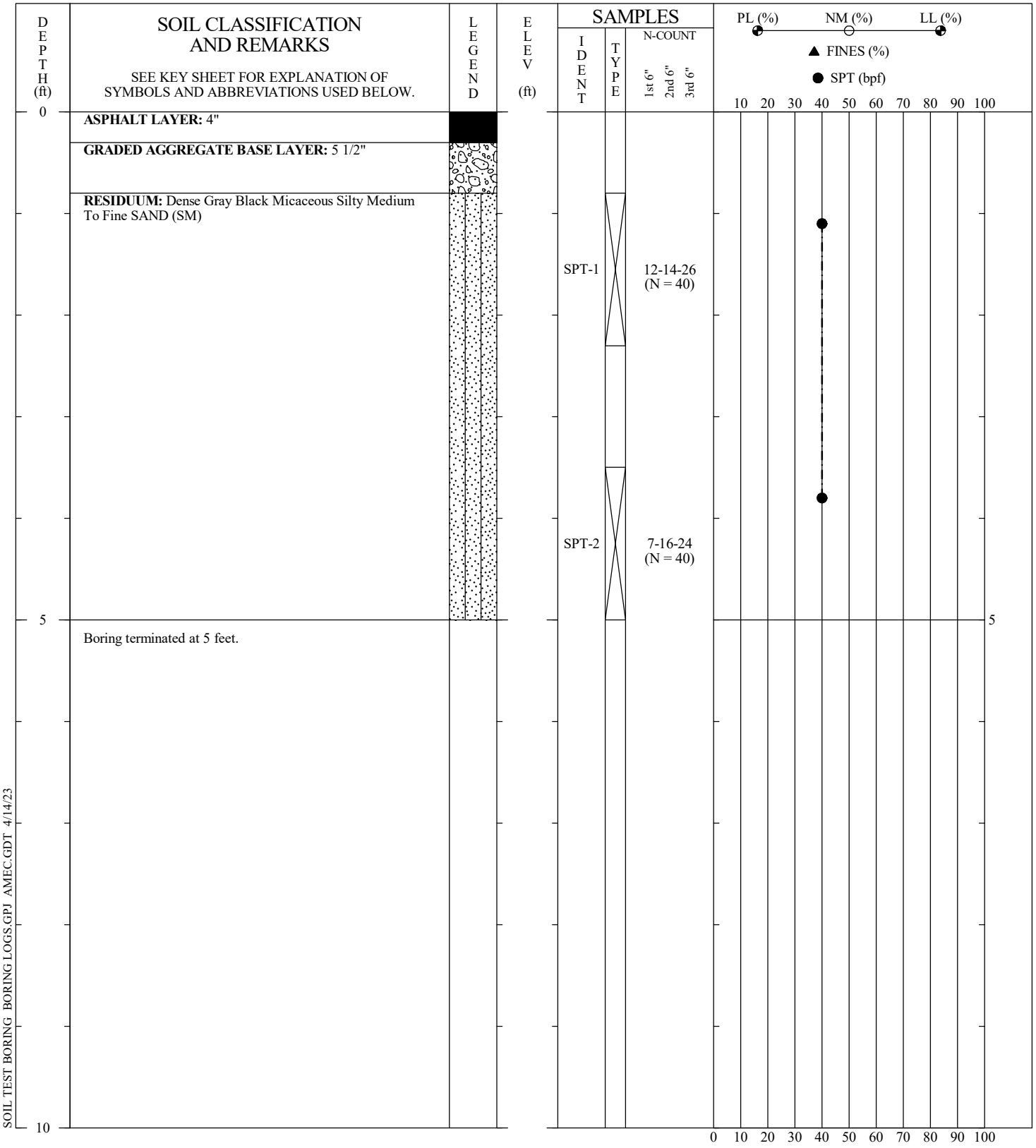
DRILLER:	Bridger Drilling
EQUIPMENT:	CME-55 (Auto-Hammer)
METHOD:	2 1/4" HSA
HOLE DIA.:	6 inches
REMARKS:	No groundwater was encountered.

PREPARED BY: DW REVIEWED BY: YH

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BEWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

SOIL TEST BORING RECORD

BORING NO.: C-16
PROJECT: Lagrange Parallel Taxiway
LOCATION: Lagrange, GA
DRILLED: March 22, 2023
PROJECT NO.: 612232410 **PAGE** 1 **OF** 1



SOIL TEST BORING BORING LOGS.GPJ AMEC.GDT 4/14/23

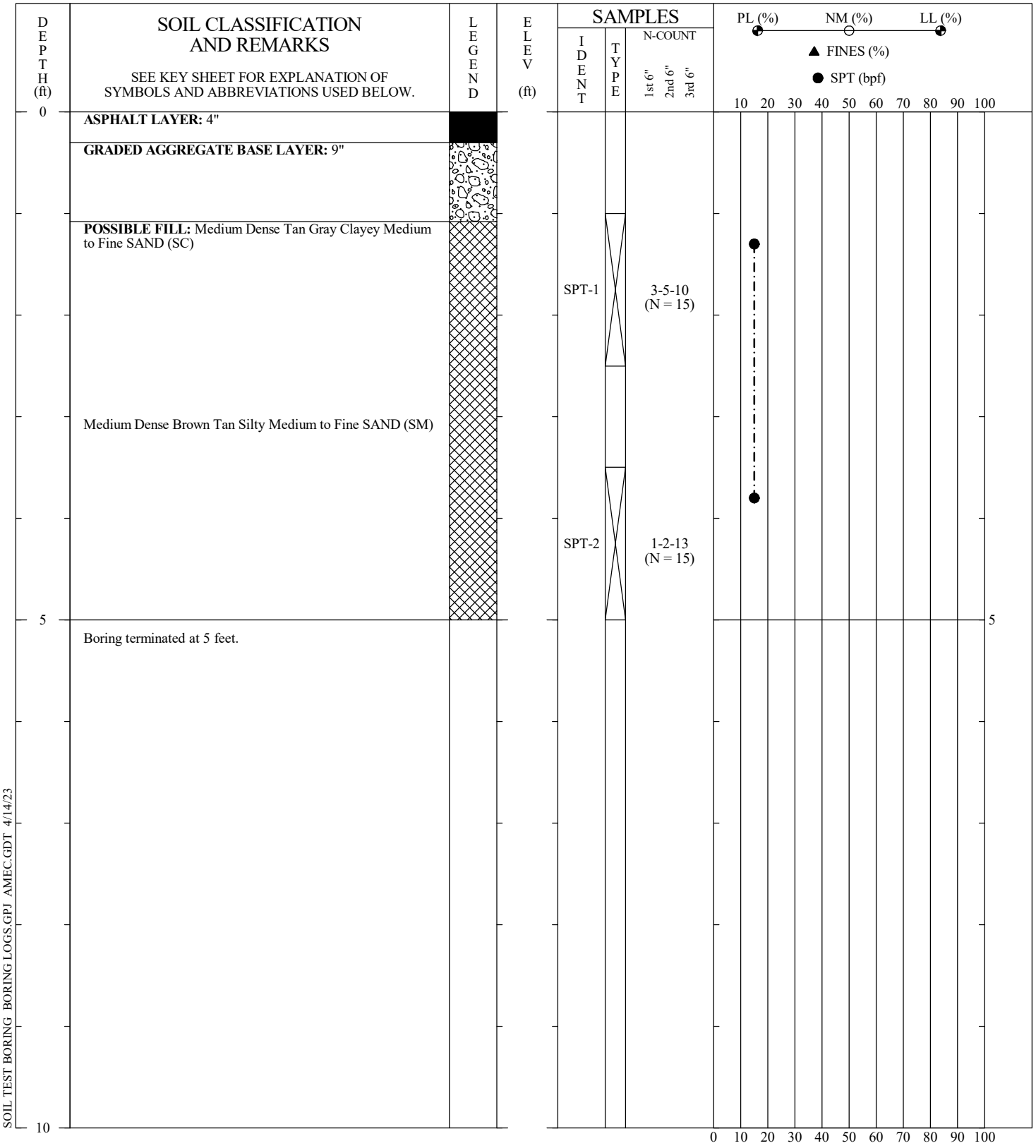
DRILLER:	Bridger Drilling
EQUIPMENT:	CME-55 (Auto-Hammer)
METHOD:	2 1/4" HSA
HOLE DIA.:	6 inches
REMARKS:	No groundwater was encountered.

PREPARED BY: DW REVIEWED BY: YH

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BEWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

SOIL TEST BORING RECORD

BORING NO.: C-17
PROJECT: Lagrange Parallel Taxiway
LOCATION: Lagrange, GA
DRILLED: March 22, 2023
PROJECT NO.: 612232410 **PAGE** 1 **OF** 1



SOIL TEST BORING BORING LOGS.GPJ AMEC.GDT 4/14/23

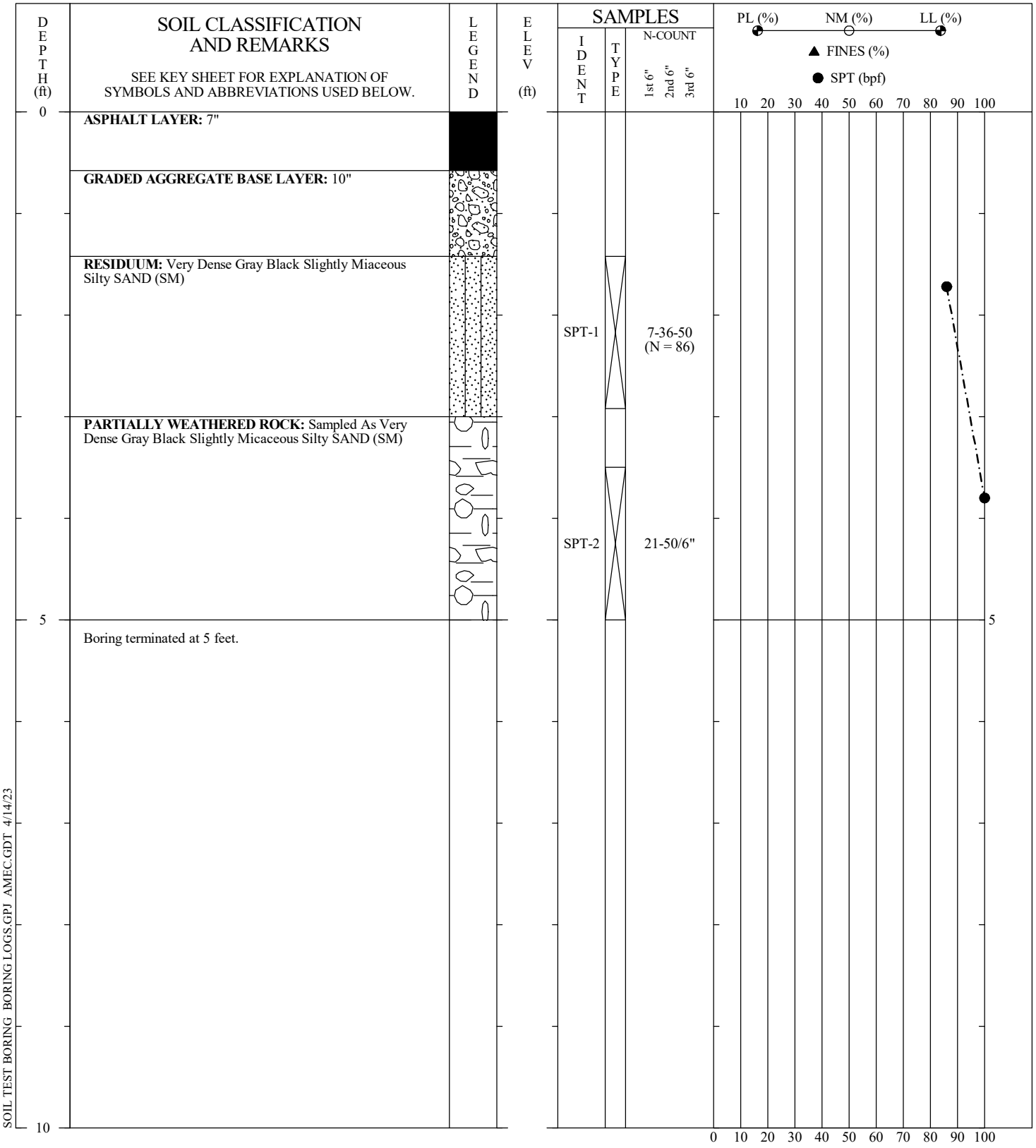
DRILLER:	Bridger Drilling
EQUIPMENT:	CME-55 (Auto-Hammer)
METHOD:	2 1/4" HSA
HOLE DIA.:	6 inches
REMARKS:	No groundwater was encountered.

PREPARED BY: DW REVIEWED BY: YH

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BEWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

SOIL TEST BORING RECORD

BORING NO.: C-18
PROJECT: Lagrange Parallel Taxiway
LOCATION: Lagrange, GA
DRILLED: March 22, 2023
PROJECT NO.: 612232410



SOIL TEST BORING BORING LOGS.GPJ AMEC.GDT 4/14/23

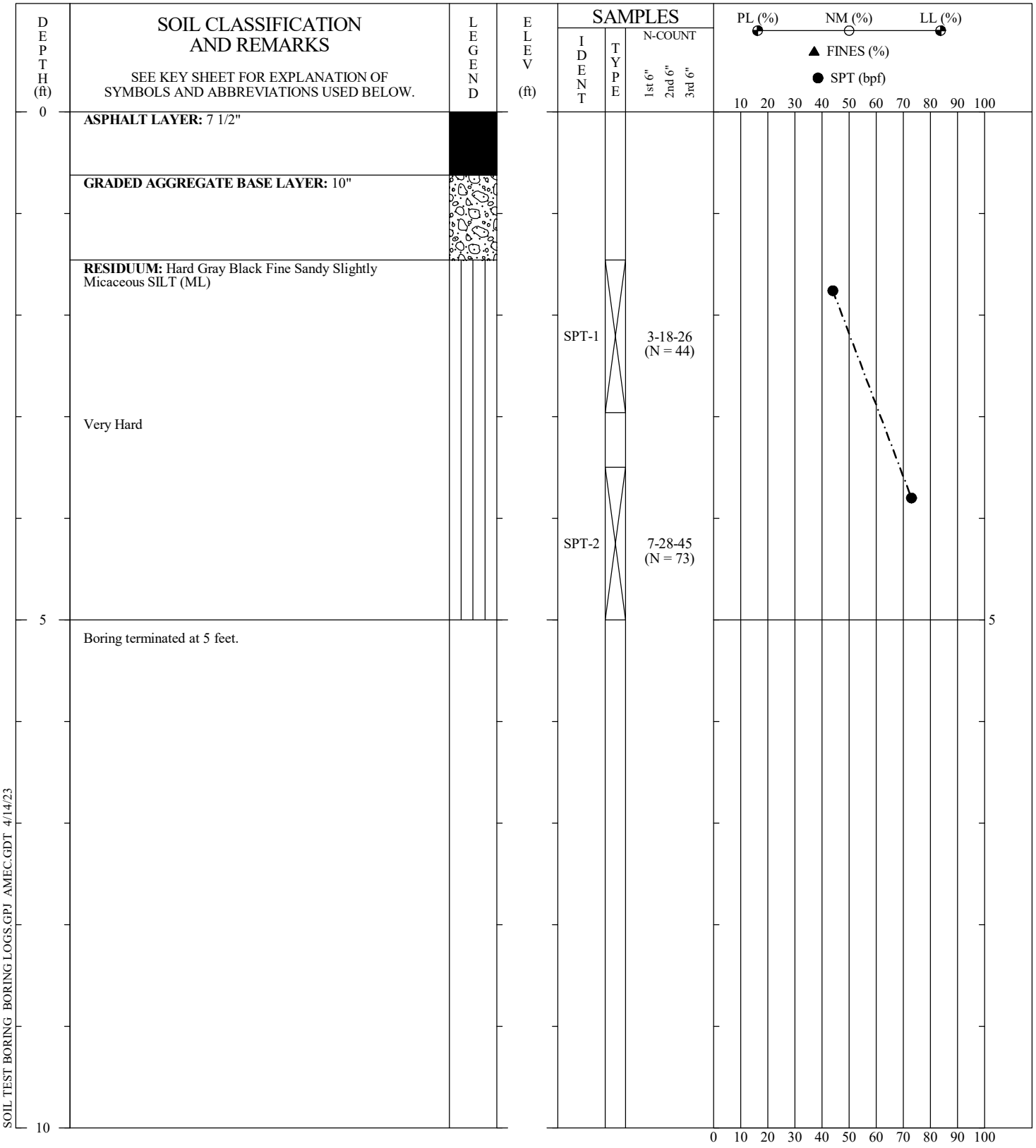
DRILLER:	Bridger Drilling
EQUIPMENT:	CME-55 (Auto-Hammer)
METHOD:	2 1/4" HSA
HOLE DIA.:	6 inches
REMARKS:	No groundwater was encountered.

PREPARED BY: DW REVIEWED BY: YH

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BEWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

SOIL TEST BORING RECORD

BORING NO.: C-19
PROJECT: Lagrange Parallel Taxiway
LOCATION: Lagrange, GA
DRILLED: March 22, 2023
PROJECT NO.: 612232410



SOIL TEST BORING BORING LOGS.GPJ AMEC.GDT 4/14/23

DRILLER:	Bridger Drilling
EQUIPMENT:	CME-55 (Auto-Hammer)
METHOD:	2 1/4" HSA
HOLE DIA.:	6 inches
REMARKS:	No groundwater was encountered.

PREPARED BY: DW REVIEWED BY: YH

THIS RECORD IS A REASONABLE INTERPRETATION OF SUBSURFACE CONDITIONS AT THE EXPLORATION LOCATION. SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND AT OTHER TIMES MAY DIFFER. INTERFACES BEWEEN STRATA ARE APPROXIMATE. TRANSITIONS BETWEEN STRATA MAY BE GRADUAL.

SOIL TEST BORING RECORD

BORING NO.: C-20
PROJECT: Lagrange Parallel Taxiway
LOCATION: Lagrange, GA
DRILLED: March 22, 2023
PROJECT NO.: 612232410

LaGrange Callaway Parallel Taxiway

Table of Pavement Thickness Wood

Project No.: 6162-23-23410

Core Location	Pavement Thickness (inches)	
	Asphalt	Stone/GAB*
C-1	6	8
C-2	7	8
C-3	7	10
C-4	6	6
C-5	2 ¼	4
C-6	6 ½	10
C-7	6	10
C-8	7 ¼	8
C-9	5	8
C-10	4	2
C-11	5	11
C-12	4 ½	8
C-13	5	8
C-14	4 ¾	8
C-15	5 ½	8
C-16	3 ½	9 ½
C-17	4	5 ½
C-18	4	9
C-19	7	10
C-20	7 ½	10

*Stone/graded aggregate base included a layer of larger stone sizes up to about 2 to 4 inches largest dimension, immediately below asphalt pavement layer.

By: *D. Wang* ***Date:*** *4/12/2023*

Photograph No. 1: 	**Comment:** **C-1** **Thickness: 6 inches**
Photograph No. 2: 	**Comment:** **C-2** **Thickness: 7 inches**

By: *D. Wang* ***Date:*** *4/12/2023*

Photograph No. 3:	**Comment:**
	**C-3** **Thickness: 7 inches**
Photograph No. 4:	**Comment:**
	**C-4** **Thickness: 6 inches**

By: *D. Wang* ***Date:*** *4/12/2023*

Photograph No. 5:

Comment:

C-5
Thickness: 2 ¼ inches

Photograph No. 6:

Comment:

C-6
Thickness: 6 ½ inches

By: *D. Wang* ***Date:*** *4/12/2023*

Photograph No. 7:  	**Comment:** **C-7** **Thickness: 6 inches**
Photograph No. 8:  	**Comment:** **C-8** **Thickness: 7 ¼ inches**

By: *D. Wang* ***Date:*** *4/12/2023*

Photograph No. 9:

Comment:

C-9
Thickness: 5 inches

Photograph No. 10:

Comment:

C-10
Thickness: 4 inches

By: *D. Wang* ***Date:*** *4/12/2023*

Photograph No. 11: 	**Comment:** **C-11** **Thickness: 5 inches**
Photograph No. 12: 	**Comment:** **C-12** **Thickness: 4 ½ inches**

By: *D. Wang* ***Date:*** *4/12/2023*

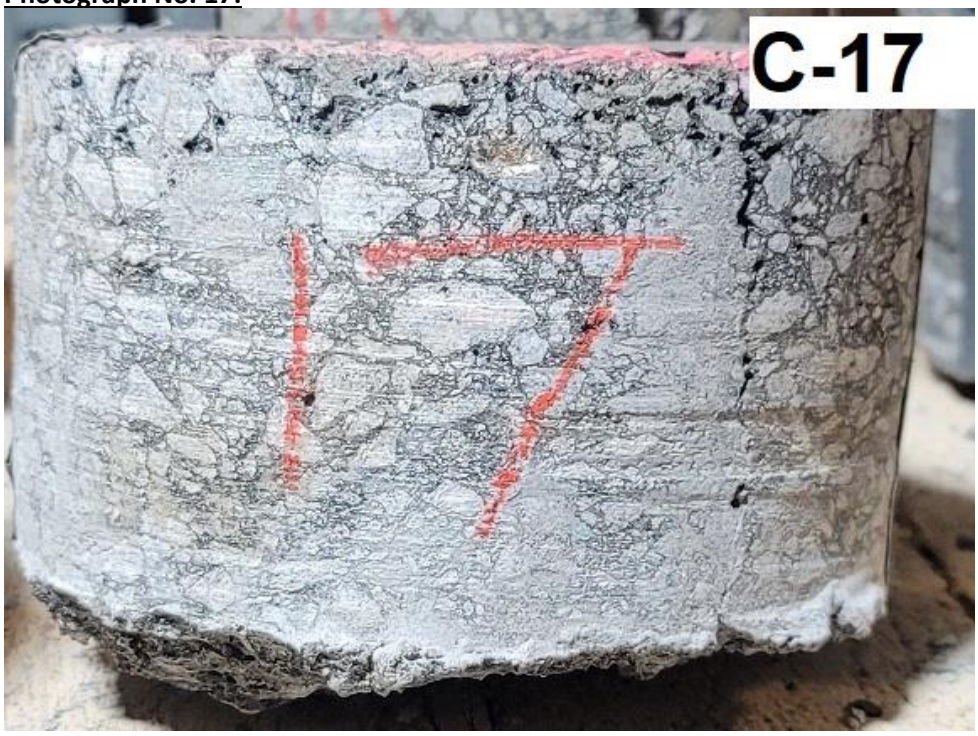
Photograph No. 13: 	**Comment:** **C-13** **Thickness: 5 inches**
Photograph No. 14: 	**Comment:** **C-14** **Thickness: 4 ¾ inches**

By: *D. Wang* ***Date:*** *4/12/2023*

Photograph No. 15: 	**Comment:** **C-15** **Thickness: 5 ½ inches**
Photograph No. 16: 	**Comment:** **C-16** **Thickness: 3 ½ inches**

By: *D. Wang* ***Date:*** *4/12/2023*

Photograph No. 17:



Comment:

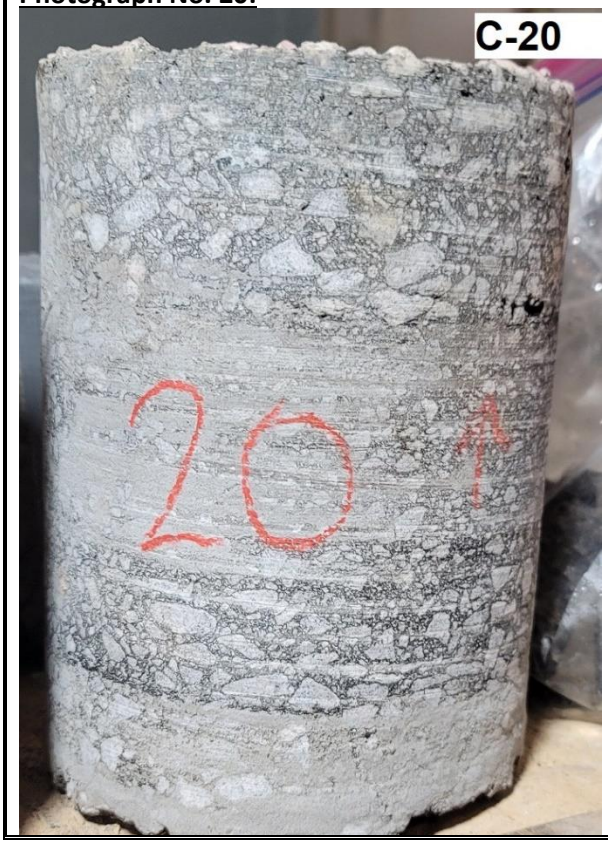
C-17
Thickness: 4 inches

Photograph No. 18:

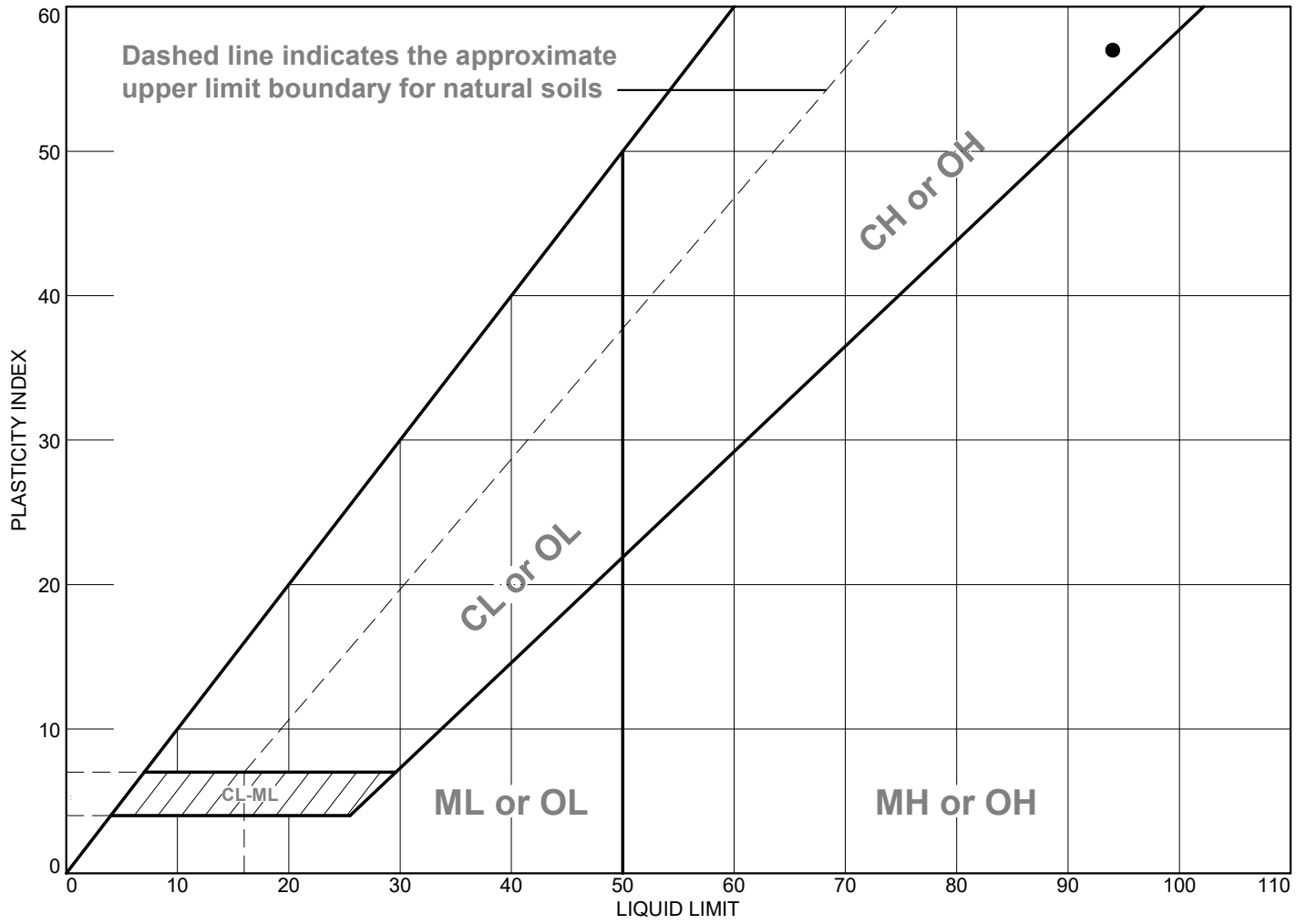
Comment:

C-18
Thickness: 4 inches

By: *D. Wang* ***Date:*** *4/12/2023*

Photograph No. 19: 	**Comment:** **C-19** **Thickness: 7 inches**
Photograph No. 20: 	**Comment:** **C-20** **Thickness: 7 ½ inches**

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Brown Fat CLAY with Sand and Mica	94	37	57	85.6	71.7	CH

Project No. 6162232410 **Client:** LGC

Project: LGC Taxi Way

● **Source of Sample:** C-2 **Depth:** 3.5-5 ft **Sample Number:** 2

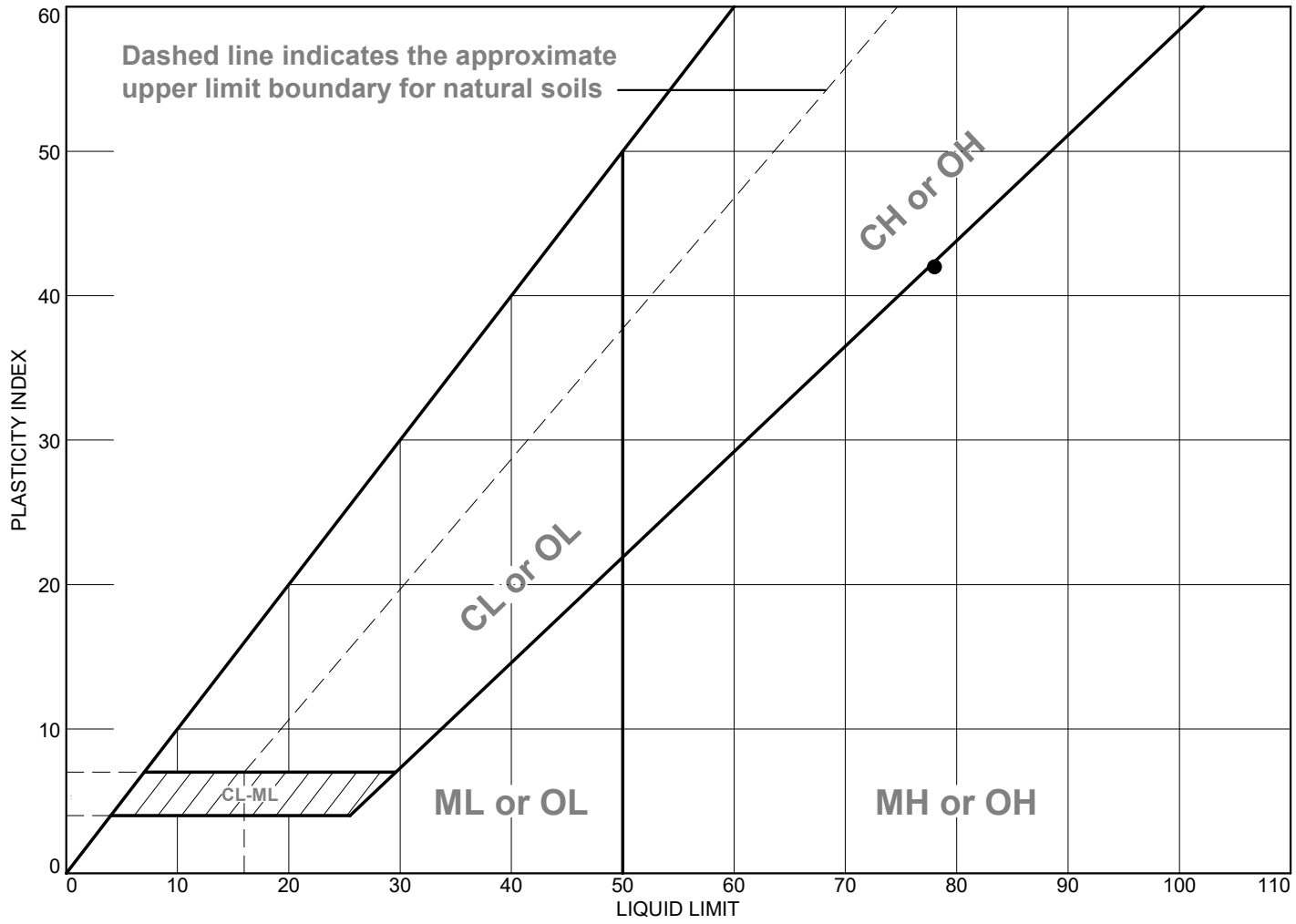
Remarks:

● Lab # 23245

Figure

Tested By: DH **Checked By:** TZ

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Brown Fat CLAY with Sand	78	36	42	95.8	83.1	CH

Project No. 6162232410 **Client:** LGC

Project: LGC Taxi Way

● **Source of Sample:** C-3 **Depth:** 3.5-5 ft **Sample Number:** 2

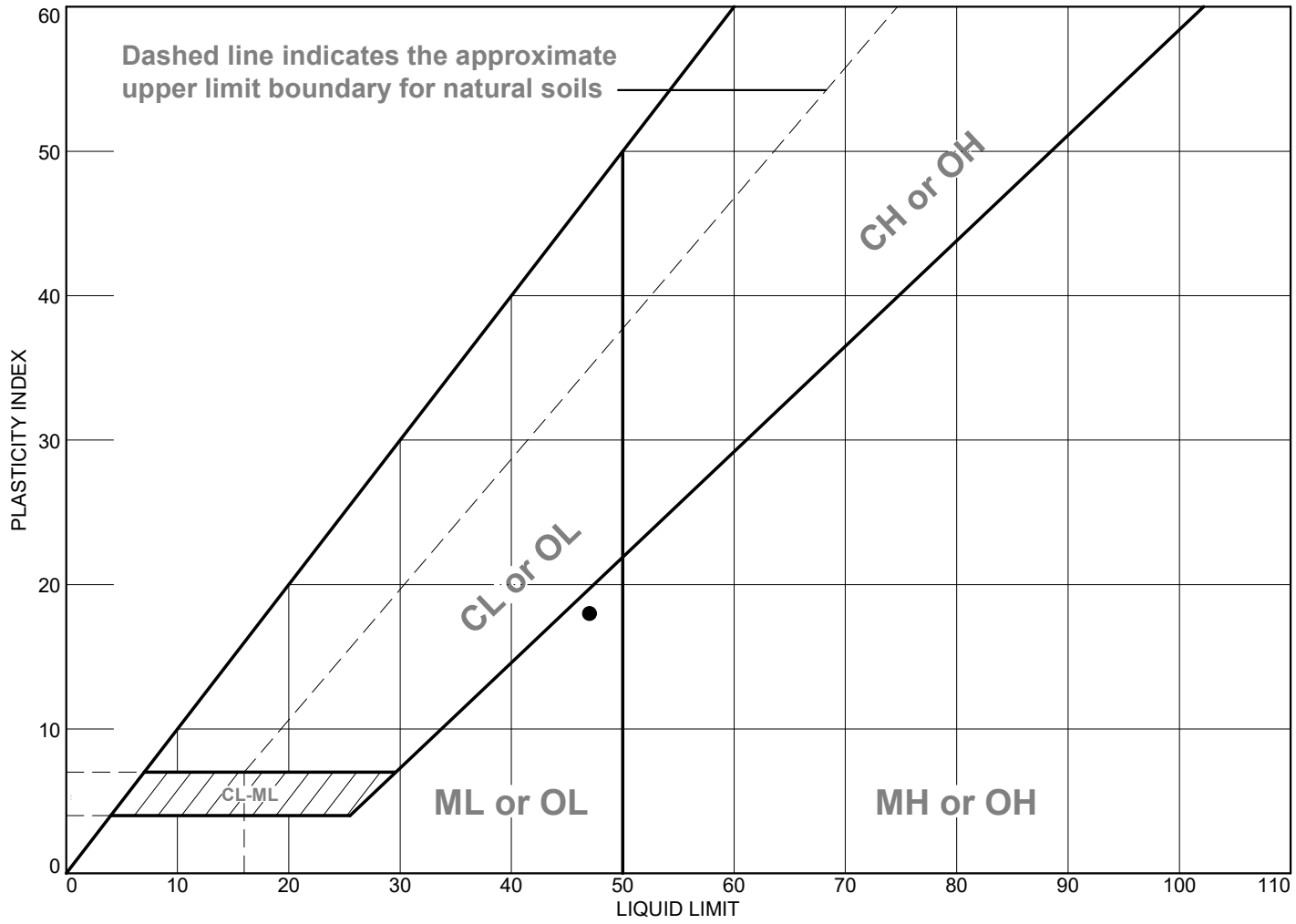
Remarks:

● Lab # 23247

Figure

Tested By: DH **Checked By:** TZ

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Dark Gray Sandy SILT	47	29	18	75.0	52.2	ML

Project No. 6162232410 **Client:** LGC

Project: LGC Taxi Way

● **Source of Sample:** C-12 **Depth:** 3.5-5 ft **Sample Number:** 2

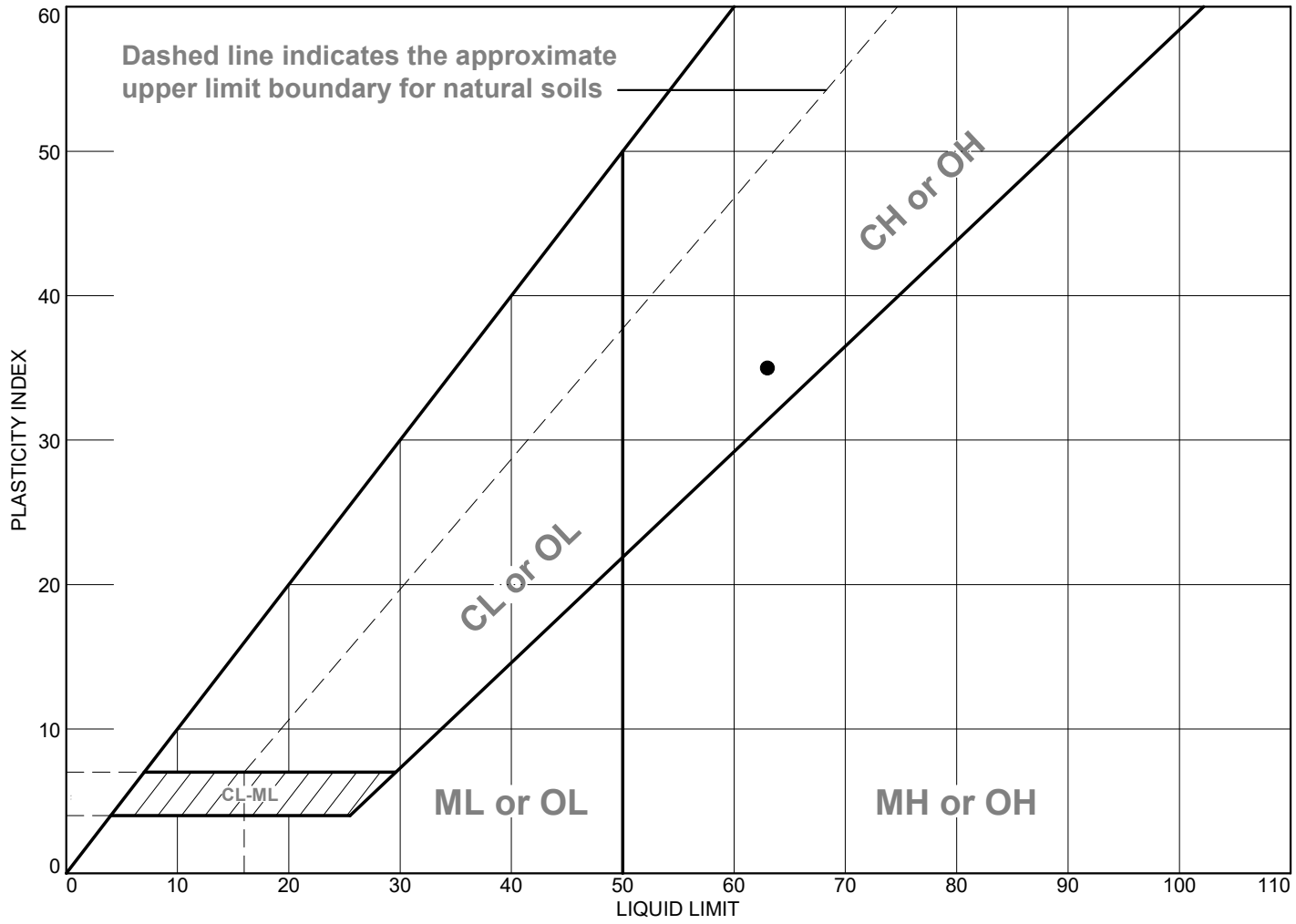
Remarks:

● Lab # 23265

Figure

Tested By: DH **Checked By:** TZ

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Gray Sandy Fat CLAY	63	28	35	81.4	58.8	CH

Project No. 6162232410 **Client:** LGC

Project: LGC Taxi Way

● **Source of Sample:** C-13 **Depth:** 3.5-5 ft **Sample Number:** 1

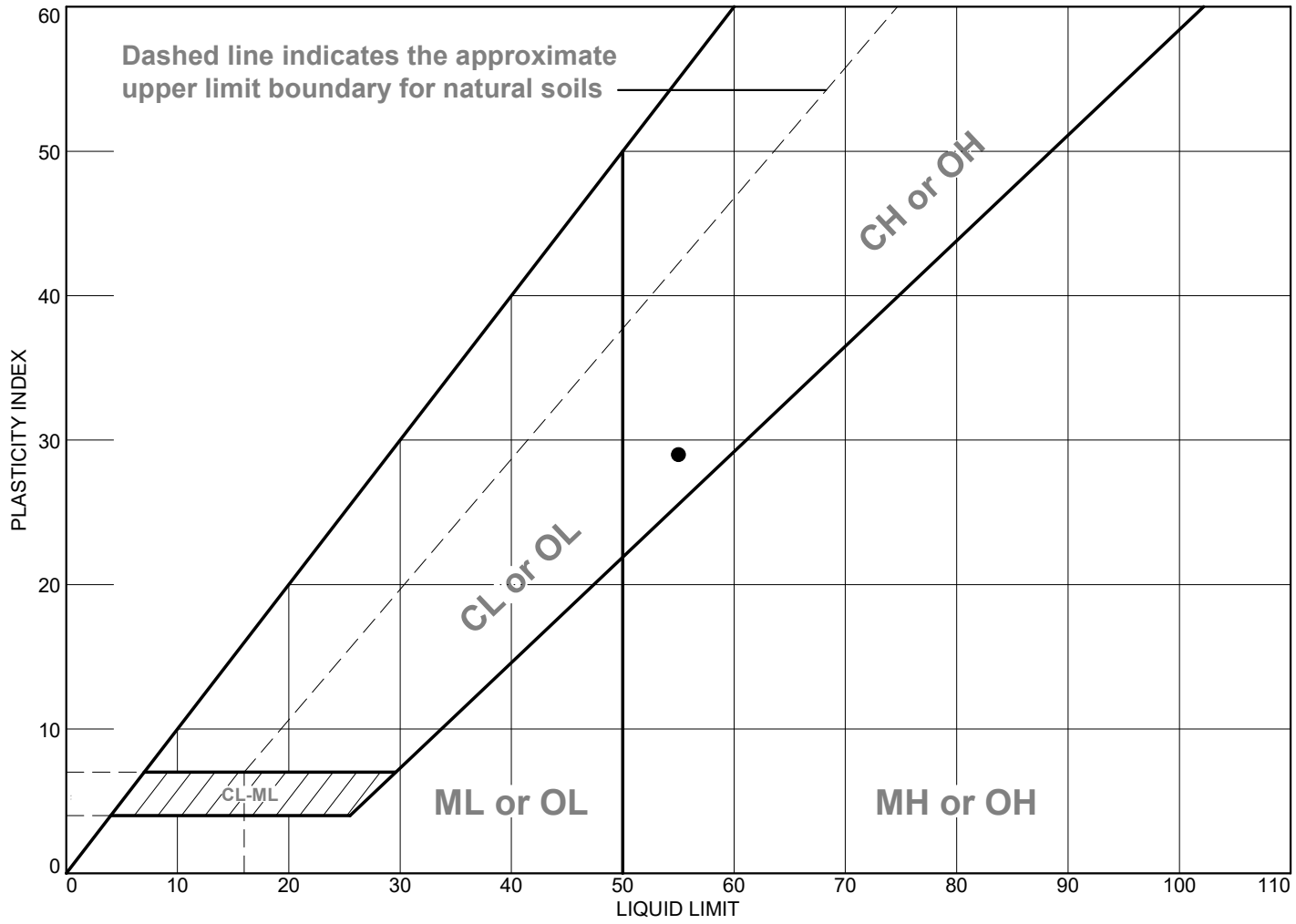
Remarks:

● Lab # 23266

Figure

Tested By: DH **Checked By:** TZ

LIQUID AND PLASTIC LIMITS TEST REPORT



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
●	Gray Sandy Fat CLAY	55	26	29	89.4	61.7	CH

Project No. 6162232410 **Client:** LGC

Project: LGC Taxi Way

● **Source of Sample:** C-15 **Depth:** 3.5-5 ft **Sample Number:** 2

Remarks:

● Lab # 23271

Figure

Tested By: DH **Checked By:** TZ

Particle Size Distribution Report

ASTM D6913 & D1140

% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.4	3.2	10.8	13.9	71.7	

Test Results (ASTM D6913 & D1140)

Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
3	100.0			
2	100.0			
1.5	100.0			
1	100.0			
.75	100.0			
.375	100.0			
#4	99.6			
#10	96.4			
#20	91.0			
#40	85.6			
#60	81.4			
#100	77.1			
#140	74.2			
#200	71.7			

* (no specification provided)

Material Description

Brown Fat CLAY with Sand and Mica

Atterberg Limits

PL= 37 LL= 94 PI= 57

Classification

USCS= CH AASHTO= A-7-5(44)

Test Remarks

Lab # 23245

As Received Moisture Content = 40.7 %

Source of Sample: C-2 **Depth:** 3.5-5 ft

Sample Number: 2

Sample Date: 04/05/2023

Client: LGC

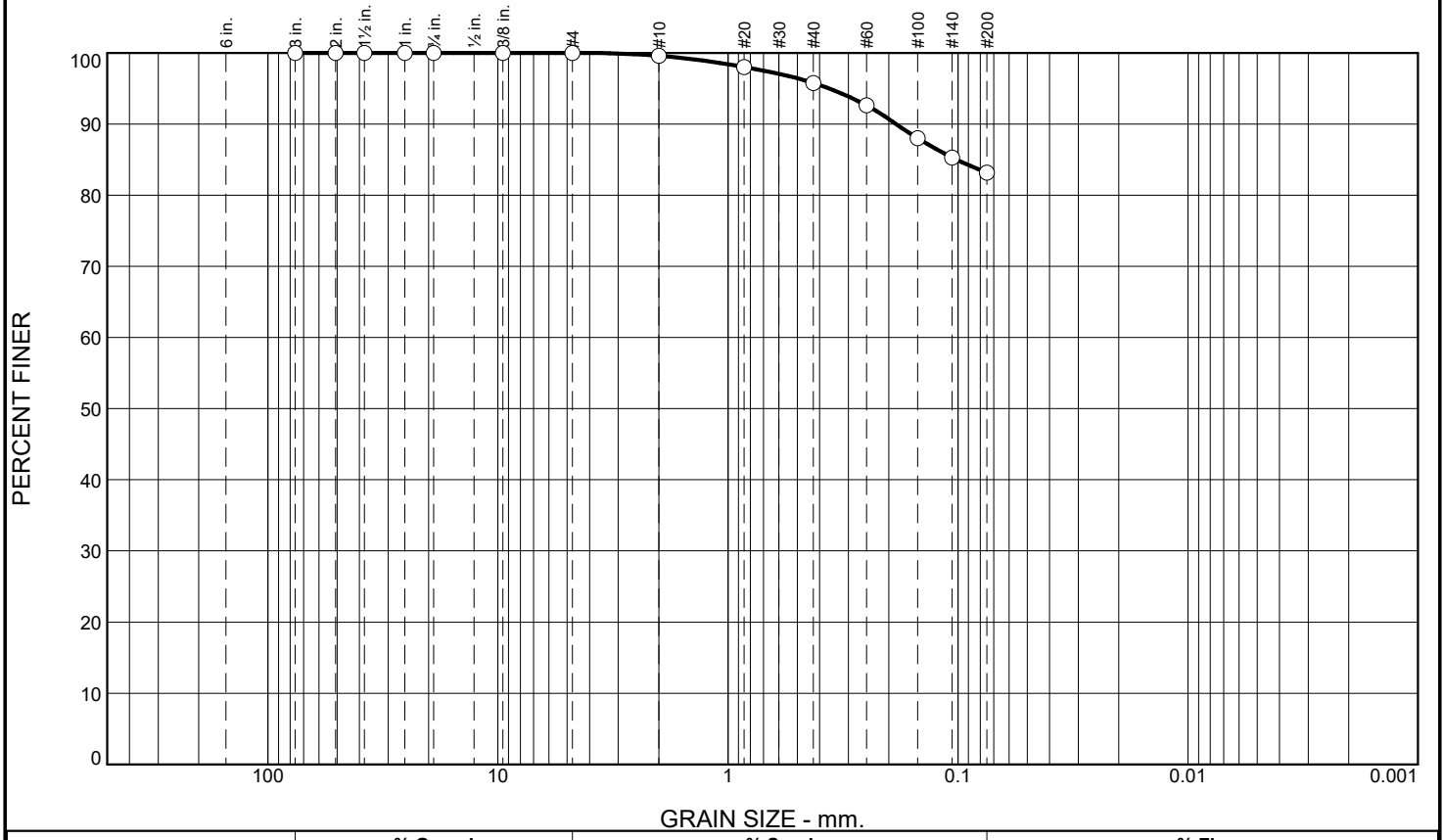
Project: LGC Taxi Way

Project No: 6162232410 **Figure**

Tested By: DH **Checked By:** TZ

Particle Size Distribution Report

ASTM D6913 & D1140



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.4	3.8	12.7	83.1	

Test Results (ASTM D6913 & D1140)

Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
3	100.0			
2	100.0			
1.5	100.0			
1	100.0			
.75	100.0			
.375	100.0			
#4	100.0			
#10	99.6			
#20	98.0			
#40	95.8			
#60	92.6			
#100	88.0			
#140	85.3			
#200	83.1			

* (no specification provided)

Material Description

Brown Fat CLAY with Sand

Atterberg Limits

PL= 36 LL= 78 PI= 42

Classification

USCS= CH AASHTO= A-7-5(40)

Test Remarks

Lab # 23247
As Received Moisture Content = 44.4 %

Source of Sample: C-3 **Depth:** 3.5-5 ft
Sample Number: 2

Sample Date: 04/05/2023

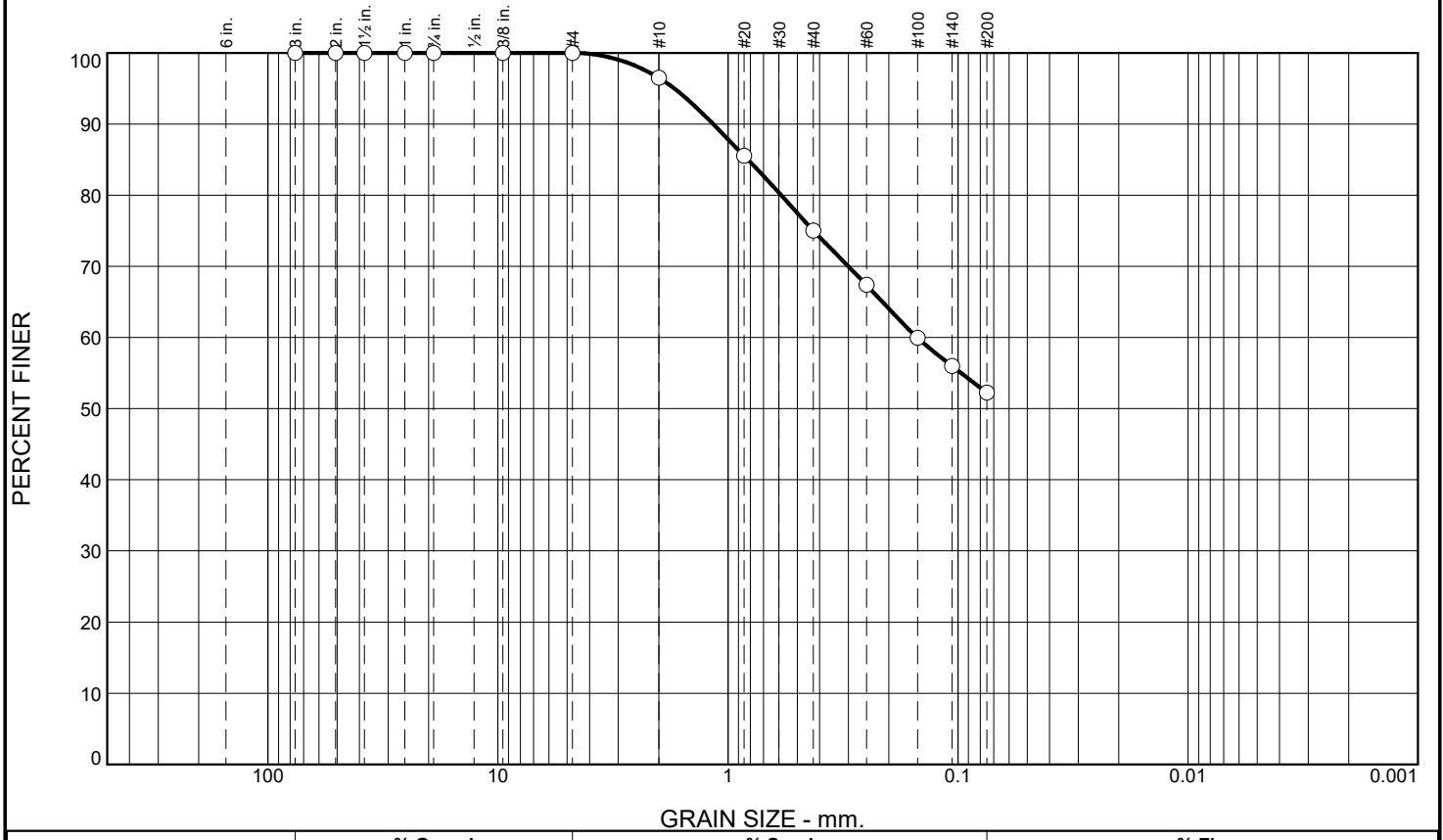
Client: LGC
Project: LGC Taxi Way

Project No: 6162232410 **Figure**

Tested By: DH **Checked By:** TZ

Particle Size Distribution Report

ASTM D6913 & D1140



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	3.5	21.5	22.8	52.2	

Test Results (ASTM D6913 & D1140)

Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
3	100.0			
2	100.0			
1.5	100.0			
1	100.0			
.75	100.0			
.375	100.0			
#4	100.0			
#10	96.5			
#20	85.5			
#40	75.0			
#60	67.4			
#100	59.9			
#140	56.0			
#200	52.2			

* (no specification provided)

Material Description

Dark Gray Sandy SILT

Atterberg Limits

PL= 29 LL= 47 PI= 18

Classification

USCS= ML AASHTO= A-7-6(7)

Test Remarks

Lab # 23265
As Received Moisture Content = 41.6 %

Source of Sample: C-12 **Depth:** 3.5-5 ft
Sample Number: 2

Sample Date: 04/05/2023

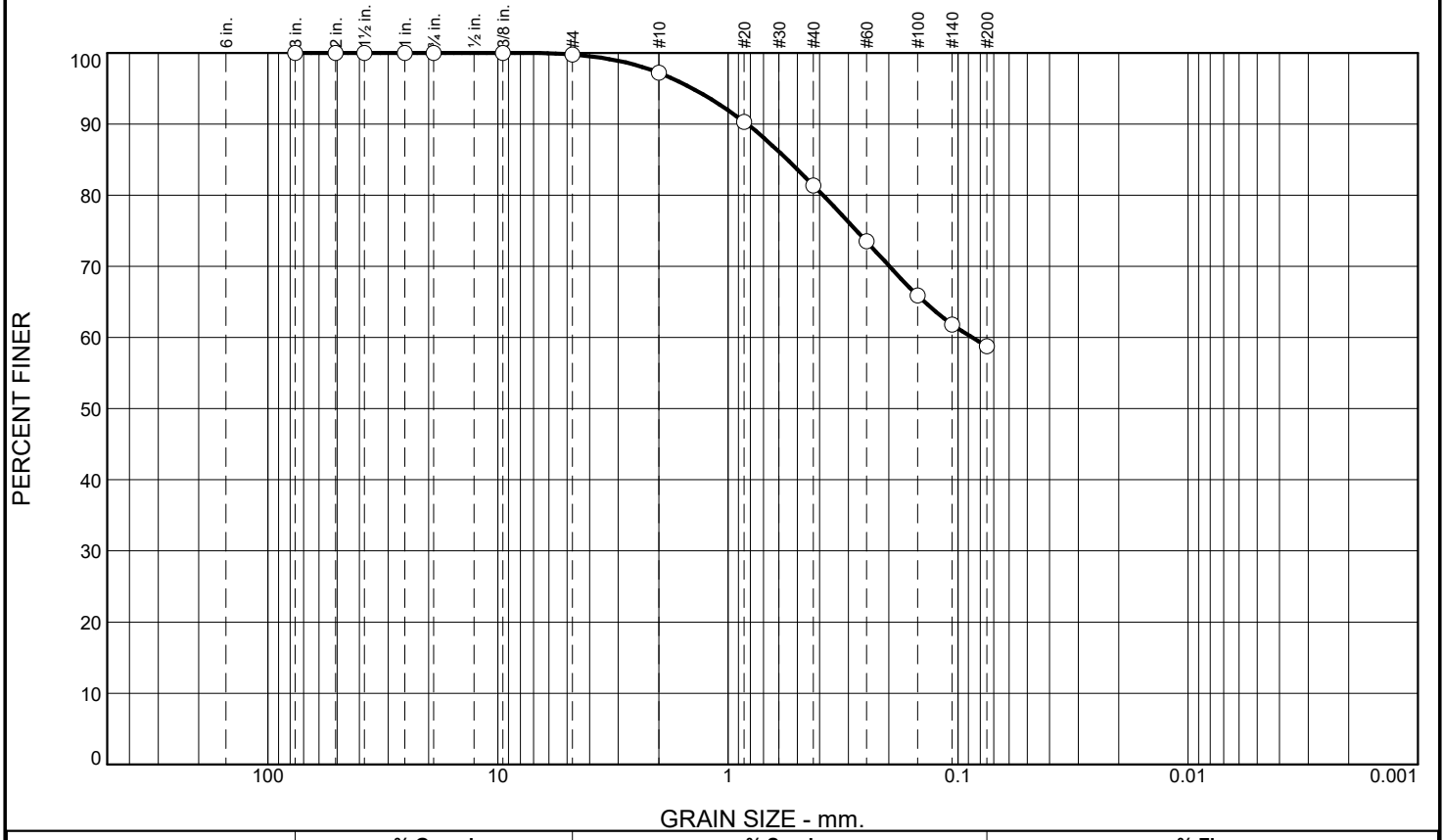
Client: LGC
Project: LGC Taxi Way

Project No: 6162232410 **Figure**

Tested By: DH **Checked By:** TZ

Particle Size Distribution Report

ASTM D6913 & D1140



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.3	2.5	15.8	22.6	58.8	

Test Results (ASTM D6913 & D1140)

Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
3	100.0			
2	100.0			
1.5	100.0			
1	100.0			
.75	100.0			
.375	100.0			
#4	99.7			
#10	97.2			
#20	90.3			
#40	81.4			
#60	73.5			
#100	65.9			
#140	61.8			
#200	58.8			

* (no specification provided)

Material Description

Gray Sandy Fat CLAY

Atterberg Limits

PL= 28 LL= 63 PI= 35

Classification

USCS= CH AASHTO= A-7-6(19)

Test Remarks

Lab # 23266
As Received Moisture Content = 31.3 %

Source of Sample: C-13 **Depth:** 3.5-5 ft
Sample Number: 1

Sample Date: 04/05/2023

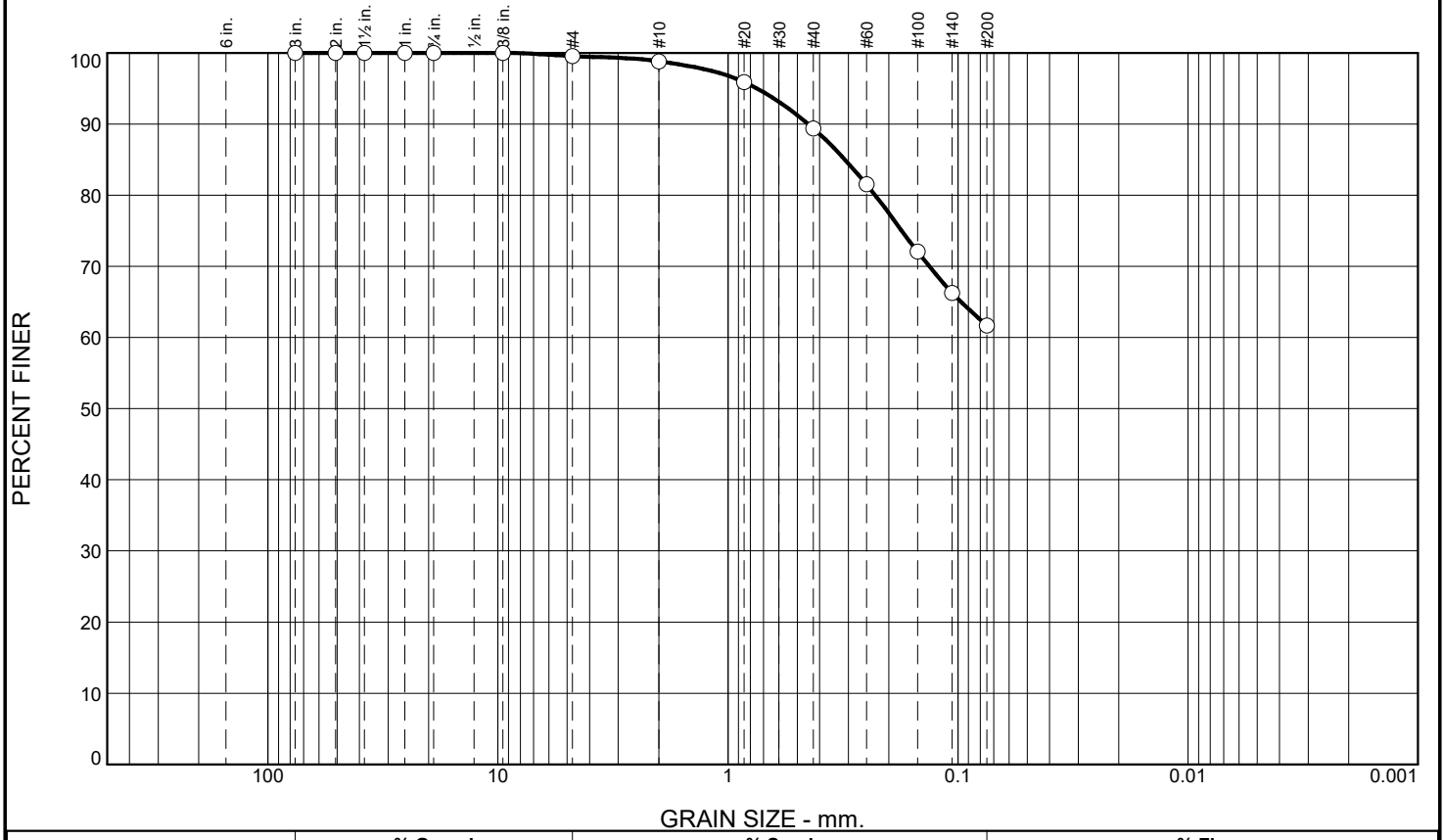
Client: LGC
Project: LGC Taxi Way

Project No: 6162232410 **Figure**

Tested By: DH **Checked By:** TZ

Particle Size Distribution Report

ASTM D6913 & D1140



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.5	0.7	9.4	27.7	61.7	

Test Results (ASTM D6913 & D1140)

Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
3	100.0			
2	100.0			
1.5	100.0			
1	100.0			
.75	100.0			
.375	100.0			
#4	99.5			
#10	98.8			
#20	95.9			
#40	89.4			
#60	81.5			
#100	72.1			
#140	66.3			
#200	61.7			

* (no specification provided)

Material Description

Gray Sandy Fat CLAY

Atterberg Limits

PL= 26 LL= 55 PI= 29

Classification

USCS= CH AASHTO= A-7-6(16)

Test Remarks

Lab # 23271
As Received Moisture Content = 35.6 %

Source of Sample: C-15 **Depth:** 3.5-5 ft
Sample Number: 2

Sample Date: 04/05/2023

Client: LGC
Project: LGC Taxi Way

Project No: 6162232410 **Figure**

Tested By: DH **Checked By:** TZ

MOISTURE CONTENT

ASTM D2216-19

Project Name LGC Taxi Way **Project No.** 6162232410

Tested By DH **Reviewed By** TZ

Test Date 4/5/2023 **Review Date** 4/13/2023

Boring No.	Sample No.	Depth (Ft)	Lab No.	Tare No.	Tare Wt. (grams)	Wet Soil + Tare (grams)	Dry Soil + Tare (grams)	Dry Soil Wt (grams)	Moisture Content (%)
C-1	1	0-1.5	23242	C-44	16.42	121.95	94.42	78.00	35.3
C-1	2	3.5-5	23243	C-4	16.04	140.76	108.09	92.05	35.5
C-2	1	0-1.5	23244	R-41	16.51	138.32	115.97	99.46	22.5
C-2	2	3.5-5	23245	V-75	16.14	198.98	146.13	129.99	40.7
C-3	1	3.5-5	23246	C-28	15.71	183.06	146.48	130.77	28.0
C-3	2	3.5-5	23247	R-63	15.92	191.78	137.71	121.79	44.4
C-4	1	3.5-5	23248	R-67	15.95	115.58	85.71	69.76	42.8
C-4	2	3.5-5	23249	R-31	16.22	166.07	121.49	105.27	42.3
C-5	1	3.5-5	23250	V-61	16.40	147.88	112.74	96.34	36.5
C-5	2	3.5-5	23251	R-34	15.62	127.04	118.13	102.51	8.7
C-6	1	3.5-5	23252	C-7	16.34	121.01	115.31	98.97	5.8
C-6	2	3.5-5	23253	C-25	16.13	153.37	143.13	127	8.1
C-7	1	3.5-5	23254	R-50	16.55	137.92	118.78	102.23	18.7
C-7	2	3.5-5	23255	R-74	16.48	174.21	152.25	135.77	16.2
C-8	1	0-1.5	23256	V-52	16.79	138.20	107.13	90.34	34.4
C-8	2	3.5-5	23257	R-38	16.24	123.46	122.95	106.71	0.5
C-9	1	0-1.5	23258	R-17	15.78	142.65	133.68	117.9	7.6
C-9	2	3.5-5	23259	V-69	16.41	141.03	132.87	116.46	7.0
C-10	1	3.5-5	23260	C-27	16.03	131.19	117.77	101.74	13.2
C-10	2	3.5-5	23261	C-45	16.53	124.11	115.99	99.46	8.2

MOISTURE CONTENT

ASTM D2216-19

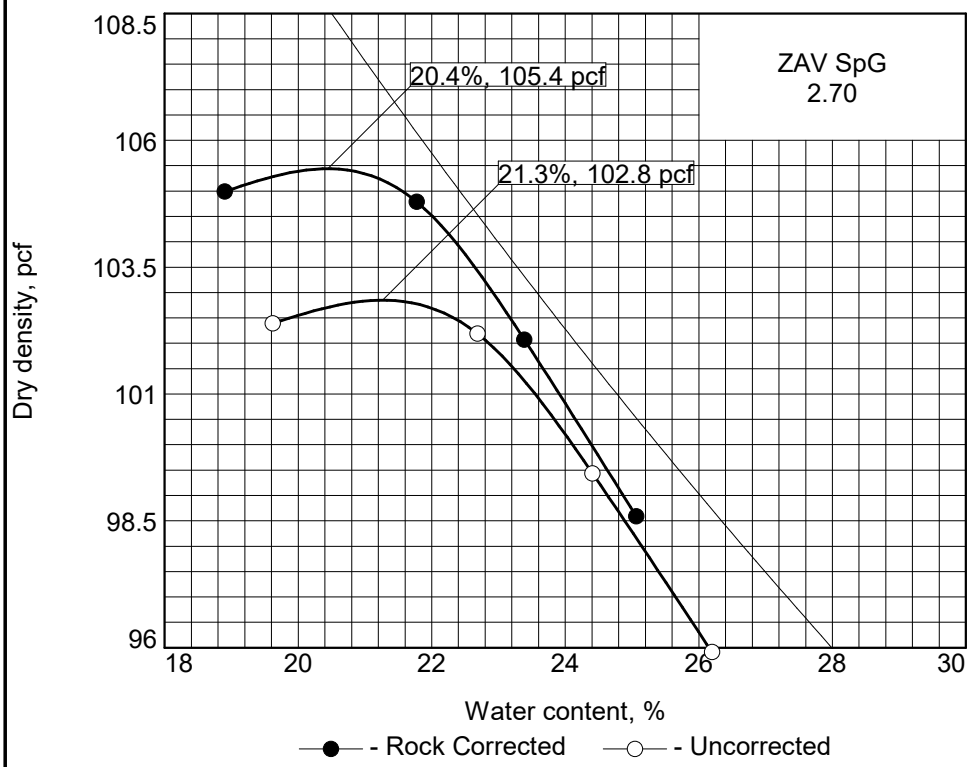
Project Name LGC Taxi Way **Project No.** 6162232410

Tested By DH **Reviewed By** TZ

Test Date 4/5/2023 **Review Date** 4/13/2023

Boring No.	Sample No.	Depth (Ft)	Lab No.	Tare No.	Tare Wt. (grams)	Wet Soil + Tare (grams)	Dry Soil + Tare (grams)	Dry Soil Wt (grams)	Moisture Content (%)
C-11	1	3.5-5	23262	R-8	16.42	110.44	95.43	79.01	19.0
C-11	2	3.5-5	23263	R-19	16.58	146.07	130.65	114.07	13.5
C-12	1	3.5-5	23264	V-55	16.50	142.74	109.06	92.56	36.4
C-12	2	3.5-5	23265	V-82	16.34	202.97	148.13	131.79	41.6
C-13	1	3.5-5	23266	C-7	16.34	193.77	151.45	135.11	31.3
C-13	2	3.5-5	23267	V-69	16.40	130.57	104.54	88.14	29.5
C-14	1	3.5-5	23268	R-31	16.23	172.77	138.04	121.81	28.5
C-14	2	3.5-5	23269	C-25	16.13	177.80	129.53	113.4	42.6
C-15	1	0-1.5	23270	V-61	16.38	176.10	143.48	127.1	25.7
C-15	2	3.5-5	23271	R-38	16.23	176.28	134.26	118.03	35.6
C-16	1	3.5-5	23272	V-82	16.36	128.57	118.80	102.44	9.5
C-16	2	3.5-5	23273	V-52	16.78	140.99	130.19	113.41	9.5
C-17	1	3.5-5	23274	R-74	16.46	187.87	166.47	150.01	14.3
C-17	2	3.5-5	23275	C-45	16.54	148.92	131.32	114.78	15.3
C-18	1	3.5-5	23276	C-24	15.71	153.27	125.54	109.83	25.2
C-18	2	3.5-5	23277	V-16	15.34	171.96	136.55	121.21	29.2
C-19	1	3.5-5	23278	R-67	15.94	142.15	134.89	118.95	6.1
C-19	2	3.5-5	23279	R-41	16.51	167.63	159.34	142.83	5.8
C-20	1	3.5-5	23280	C-44	16.38	149.90	142.65	126.27	5.7
C-20	2	3.5-5	23281	R-17	15.76	140.83	130.29	114.53	9.2

COMPACTION TEST REPORT



Curve No.
1

Test Specification:
ASTM D 698-12 Method B Standard
ASTM D4718-15 Oversize Corr. Applied to

Hammer Wt.: 5.5 lb.
Hammer Drop: 12 in.
Number of Layers: three
Blows per Layer: 25
Mold Size: 0.03333 cu. ft.

Test Performed on Material Passing 3/8 in. **Sieve**

Soil Data

NM	32.3	**Sp.G.**	2.7
LL	N/A	**PI**	N/A
%>3/8 in.	6.3	**%<#200**	N/A
USCS	N/A	**AASHTO**	N/A

TESTING DATA

	1	2	3	4	5	6
WM + WS	3908.9	3952.4	3927.3	3887.2		
WM	2064.4	2064.4	2064.4	2064.4		
WW + T #1	732.8	974.3	974.0	773.0		
WD + T #1	645.1	829.2	821.7	655.8		
TARE #1	198.1	189.6	197.7	208.4		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	18.9	21.8	23.4	25.1		
DRY DENSITY	105.0	104.8	102.1	98.6		

ROCK CORRECTED TEST RESULTS	UNCORRECTED	Material Description
Maximum dry density = 105.4 pcf	102.8 pcf	Brown Fat CLAY with Sand
Optimum moisture = 20.4 %	21.3 %	

Project No. 6162232410 **Client:** LGC
Project: LGC Taxi Way

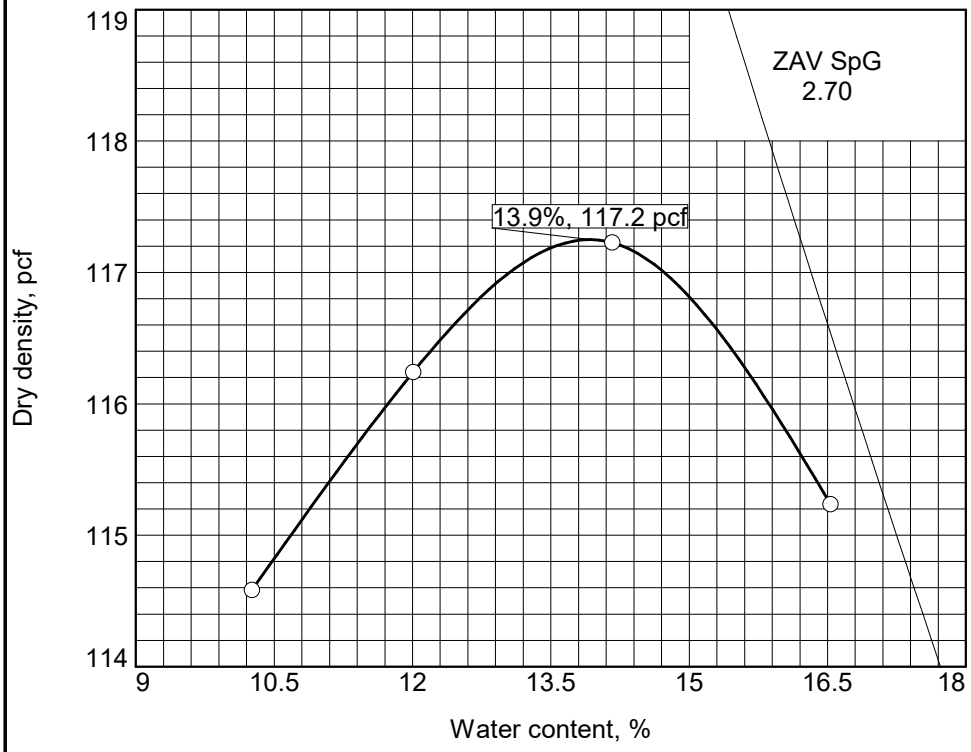
○ **Source:** C-3 + C-4 **Depth:** N/A **Sample No.:** Bulk

Remarks:
Lab # 23286

Figure

Tested By: DC **Checked By:** TZ

COMPACTION TEST REPORT



Curve No.
1

Test Specification:
ASTM D 698-12 Method B Standard

Hammer Wt.: 5.5 lb.
Hammer Drop: 12 in.
Number of Layers: three
Blows per Layer: 25
Mold Size: 0.03333 cu. ft.

Test Performed on Material Passing 3/8 in. **Sieve**

Soil Data

NM	19.9	**Sp.G.**	2.7
LL	N/A	**PI**	N/A
%>3/8 in.	3.6	**%<#200**	N/A
USCS	N/A	**AASHTO**	N/A

TESTING DATA

	1	2	3	4	5	6
WM + WS	3966.9	4025.0	4079.7	4086.6		
WM	2064.3	2064.3	2064.3	2064.3		
WW + T #1	727.8	1114.0	693.1	658.3		
WD + T #1	668.2	1016.9	618.5	571.9		
TARE #1	87.3	208.2	91.8	49.3		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	10.3	12.0	14.2	16.5		
DRY DENSITY	114.6	116.2	117.2	115.2		

TEST RESULTS

Maximum dry density = 117.2 pcf

Optimum moisture = 13.9 %

Material Description

Dark Brown Silty SAND

Project No. 6162232410 **Client:** LGC
Project: LGC Taxi Way

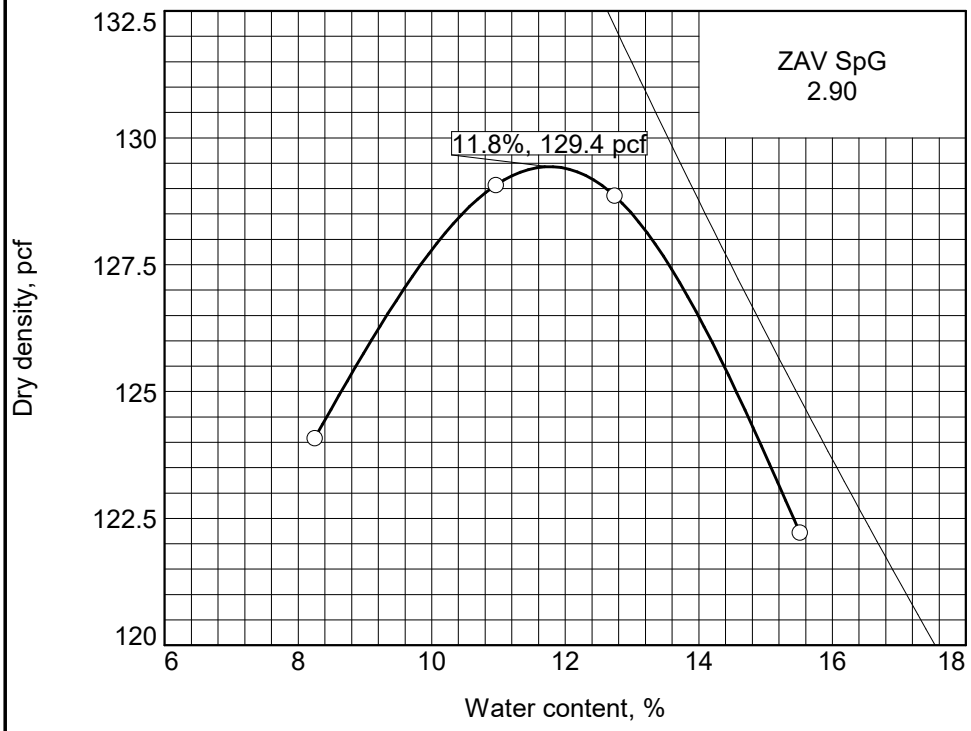
○ **Source of Sample:** C-7 + C-8 **Sample Number:** Bulk

Remarks:
Lab # 23283

Figure

Tested By: DC **Checked By:** TZ

COMPACTION TEST REPORT



Curve No.
1

Test Specification:
ASTM D 698-12 Method B Standard

Hammer Wt.: 5.5 lb.
Hammer Drop: 12 in.
Number of Layers: three
Blows per Layer: 25
Mold Size: 0.03333 cu. ft.

Test Performed on Material Passing 3/8 in. **Sieve**

Soil Data

NM 9.4 **Sp.G.** 2.9
LL N/A **PI** N/A
%>3/8 in. 0.8 **%<#200** N/A
USCS N/A **AASHTO** N/A

TESTING DATA

	1	2	3	4	5	6
WM + WS	4221.8	4252.8	4191.2	4087.7		
WM	2065.1	2065.1	2065.1	2065.1		
WW + T #1	852.4	789.6	986.0	702.2		
WD + T #1	777.3	710.3	881.6	655.7		
TARE #1	92.0	87.6	208.6	91.7		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	11.0	12.7	15.5	8.2		
DRY DENSITY	129.1	128.9	122.2	124.1		

TEST RESULTS

Maximum dry density = 129.4 pcf

Optimum moisture = 11.8 %

Material Description

Brownish Gray Silty SAND

Project No. 6162232410 **Client:** LGC
Project: LGC Taxi Way

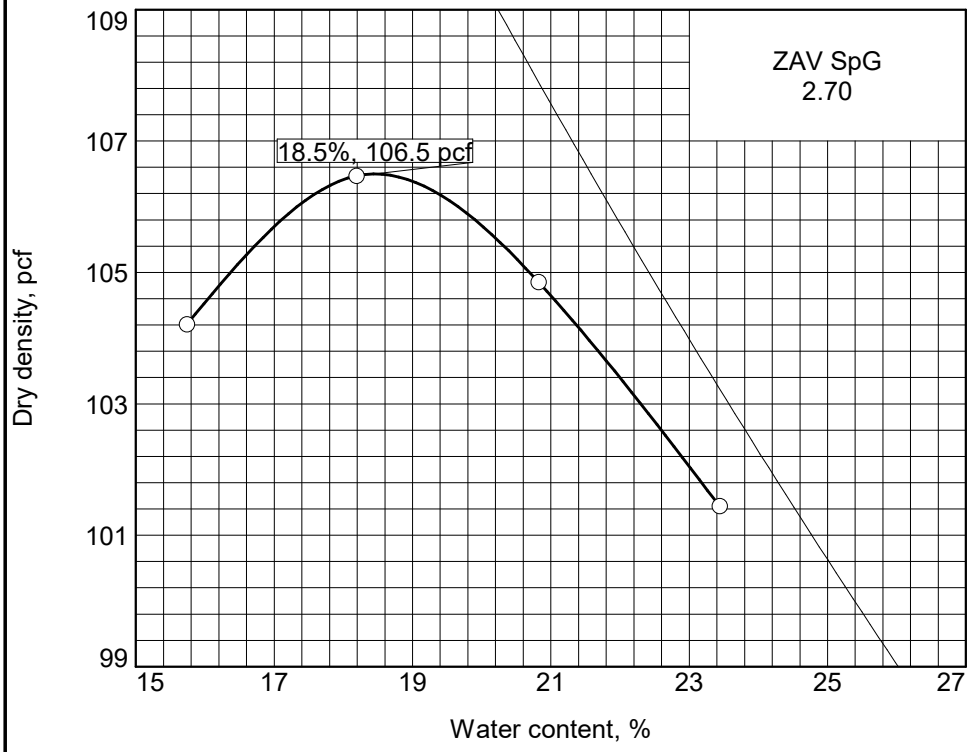
○ **Source:** C-9 + C-10 **Depth:** N/A **Sample No.:** Bulk

Remarks:
Lab # 23282

Figure

Tested By: DC **Checked By:** TZ

COMPACTION TEST REPORT



Curve No.
1

Test Specification:
ASTM D 698-12 Method B Standard

Hammer Wt.: 5.5 lb.
Hammer Drop: 12 in.
Number of Layers: three
Blows per Layer: 25
Mold Size: 0.03333 cu. ft.

Test Performed on Material Passing 3/8 in. **Sieve**

Soil Data

NM	9.9	**Sp.G.**	2.7
LL	N/A	**PI**	N/A
%>3/8 in.	4.5	**%<#200**	N/A
USCS	N/A	**AASHTO**	N/A

TESTING DATA

	1	2	3	4	5	6
WM + WS	3880.8	3959.5	3972.3	3950.2		
WM	2064.5	2064.5	2064.5	2064.5		
WW + T #1	727.5	715.5	799.0	716.7		
WD + T #1	654.1	635.9	694.6	619.5		
TARE #1	187.7	198.3	193.2	204.8		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	15.7	18.2	20.8	23.4		
DRY DENSITY	104.2	106.5	104.9	101.4		

TEST RESULTS

Maximum dry density = 106.5 pcf

Optimum moisture = 18.5 %

Material Description

Gray Brown Sandy Fat CLAY

Project No. 6162232410 **Client:** LGC
Project: LGC Taxi Way

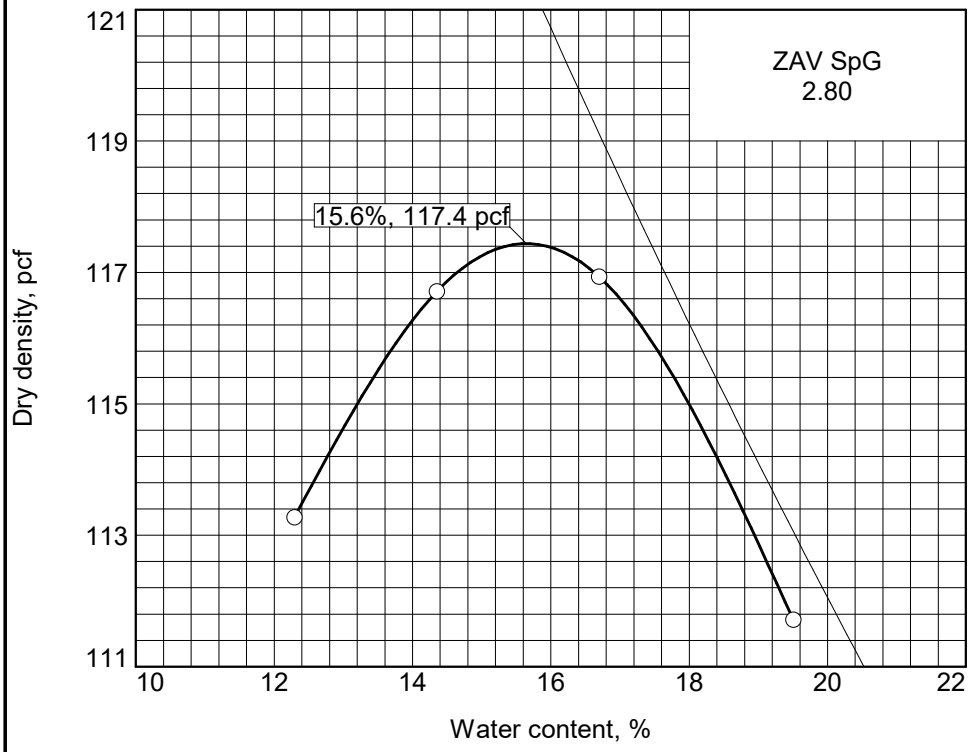
○ **Source:** C-13 + C-14 **Depth:** N/A **Sample No.:** Bulk

Remarks:
Lab # 23285

Figure

Tested By: DC **Checked By:** TZ

COMPACTION TEST REPORT



Curve No.
1

Test Specification:
ASTM D 698-12 Method A Standard

Hammer Wt.: 5.5 lb.
Hammer Drop: 12 in.
Number of Layers: three
Blows per Layer: 25
Mold Size: 0.03333 cu. ft.

Test Performed on Material Passing #4 **Sieve**

Soil Data

NM	18.7	**Sp.G.**	2.8
LL	N/A	**PI**	N/A
%>#4	3.3	**%<#200**	N/A
USCS	N/A	**AASHTO**	N/A

TESTING DATA

	1	2	3	4	5	6
WM + WS	3980.0	4074.4	4119.5	4075.0		
WM	2064.5	2064.5	2064.5	2064.5		
WW + T #1	791.0	778.7	851.7	959.6		
WD + T #1	726.8	706.5	757.9	835.3		
TARE #1	204.5	203.5	196.1	198.0		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	12.3	14.4	16.7	19.5		
DRY DENSITY	113.3	116.7	116.9	111.7		

TEST RESULTS

Maximum dry density = 117.4 pcf

Optimum moisture = 15.6 %

Material Description

Tan Silty Clayey SAND

Project No. 6162232410 **Client:** LGC
Project: LGC Taxi Way

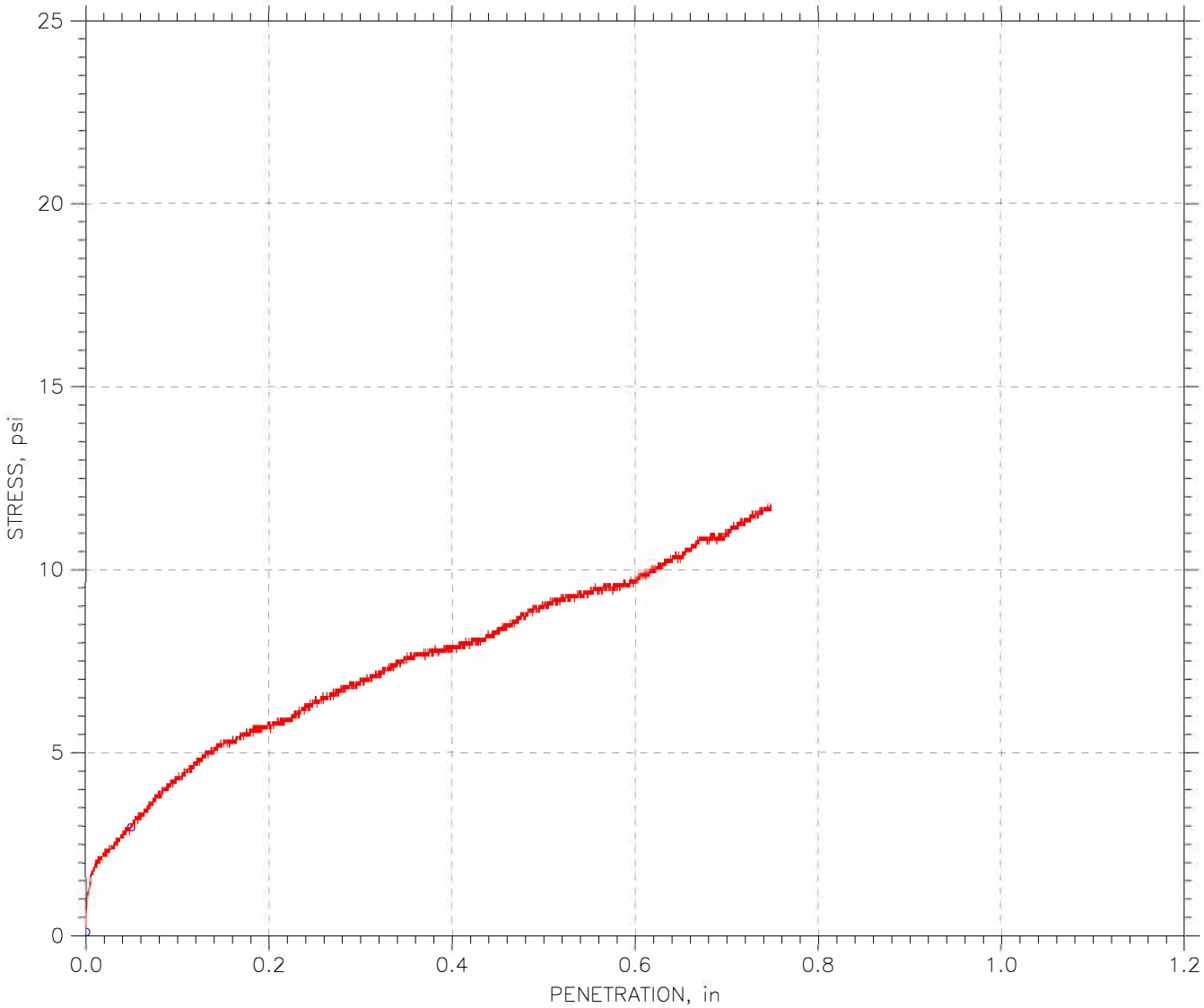
○ **Source:** C-18 + C-17 **Depth:** N/A **Sample No.:** Bulk

Remarks:
Lab # 23284

Figure

Tested By: DC **Checked By:** TZ

CALIFORNIA BEARING RATIO TEST REPORT

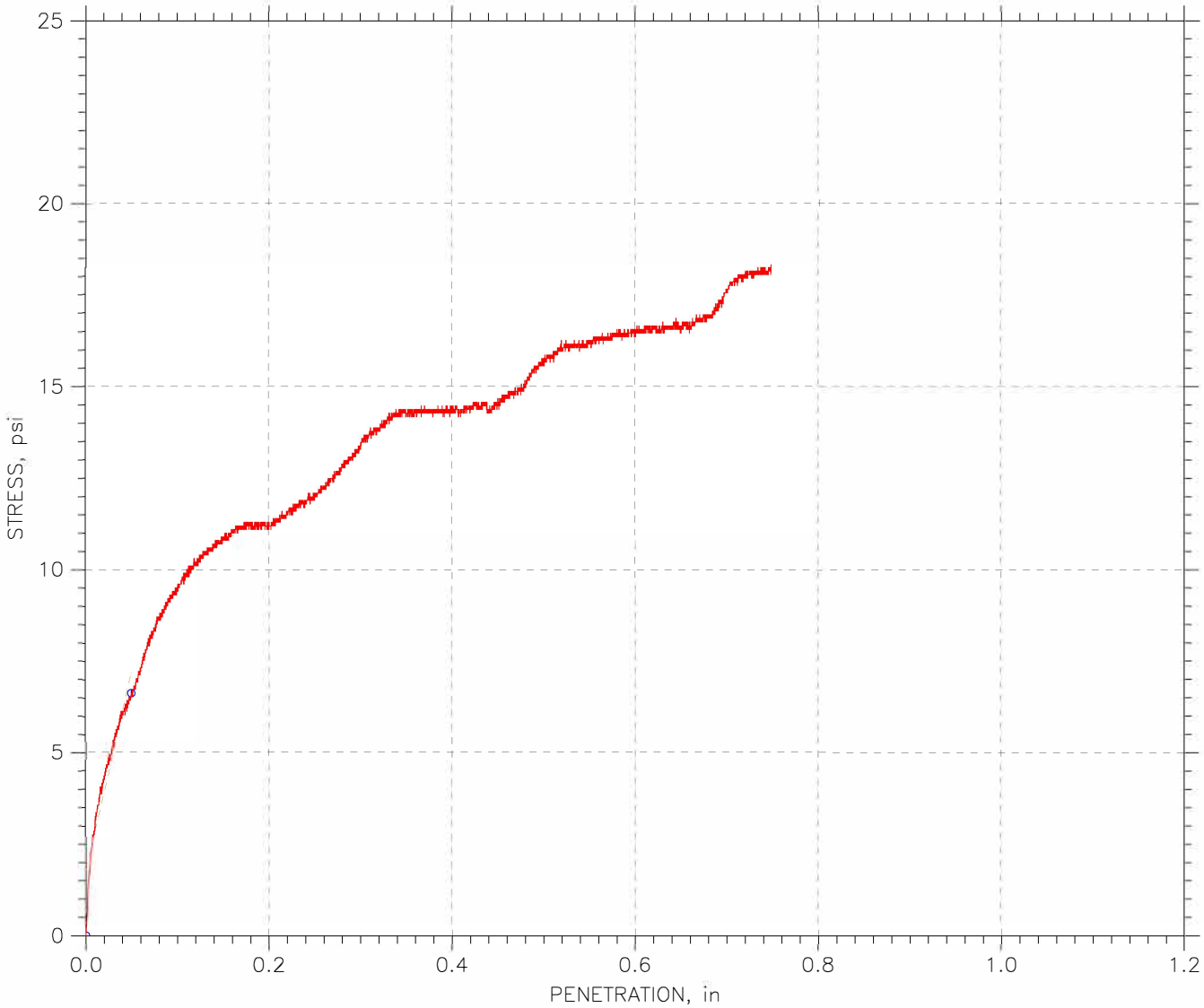


Sample Height: 4.587 in	California Bearing Ratio			
Sample Area: 28.237 in^2	at 0.1 in: 0	at 0.3 in: 0	at 0.5 in: 0	
Sample Volume: 129.52 in^3	at 0.2 in: 0	at 0.4 in: 0		
Sample Mass: 3610.5 gm				
Sample Condition: Soaked	Water Content	Before		After
Swell: 2.11 %	Tare ID			
Surcharge: 4542.1 gm	Tare Mass, gm	0		0
Void Ratio: 0.92	Mass Tare + Wet Soil, gm	3610.5		3949.4
Wet Unit Weight: 106.19 pcf	Mass Tare + Dry Soil, gm	2988.8		2988.8
Dry Unit Weight: 87.909 pcf	Water Content, %	20.80		32.14

	Project: LaGrange Airport	Location: N/A	Project No.: 6162232410
	Boring No.: C-3 & C-4	Tested By: DC	Checked By: TZ
	Sample No.: 23286-10	Test Date: 4/19/2023	Depth: N/A
	Test No.: 23286	Sample Type: Bulk	Elevation: NA
	Description: Brown Fat CLAY with Sand		
	Remarks: Specimen molded in 3 lifts with 10 blows per lift		

Wed, 26-APR-2023 13:01:15

CALIFORNIA BEARING RATIO TEST REPORT

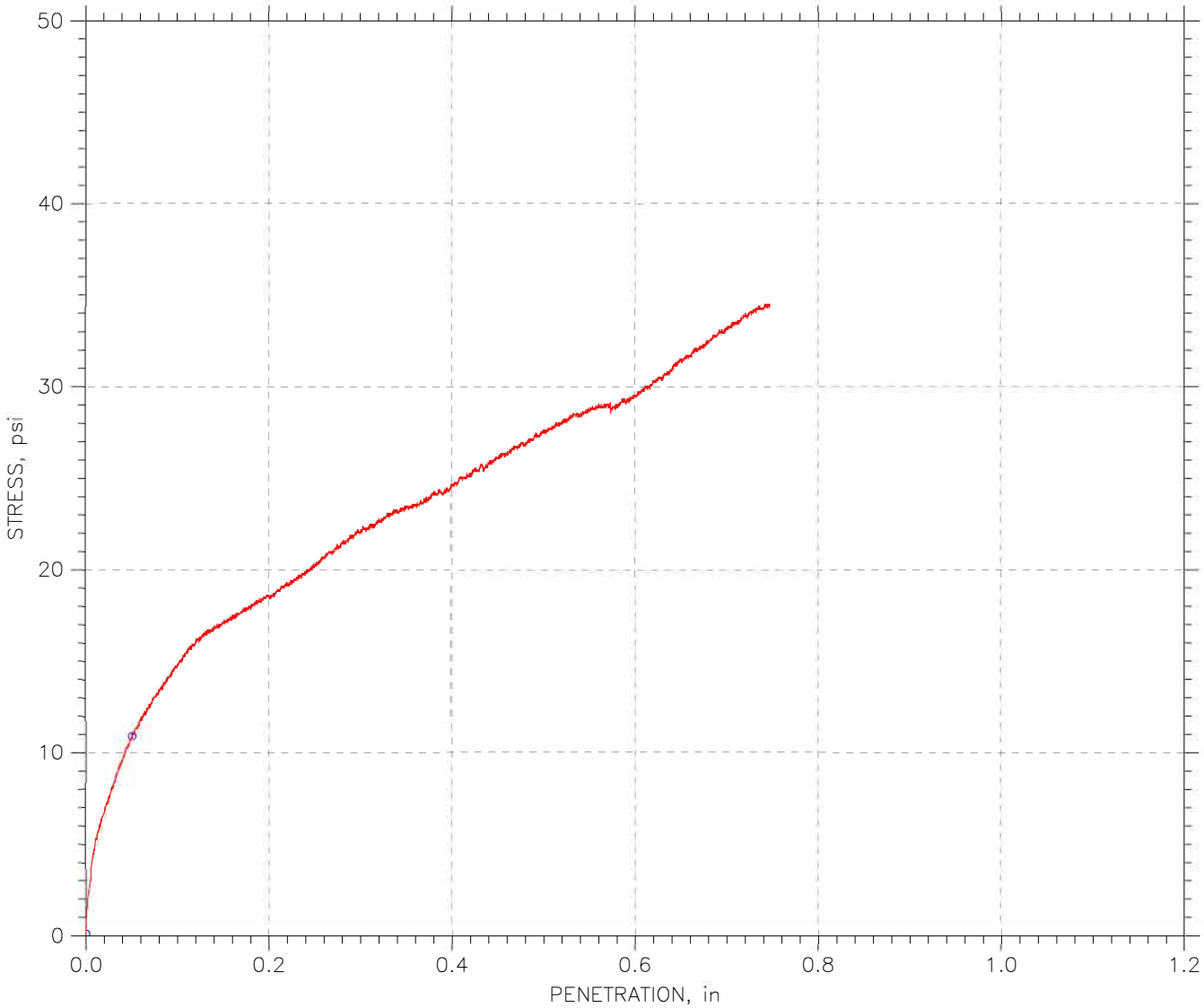


Sample Height: 4.585 in	California Bearing Ratio			
Sample Area: 28.274 in^2	at 0.1 in: 1	at 0.3 in: 1	at 0.5 in: 1	
Sample Volume: 129.64 in^3	at 0.2 in: 1	at 0.4 in: 1		
Sample Mass: 3937.3 gm				
Sample Condition: Soaked	Water Content	Before		After
Swell: 1.03 %	Tare ID			
Surcharge: 4545.2 gm	Tare Mass, gm	0		0
Void Ratio: 0.76	Mass Tare + Wet Soil, gm	3937.3		4182
Wet Unit Weight: 115.7 pcf	Mass Tare + Dry Soil, gm	3259.4		3259.4
Dry Unit Weight: 95.782 pcf	Water Content, %	20.80		28.31

	Project: LaGrange Airport	Location: N/A	Project No.: 6162232410
	Boring No.: C-3 & c-4	Tested By: DC	Checked By: TZ
	Sample No.: 23286-25	Test Date: 4/19/2023	Depth: N/A
	Test No.: 23286	Sample Type: Bulk	Elevation: N/A
	Description: Brown Fat CLAY with Sand		
	Remarks: Specimen molded in 3 lifts with 25 blows per lift		

Wed, 26-APR-2023 12:59:54

CALIFORNIA BEARING RATIO TEST REPORT

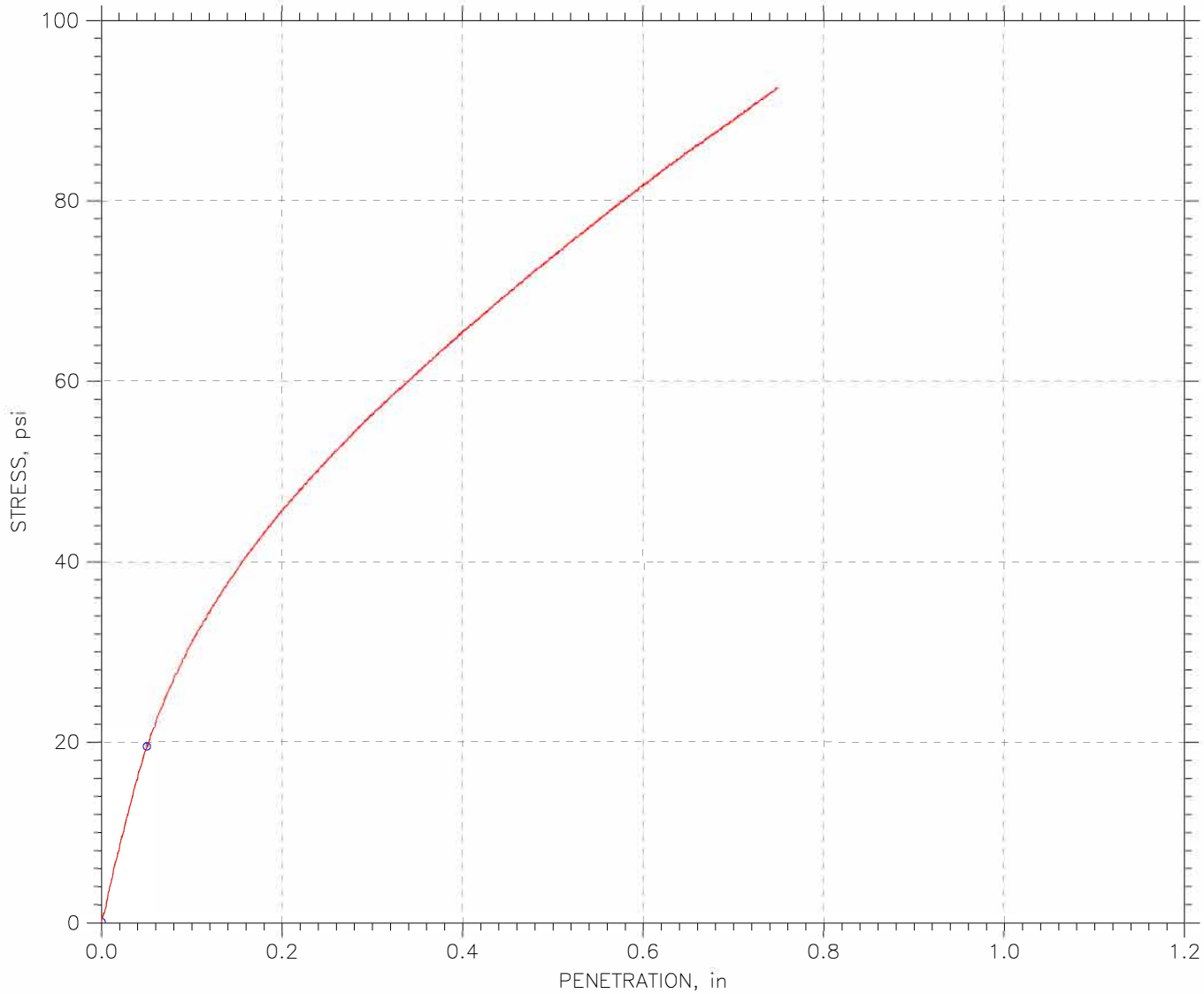


Sample Height: 4.585 in	California Bearing Ratio			
Sample Area: 28.218 in^2	at 0.1 in: 1	at 0.3 in: 1	at 0.5 in: 1	
Sample Volume: 129.38 in^3	at 0.2 in: 1	at 0.4 in: 1		
Sample Mass: 4131 gm				
Sample Condition: Soaked	Water Content	Before		After
Swell: 2.88 %	Tare ID			
Surcharge: 4545.2 gm	Tare Mass, gm	0		0
Void Ratio: 0.67	Mass Tare + Wet Soil, gm	4131		4307.1
Wet Unit Weight: 121.64 pcf	Mass Tare + Dry Soil, gm	3419.7		3419.7
Dry Unit Weight: 100.69 pcf	Water Content, %	20.80		25.95

	Project: LaGrange Airport	Location: N/A	Project No.: 6162232410
	Boring No.: C-3 & C-4	Tested By: DC	Checked By: TZ
	Sample No.: 23286-56	Test Date: 4/19/2023	Depth: N/A
	Test No.: 23286	Sample Type: Bulk	Elevation: N/A
	Description: Brown Fat CLAY with Sand		
	Remarks: Specimen molded in 3 lifts with 56 blows per lift		

Wed, 26-APR-2023 13:03:14

CALIFORNIA BEARING RATIO TEST REPORT

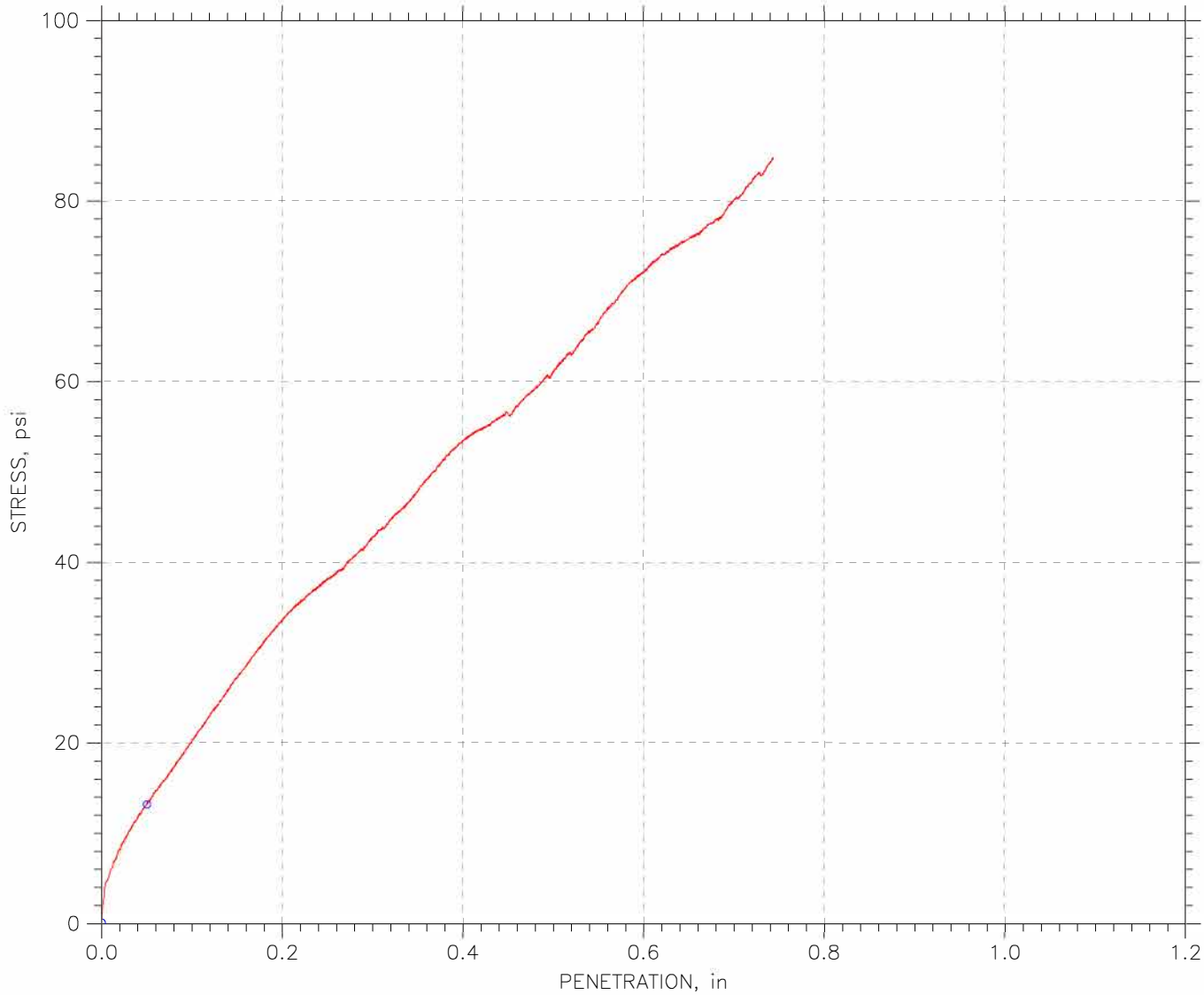


Sample Height: 4.585 in	California Bearing Ratio			
Sample Area: 28.218 in^2	at 0.1 in: 3	at 0.3 in: 3	at 0.5 in: 3	
Sample Volume: 129.38 in^3	at 0.2 in: 3	at 0.4 in: 3		
Sample Mass: 4074.2 gm				
Sample Condition: Soaked	Water Content	Before		After
Swell: 0.41 %	Tare ID			
Surcharge: 4554.7 gm	Tare Mass, gm	0		0
Void Ratio: 0.60	Mass Tare + Wet Soil, gm	4074.2		4289.7
Wet Unit Weight: 119.97 pcf	Mass Tare + Dry Soil, gm	3583.3		3583.3
Dry Unit Weight: 105.51 pcf	Water Content, %	13.70		19.71

	Project: LaGrange Airport	Location: N/A	Project No.: 6162232410
	Boring No.: c7 & c8	Tested By: DC	Checked By: TZ
	Sample No.: 23283-10	Test Date: 4/15/2023	Depth: N/A
	Test No.: 23283	Sample Type: Bulk	Elevation: N/A
	Description: Dark Brown Silty SAND		
	Remarks: Specimen molded in 3 lifts with 10 blows per lift		

Wed, 26-APR-2023 11:47:01

CALIFORNIA BEARING RATIO TEST REPORT



Sample Height: 4.584 in	California Bearing Ratio			
Sample Area: 28.171 in^2	at 0.1 in: 2	at 0.3 in: 2	at 0.5 in: 2	
Sample Volume: 129.13 in^3	at 0.2 in: 2	at 0.4 in: 2		
Sample Mass: 4318 gm				
Sample Condition: Soaked	Water Content	Before		After
Swell: 0.26 %	Tare ID			
Surcharge: 4530.6 gm	Tare Mass, gm	0		0
Void Ratio: 0.49	Mass Tare + Wet Soil, gm	4318		4474.5
Wet Unit Weight: 127.38 pcf	Mass Tare + Dry Soil, gm	3841.6		3841.6
Dry Unit Weight: 113.33 pcf	Water Content, %	12.40		16.47

	Project: LaGrange Airport	Location: N/A	Project No.: 6162232410
	Boring No.: c7 & c8	Tested By: DC	Checked By: TZ
	Sample No.: 23283-25	Test Date: 4/15/2023	Depth: N/A
	Test No.: 23283	Sample Type: Bulk	Elevation: N/A
	Description: Dark Brown Silty SAND		
	Remarks: Specimen molded in 3 lifts with 25 blows per lift		

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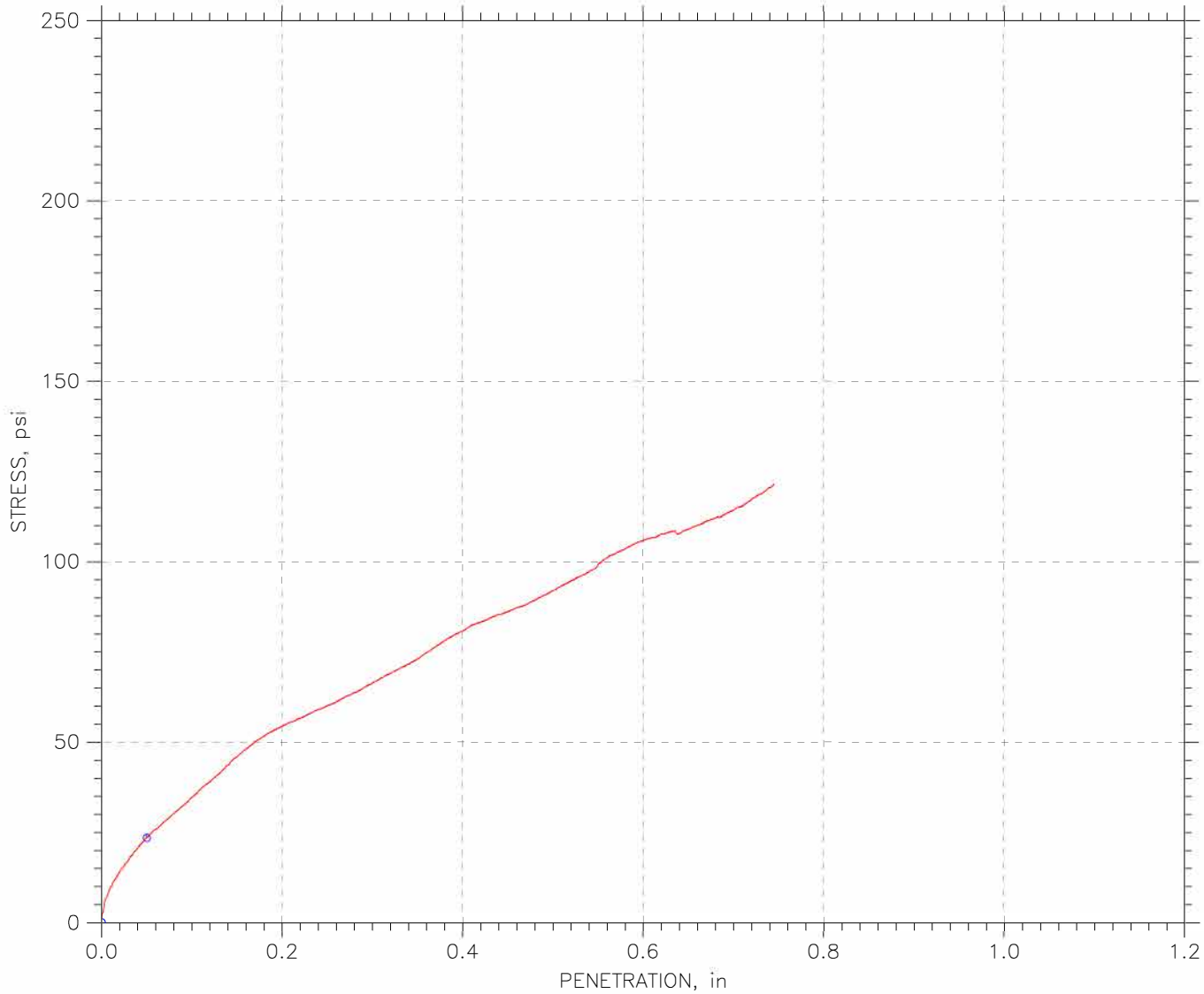
CALIFORNIA BEARING RATIO TEST REPORT



Sample Height: 4.584 in	California Bearing Ratio			
Sample Area: 28.208 in^2	at 0.1 in: 3	at 0.3 in: 3	at 0.5 in: 3	
Sample Volume: 129.31 in^3	at 0.2 in: 4	at 0.4 in: 3		
Sample Mass: 4422.1 gm				
Sample Condition: Soaked	Water Content	Before		After
Swell: 0.07 %	Tare ID			
Surcharge: 4539.8 gm	Tare Mass, gm	0		0
Void Ratio: 0.45	Mass Tare + Wet Soil, gm	4422.1		4560.3
Wet Unit Weight: 130.28 pcf	Mass Tare + Dry Soil, gm	3934.3		3934.3
Dry Unit Weight: 115.91 pcf	Water Content, %	12.40		15.91

	Project: LaGrange Airport	Location: N/A	Project No.: 6162232410
	Boring No.: c7 & c8	Tested By: DC	Checked By: TZ
	Sample No.: 23283-56	Test Date: 4/15/2023	Depth: N/A
	Test No.: 23283	Sample Type: Bulk	Elevation: N/A
	Description: Dark Brown Silty SAND		
	Remarks: Specimen molded in 3 lifts with 56 blows per lift		

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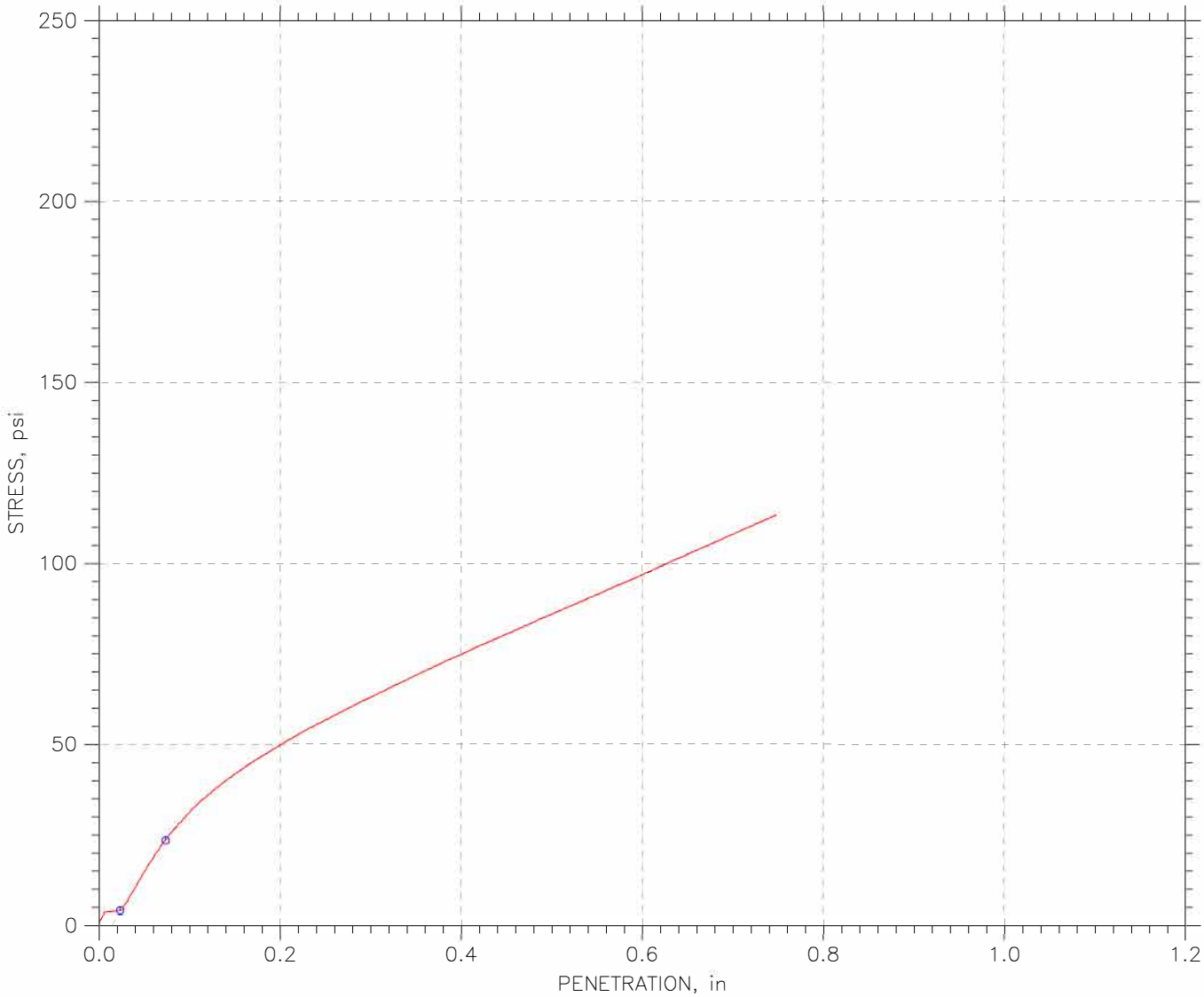
CALIFORNIA BEARING RATIO TEST REPORT



Sample Height: 4.585 in	California Bearing Ratio			
Sample Area: 28.218 in^2	at 0.1 in: 3	at 0.3 in: 3	at 0.5 in: 3	
Sample Volume: 129.38 in^3	at 0.2 in: 3	at 0.4 in: 3		
Sample Mass: 4415.3 gm				

Sample Condition: Soaked	Water Content	Before		After
Swell: 0.48 %	Tare ID			
Surcharge: 4554.7 gm	Tare Mass, gm	0		0
Void Ratio: 0.44	Mass Tare + Wet Soil, gm	4154.3		4634.3
Wet Unit Weight: 130.01 pcf	Mass Tare + Dry Soil, gm	3729.2		3729.2
Dry Unit Weight: 116.71 pcf	Water Content, %	11.40		24.27

	Project: LaGrange Airport	Location: N/A	Project No.: 6162232410
	Boring No.: c-9 & c-10	Tested By: DC	Checked By: TZ
	Sample No.: 23282-10	Test Date: 4/11/2023	Depth: N/A
	Test No.: 23282	Sample Type: Bulk	Elevation: N/A
	Description: Brownish Gray Silty SAND		
	Remarks: Specimen molded in 3 lifts with 10 blows per lift		

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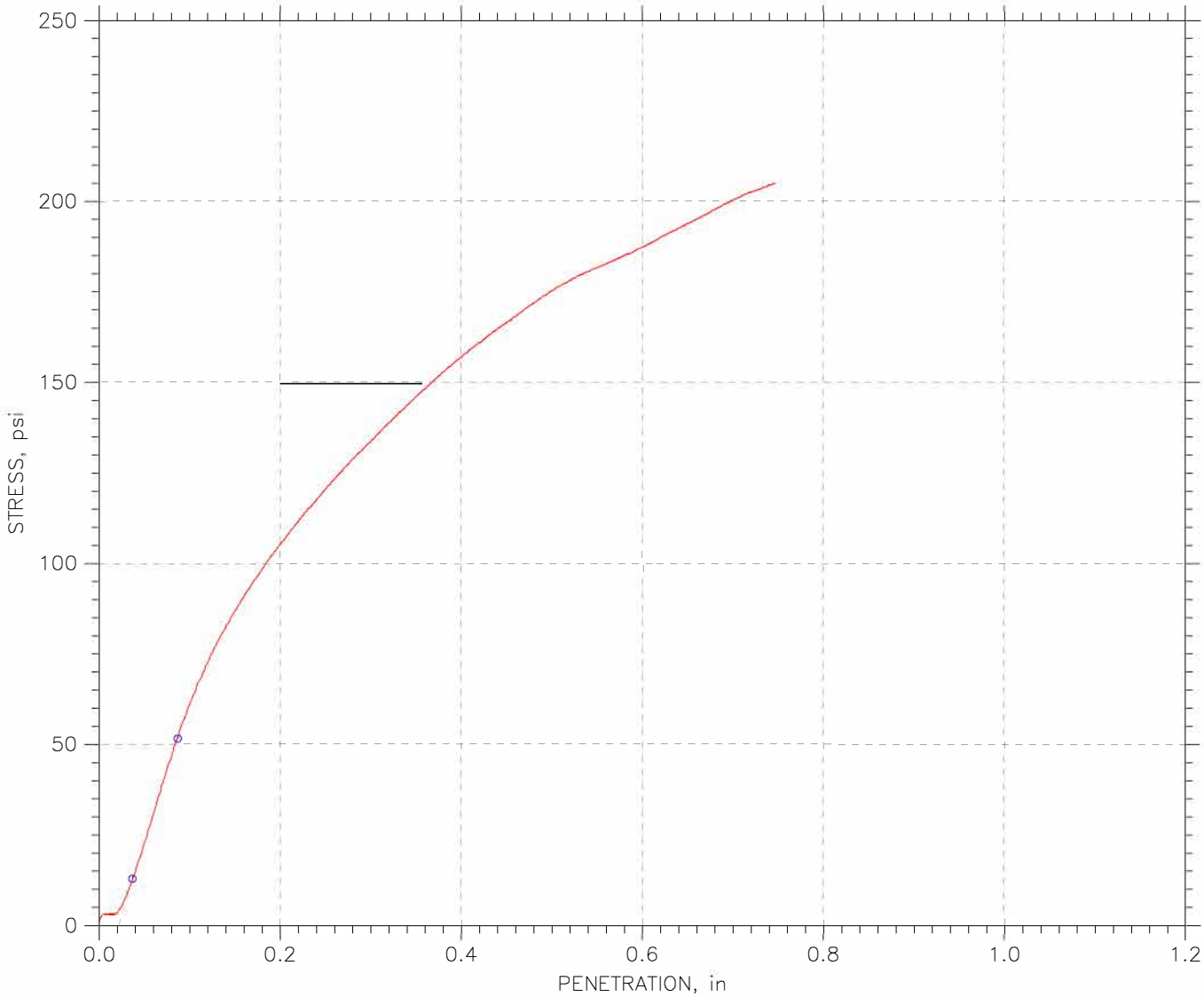
CALIFORNIA BEARING RATIO TEST REPORT



Sample Height: 4.585 in	California Bearing Ratio			
Sample Area: 28.237 in^2	at 0.1 in: 7	at 0.3 in: 7	at 0.5 in: 7	
Sample Volume: 129.47 in^3	at 0.2 in: 7	at 0.4 in: 7		
Sample Mass: 4608.8 gm				
Sample Condition: Soaked	Water Content	Before		After
Swell: 0.68 %	Tare ID			
Surcharge: 4554.7 gm	Tare Mass, gm	0		0
Void Ratio: 0.38	Mass Tare + Wet Soil, gm	4608.8		4773.4
Wet Unit Weight: 135.62 pcf	Mass Tare + Dry Soil, gm	4137.2		4137.2
Dry Unit Weight: 121.74 pcf	Water Content, %	11.40		15.38

	Project: LaGrange Airport	Location: N/A	Project No.: 6162232410
	Boring No.: c-9 & c-10	Tested By: DC	Checked By: TZ
	Sample No.: 23282-25	Test Date: 4/11/2023	Depth: N/A
	Test No.: 23282	Sample Type: Bulk	Elevation: N/A
	Description: Brownish Gray Silty SAND		
	Remarks: Specimen molded in 3 lifts with 25 blows per lift		

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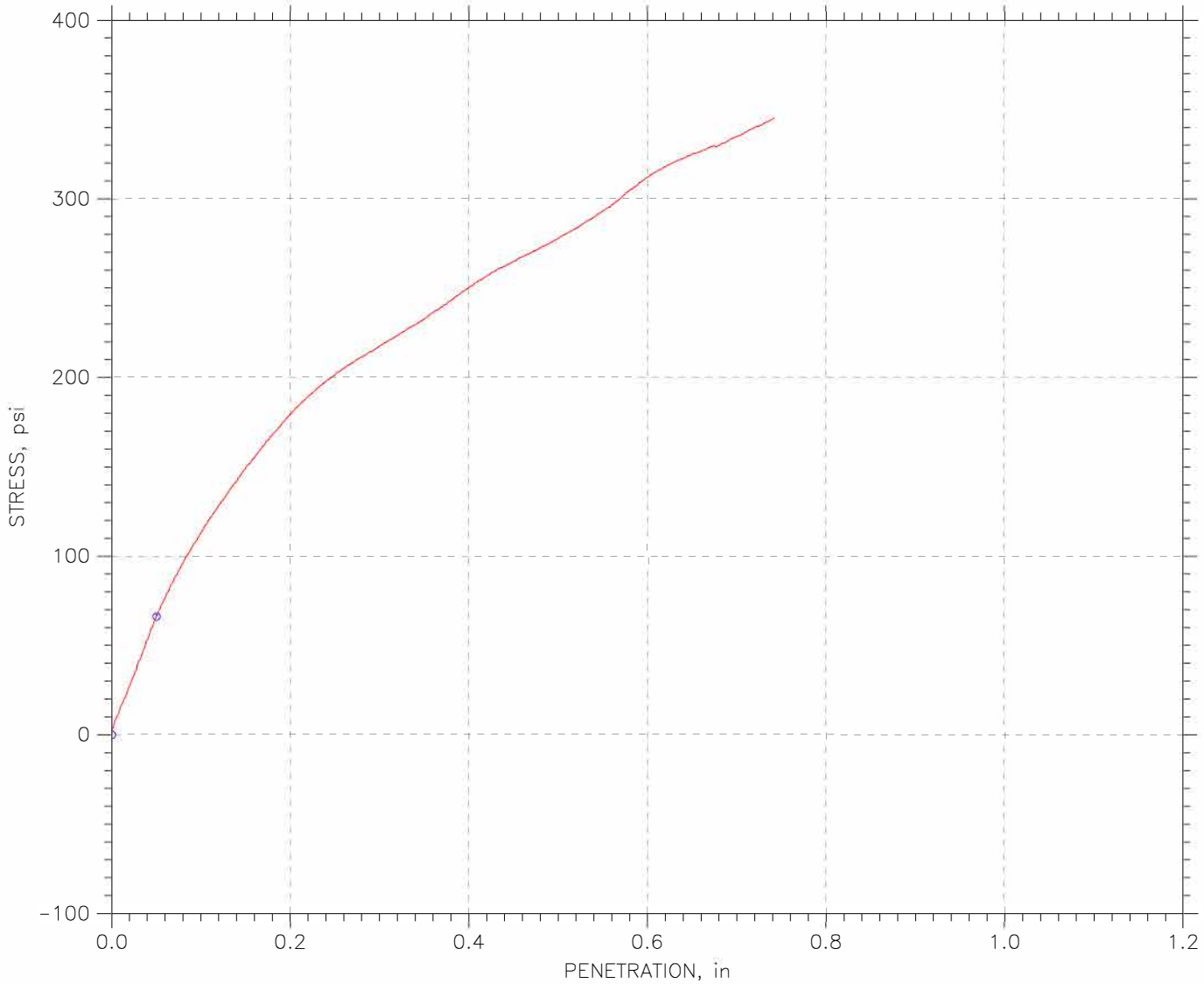
CALIFORNIA BEARING RATIO TEST REPORT



Sample Height: 4.585 in	California Bearing Ratio			
Sample Area: 28.274 in^2	at 0.1 in: 11	at 0.3 in: 11	at 0.5 in: 11	
Sample Volume: 129.64 in^3	at 0.2 in: 12	at 0.4 in: 11		
Sample Mass: 4783.1 gm				
Sample Condition: Soaked	Water Content	Before		After
Swell: 0.28 %	Tare ID			
Surcharge: 4554.7 gm	Tare Mass, gm	0		0
Void Ratio: 0.34	Mass Tare + Wet Soil, gm	4783.1		4887.8
Wet Unit Weight: 140.56 pcf	Mass Tare + Dry Soil, gm	4293.6		4293.6
Dry Unit Weight: 126.17 pcf	Water Content, %	11.40		13.84

	Project: LaGrange Airport	Location: N/A	Project No.: 6162232410
	Boring No.: c-9 & c-10	Tested By: DC	Checked By: TZ
	Sample No.: 23282-56	Test Date: 4/11/2023	Depth: N/A
	Test No.: 23282	Sample Type: Bulk	Elevation: N/A
	Description: Brownish Gray Silty SAND		
	Remarks: Specimen molded in 3 lifts with 56 blows per lift		

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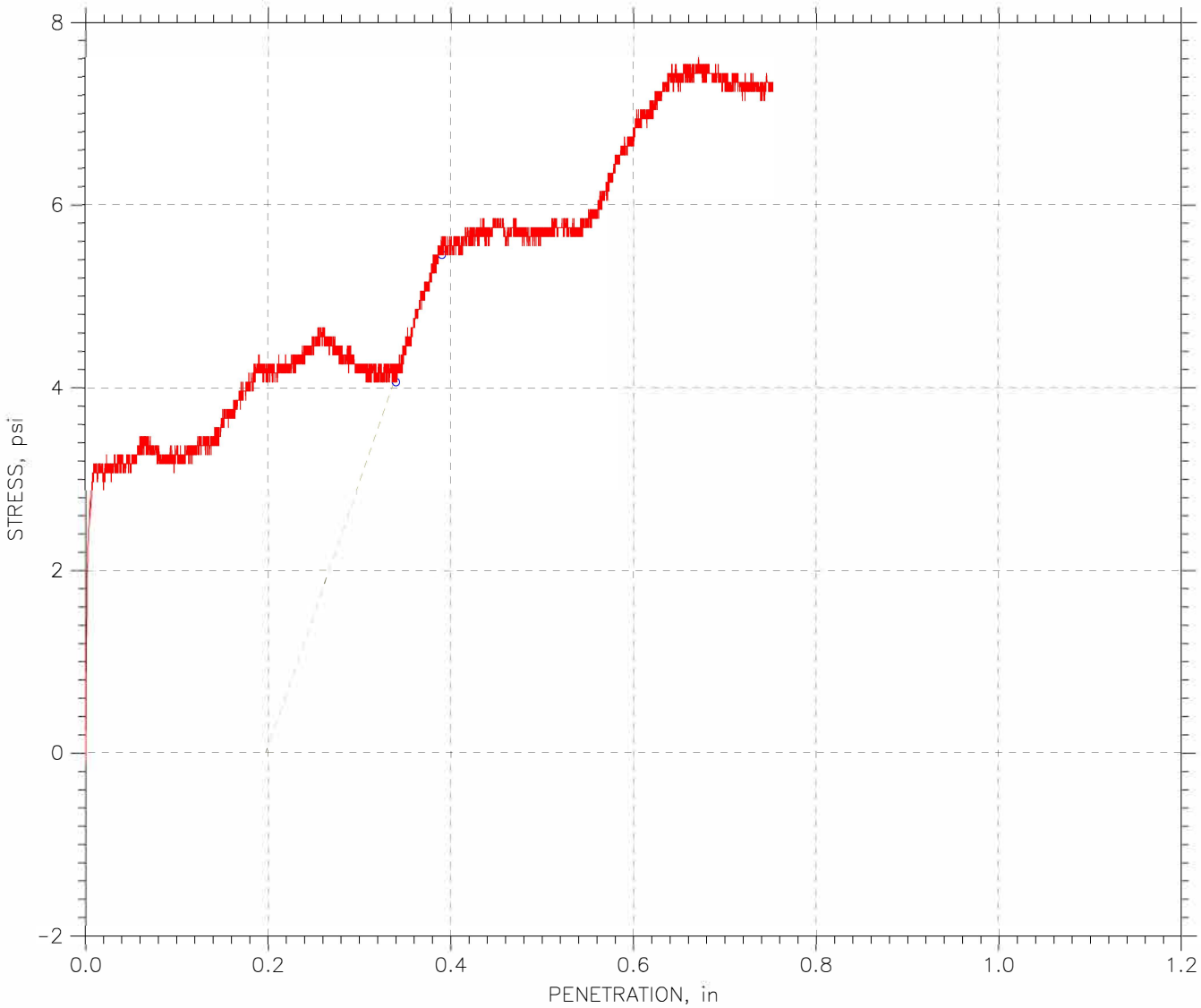
CALIFORNIA BEARING RATIO TEST REPORT



Sample Height: 4.585 in	California Bearing Ratio			
Sample Area: 28.274 in^2	at 0.1 in: 0	at 0.3 in: 0	at 0.5 in: 0	
Sample Volume: 129.64 in^3	at 0.2 in: 0	at 0.4 in: 0		
Sample Mass: 3683.4 gm				
Sample Condition: Soaked	Water Content	Before		After
Swell: 2.86 %	Tare ID			
Surcharge: 4549 gm	Tare Mass, gm	0		0
Void Ratio: 0.82	Mass Tare + Wet Soil, gm	3683.4		4053.2
Wet Unit Weight: 108.24 pcf	Mass Tare + Dry Soil, gm	3148.2		3148.2
Dry Unit Weight: 92.514 pcf	Water Content, %	17.00		28.75

	Project: LaGrange Airport	Location: N/A	Project No.: 6162232410
	Boring No.: C-13 & C-14	Tested By: DC	Checked By: TZ
	Sample No.: 23285-10	Test Date: 4/19/2023	Depth: N/A
	Test No.: 23285	Sample Type: Bulk	Elevation: N/A
	Description: Gray Brown Sandy Fat CLAY		
	Remarks: Specimen molded in 3 lifts with 10 blows per lift		

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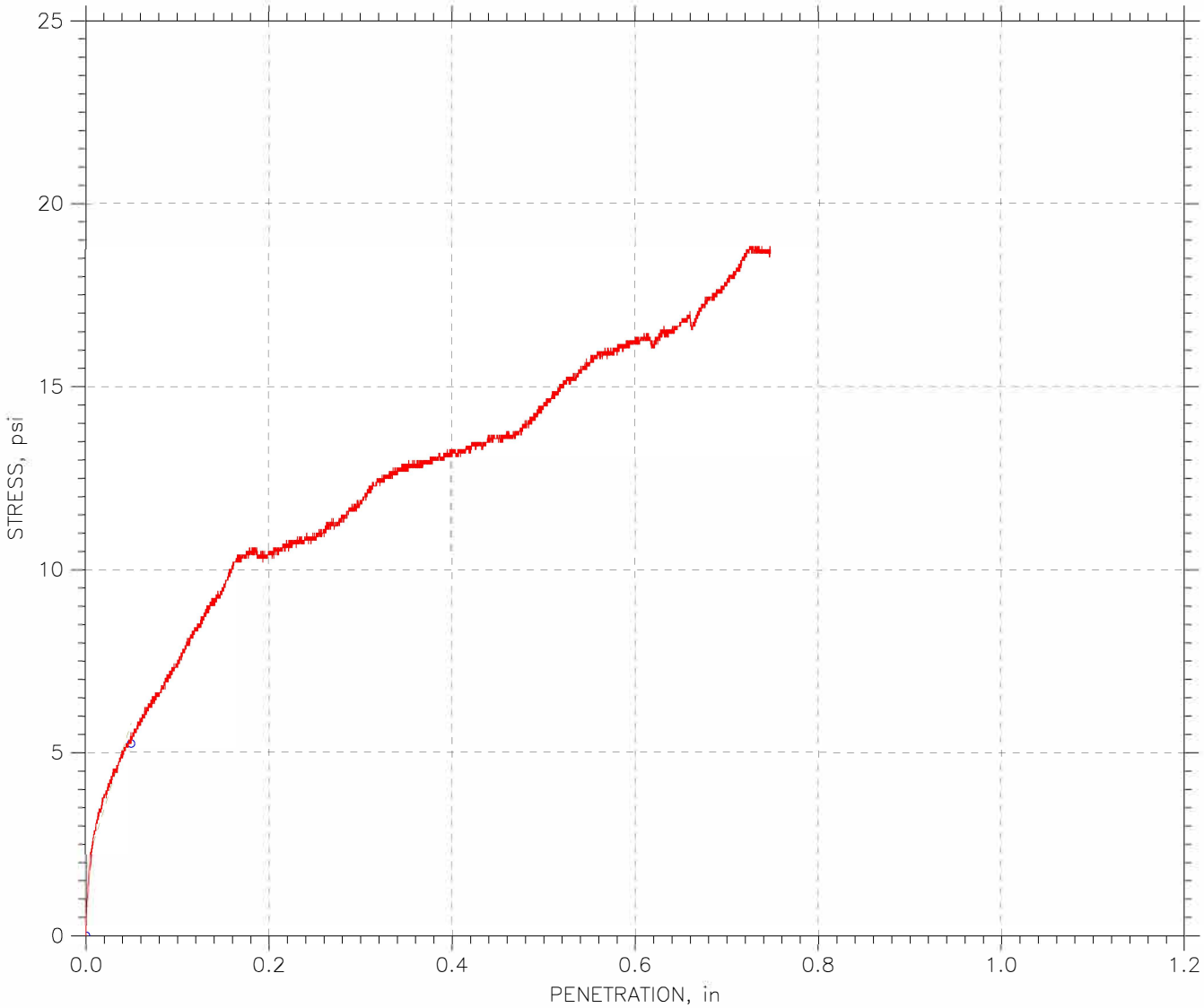
CALIFORNIA BEARING RATIO TEST REPORT



Sample Height: 4.585 in	California Bearing Ratio			
Sample Area: 28.171 in^2	at 0.1 in: 1	at 0.3 in: 1	at 0.5 in: 1	
Sample Volume: 129.16 in^3	at 0.2 in: 1	at 0.4 in: 1		
Sample Mass: 3978.8 gm				
Sample Condition: Soaked	Water Content	Before		After
Swell: 3.75 %	Tare ID			
Surcharge: 4549 gm	Tare Mass, gm	0		0
Void Ratio: 0.68	Mass Tare + Wet Soil, gm	3978.8		4284.9
Wet Unit Weight: 117.35 pcf	Mass Tare + Dry Soil, gm	3400.7		3400.7
Dry Unit Weight: 100.3 pcf	Water Content, %	17.00		26.00

	Project: LaGrange Airport	Location: N/A	Project No.: 6162232410
	Boring No.: C-13 & C-14	Tested By: DC	Checked By: TZ
	Sample No.: 23285-25	Test Date: 4/19/2023	Depth: N/A
	Test No.: 23285	Sample Type: Bulk	Elevation: N/A
	Description: Gray Brown Sandy Fat CLAY		
	Remarks: Specimen molded in 3 lifts with 25 blows per lift		

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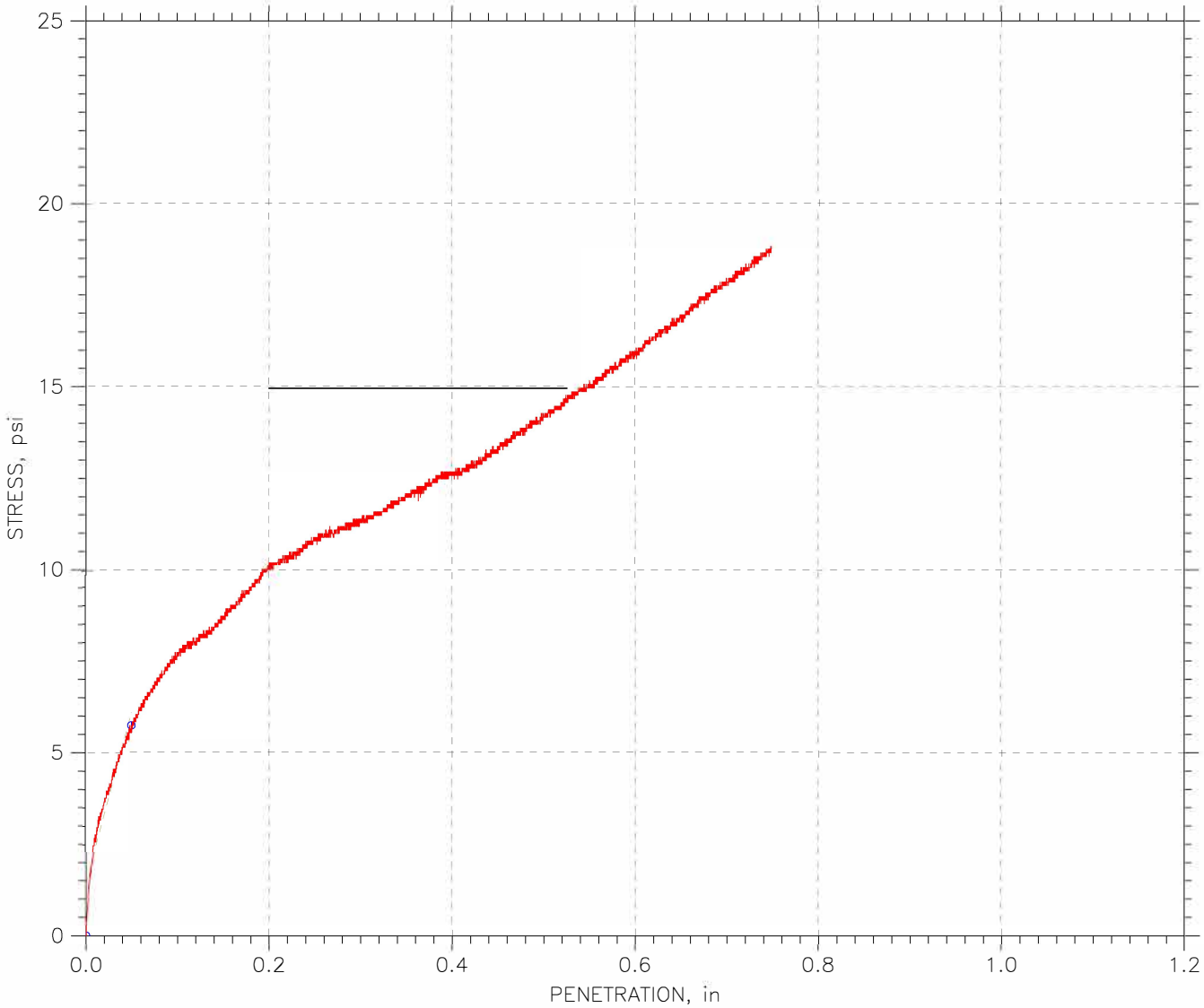
CALIFORNIA BEARING RATIO TEST REPORT

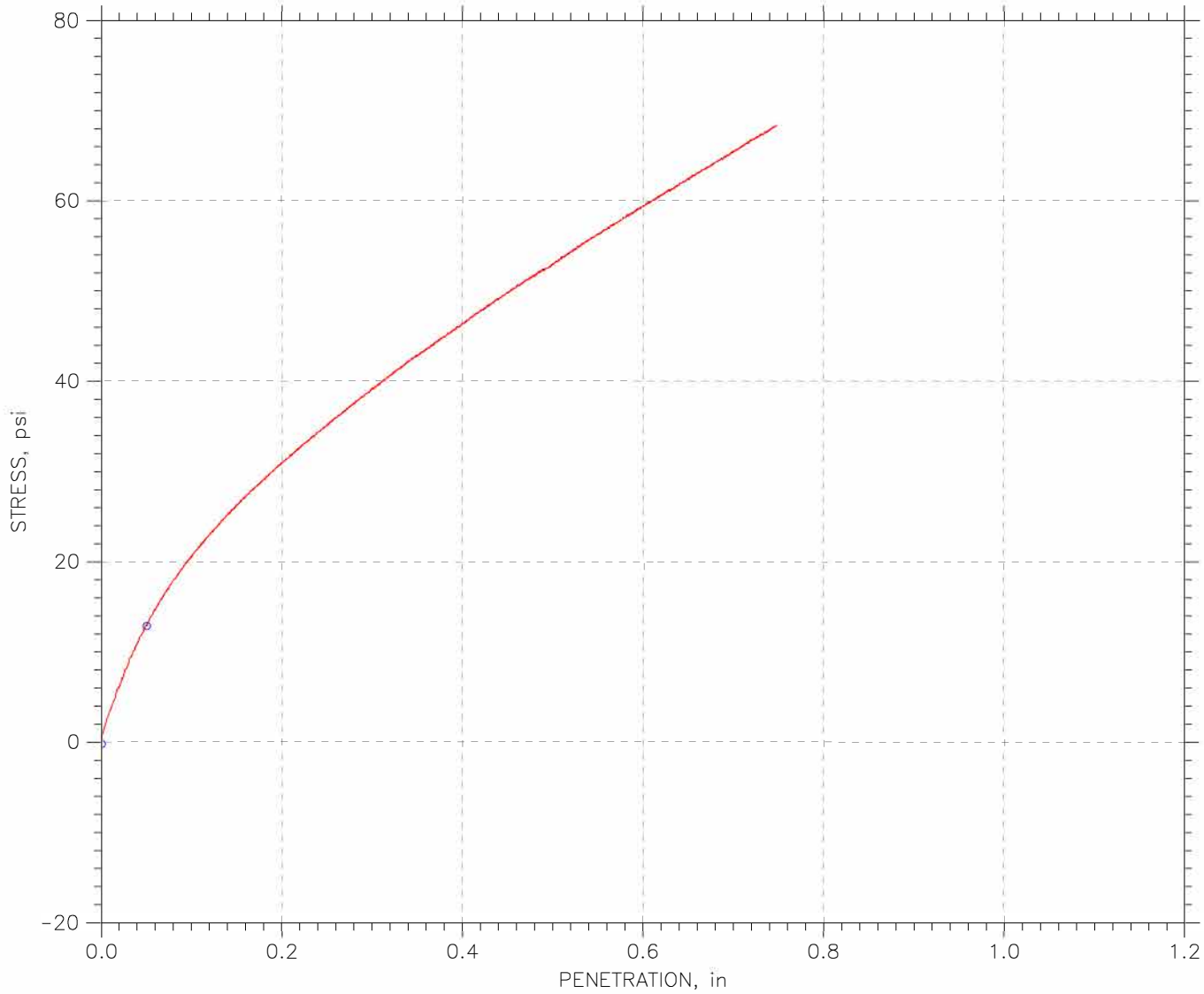


Sample Height: 4.584 in	California Bearing Ratio			
Sample Area: 28.208 in^2	at 0.1 in: 1	at 0.3 in: 1	at 0.5 in: 1	
Sample Volume: 129.31 in^3	at 0.2 in: 1	at 0.4 in: 1		
Sample Mass: 4169.3 gm				
Sample Condition: Soaked	Water Content	Before		After
Swell: 1.48 %	Tare ID			
Surcharge: 4538.5 gm	Tare Mass, gm	0		0
Void Ratio: 0.61	Mass Tare + Wet Soil, gm	4169.3		4431
Wet Unit Weight: 122.83 pcf	Mass Tare + Dry Soil, gm	3563.5		3563.5
Dry Unit Weight: 104.99 pcf	Water Content, %	17.00		24.34

	Project: LaGrange Airport	Location: N/A	Project No.: 6162232410
	Boring No.: C-13 & C-14	Tested By: DC	Checked By: TZ
	Sample No.: 23285-56	Test Date: 4/19/2023	Depth: N/A
	Test No.: 23285	Sample Type: Bulk	Elevation: N/A
	Description: Gray Brown Sandy Fat CLAY		
	Remarks: Specimen molded in 3 lifts with 56 blows per lift		

Wed, 26-APR-2023 12:50:15

CALIFORNIA BEARING RATIO TEST REPORT



Sample Height: 4.584 in	California Bearing Ratio			
Sample Area: 28.171 in^2	at 0.1 in: 2	at 0.3 in: 2	at 0.5 in: 2	
Sample Volume: 129.13 in^3	at 0.2 in: 2	at 0.4 in: 2		
Sample Mass: 4178.1 gm				
Sample Condition: Soaked	Water Content	Before		After
Swell: 0.09 %	Tare ID			
Surcharge: 4554.7 gm	Tare Mass, gm	0		0
Void Ratio: 0.61	Mass Tare + Wet Soil, gm	4178.1		4296.4
Wet Unit Weight: 123.26 pcf	Mass Tare + Dry Soil, gm	3558.9		3558.9
Dry Unit Weight: 104.99 pcf	Water Content, %	17.40		20.72

	Project: LaGrange Airport	Location: N/A	Project No.: 6162232410
	Boring No.: C-18 & C-17	Tested By: DC	Checked By: TZ
	Sample No.: 23284-10	Test Date: 4/15/2023	Depth: N/A
	Test No.: 23284	Sample Type: Bulk	Elevation: N/A
	Description: Tan Silty Clayey SAND		
	Remarks: Specimen molded in 3 lifts with 10 blows per lift		

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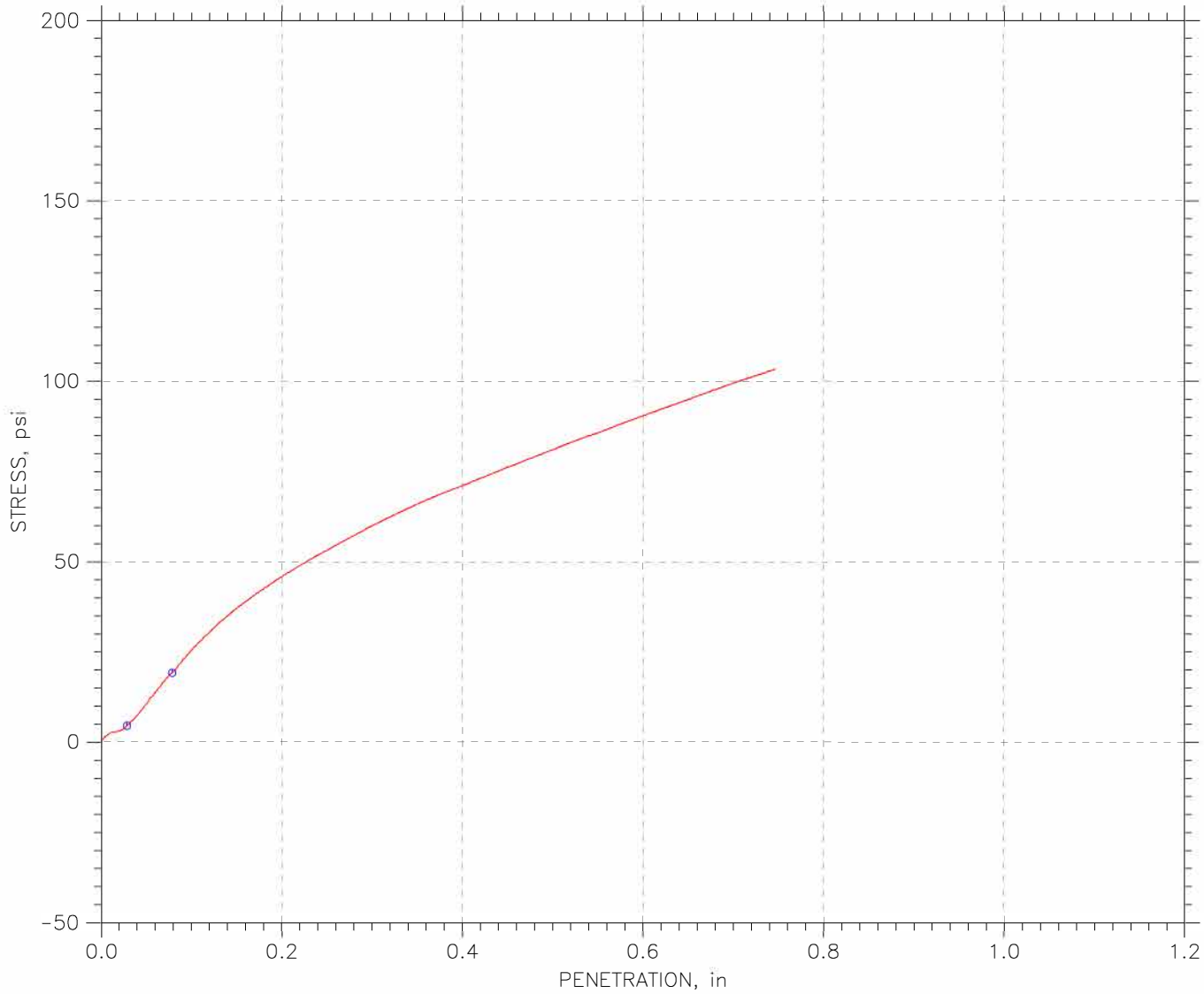
CALIFORNIA BEARING RATIO TEST REPORT

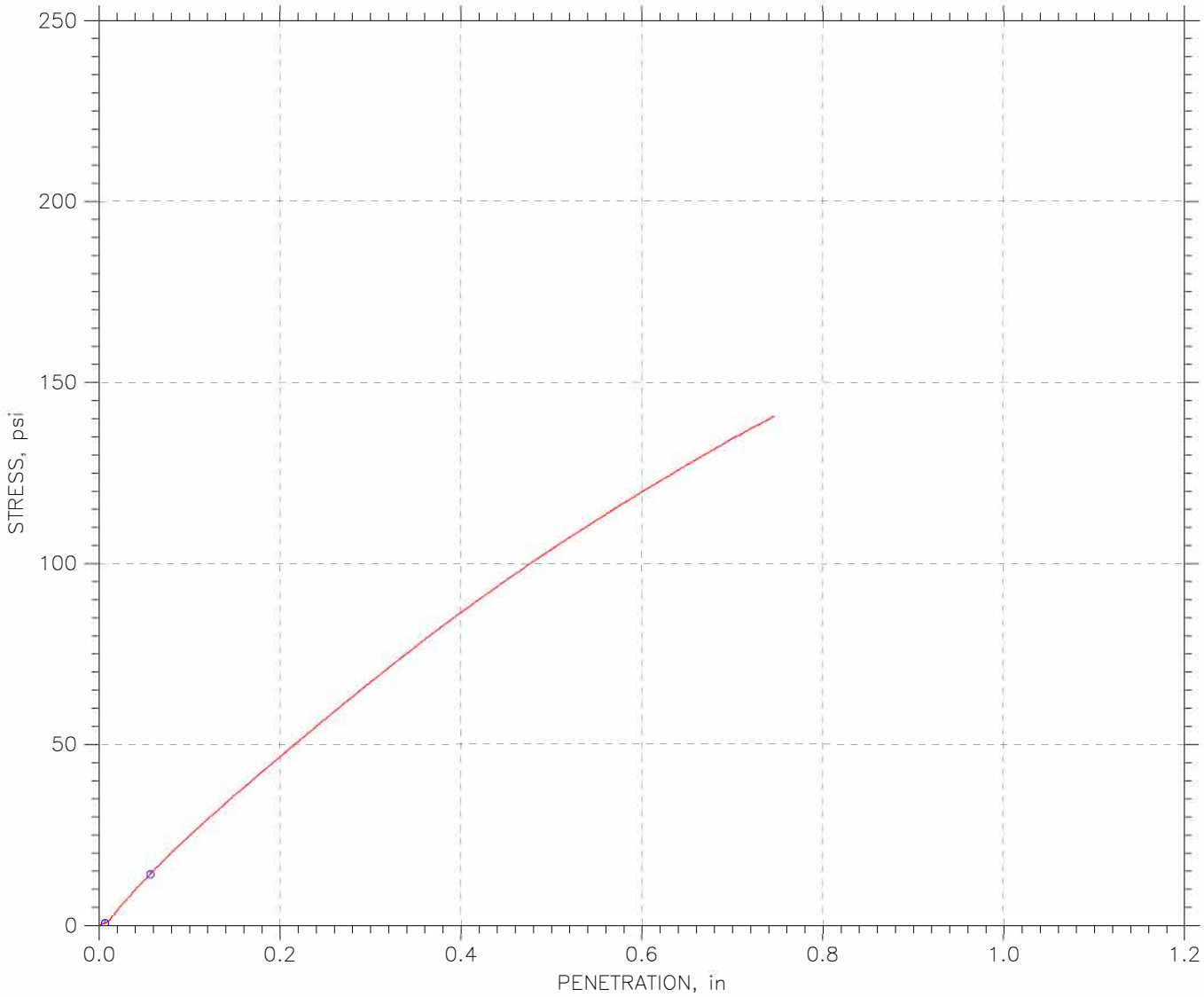


Sample Height: 4.583 in	California Bearing Ratio			
Sample Area: 28.18 in^2	at 0.1 in: 3	at 0.3 in: 3	at 0.5 in: 3	
Sample Volume: 129.15 in^3	at 0.2 in: 3	at 0.4 in: 3		
Sample Mass: 4291.8 gm				
Sample Condition: Soaked	Water Content	Before		After
Swell: 0.17 %	Tare ID			
Surcharge: 4554.7 gm	Tare Mass, gm	0		0
Void Ratio: 0.56	Mass Tare + Wet Soil, gm	4291.8		4389.1
Wet Unit Weight: 126.6 pcf	Mass Tare + Dry Soil, gm	3655.7		3655.7
Dry Unit Weight: 107.83 pcf	Water Content, %	17.40		20.06

	Project: LaGrange Airport	Location: N/A	Project No.: 6162232410
	Boring No.: C-18 & C-17	Tested By: DC	Checked By: TZ
	Sample No.: 23284-25	Test Date: 4/15/2023	Depth: N/A
	Test No.: 23284	Sample Type: SOIL	Elevation: N/A
	Description: Tan Silty Clayey SAND		
	Remarks: Specimen molded in 3 lifts with 25 blows per lift		

Wed, 26-APR-2023 11:56:26

CALIFORNIA BEARING RATIO TEST REPORT



Sample Height: 4.585 in	California Bearing Ratio			
Sample Area: 28.18 in^2	at 0.1 in: 3	at 0.3 in: 4	at 0.5 in: 4	
Sample Volume: 129.21 in^3	at 0.2 in: 3	at 0.4 in: 4		
Sample Mass: 4486.1 gm				
Sample Condition: Soaked	Water Content	Before		After
Swell: 0.07 %	Tare ID			
Surcharge: 4554.7 gm	Tare Mass, gm	0		0
Void Ratio: 0.50	Mass Tare + Wet Soil, gm	4486.1		4520.5
Wet Unit Weight: 132.27 pcf	Mass Tare + Dry Soil, gm	3821.2		3821.2
Dry Unit Weight: 112.67 pcf	Water Content, %	17.40		18.30

	Project: LaGrange Airport	Location: N/A	Project No.: 6162232410
	Boring No.: C-18 & C-17	Tested By: DC	Checked By: TZ
	Sample No.: 23284-56	Test Date: 4/15/2023	Depth: N/A
	Test No.: 23284	Sample Type: Bulk	Elevation: N/A
	Description: Tan Silty Clayey SAND		
	Remarks: Specimen molded in 3 lifts with 56 blows per lift		

Wed, 26-APR-2023 11:58:05

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, clients can benefit from a lowered exposure to the subsurface problems that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed below, contact your GBA-member geotechnical engineer. Active involvement in the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Geotechnical-Engineering Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. *Those who rely on a geotechnical-engineering report prepared for a different client can be seriously misled*. No one except authorized client representatives should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one – not even you – should apply this report for any purpose or project except the one originally contemplated.*

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read it *in its entirety*. Do not rely on an executive summary. Do not read selected elements only. *Read this report in full.*

You Need to Inform Your Geotechnical Engineer about Change

Your geotechnical engineer considered unique, project-specific factors when designing the study behind this report and developing the confirmation-dependent recommendations the report conveys. A few typical factors include:

- the client's goals, objectives, budget, schedule, and risk-management preferences;
- the general nature of the structure involved, its size, configuration, and performance criteria;
- the structure's location and orientation on the site; and
- other planned or existing site improvements, such as retaining walls, access roads, parking lots, and underground utilities.

Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.*

This Report May Not Be Reliable

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, that it could be unwise to rely on a geotechnical-engineering report whose reliability may have been affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If your geotechnical engineer has not indicated an "apply-by" date on the report, ask what it should be*, and, in general, *if you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying it. A minor amount of additional testing or analysis – if any is required at all – could prevent major problems.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface through various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing were performed*. The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgment to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team from project start to project finish, so the individual can provide informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, *they are not final*, because the geotechnical engineer who developed them relied heavily on judgment and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* revealed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a full-time member of the design team, to:

- confer with other design-team members,
- help develop specifications,
- review pertinent elements of other design professionals' plans and specifications, and
- be on hand quickly whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction observation.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for informational purposes only*. To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report, but they may rely on the factual data relative to the specific times, locations, and depths/elevations referenced. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely*. Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures*. If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. As a general rule, *do not rely on an environmental report prepared for a different client, site, or project, or that is more than six months old.*

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, none of the engineer's services were designed, conducted, or intended to prevent uncontrolled migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration.*** Confront the risk of moisture infiltration by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are not building-envelope or mold specialists.***

GEOPROFESSIONAL BUSINESS ASSOCIATION

Telephone: 301/565-2733
e-mail: info@geoprofessional.org www.geoprofessional.org

APPENDIX 8

EROSION AND SEDIMENT CONTROL INSPECTION REPORT FORM(S)

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Daily Rainfall Log

Project Name: **TAXIWAY 'A' PAVEMENT REHABILITATION & LIGHTING PROJECT**

Project Location: **TROUP COUNTY – LAGRANGE CALLAWAY AIRPORT**

Month: _____ **Year:** _____

Type of Device Used to Measure Rainfall: _____

Device Location: _____

Daily Rainfall Monitoring Data

Date	Rainfall Amount, Inches	Time	Reported By

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B.M.P Inspection Report

Project: _____ Inspection Date: _____ Time: _____

Type of Inspection: Routine _____ Re-Inspection _____

Stage of Construction: BMP Installation/Clearing Grading Curb/Gutter Building Other _____

Weather/Soil Condition: Raining/Wet Light Rain/Medium Clear/Dry

Erosion Device Inspected	Status
Bf: Buffer Zone	Passed Failed Comment
Ds1: Soil Stabilization: mulch only 6" to 10"	Passed Failed Comment
Ds2: Soil Stabilization: (temp. seeding)	Passed Failed Comment
Ds3: Soil Stabilization: (permanent vegetation)	Passed Failed Comment
Ds4: Soil Stabilization: (soding)	Passed Failed Comment
Ga: Gablon	Passed Failed Comment
Du: Dust Control	Passed Failed Comment
Cd: Check Dams: rock/other	Passed Failed Comment
Cb: Channel Stabilization: (rip rap or vegetation)	Passed Failed Comment
Co: Construction Exit Pad	Passed Failed Comment
Mb: Geotextiles (matting Blanket)	Passed Failed Comment
Rd: Rock Filter Dam	Passed Failed Comment
Rt: Retrofit: Detention/Sediment Pond	Passed Failed Comment
Sd1: Sediment Barrier	Passed Failed Comment
Sd2: Inlet Sediment Trap	Passed Failed Comment
Sd3: Temporary Sediment Basin	Passed Failed Comment
Sr: Temporary Stream Crossing	Passed Failed Comment
St: Storm Drain Outlet Protection	Passed Failed Comment
Dn1: Temporary Down Drain Structure	Passed Failed Comment
Sb: Stream Bank Stabilization	Passed Failed Comment
Sd1-C: Silt Fence	Passed Failed Comment
Wt: Veg. Waterway or St/Water Conv. Channel	Passed Failed Comment
Tree Preservation Fencing	Passed Failed Comment
Trash	Passed Failed Comment

1. What action(s) was taken for any failed activities listed above? Verbal Notification:_____

Written Notification:_____ Stop Work Order:_____ Citation #:_____

2. What time frame was given to comply with the above violation: Days:____ Other:_____

3. Have any complaints or violations been issued on this project previously? Yes:_____ No:_____

4. If yes, explain violations/fines:_____

_____

5. Are there state waters present? Yes:_____ No:_____

6. Were all permits posted? Yes:_____ No:_____

7. Is an approved E&S plan on site? Yes:_____ No:_____

Comments:

Inspected By:_____

Site Inspection Report

Erosion and Sedimentation Inspection Report

Maintain Reports on-site

Site:	**Date:**	**Time:**
Inspector:	**Accompanied By:**	
Stage of Construction:		
Site:		
Observation:		
Recommendations:		
Contractors' Corrective Action (and Date):		
Site:		
Observation:		

Recommendations:
Contractors' Corrective Action (and Date):

Inspection Summary

Site:_____ **LDA No._____**

Map Site	Violation	First Date	Date Corrected

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Daily Inspection Report

Inspection performed by certified personnel each day construction activity occurs on-site

Project Information	
Date:	Project Name:
Project Location:	
Inspection Observations	
Rainfall within past 24 hours (inches):	Is rainfall greater than 0.5"? Inspection Required ☐
Inspection Observations	
Petroleum Product Storage Areas: Are all of the temporary and permanent controls contained in Plan in place? ☐ Yes ☐ No If no, describe the location(s) of deficiencies and corrective actions that must be taken.	
Vehicle Entrances and Exits: Is there tracking of sediment from locations where vehicles enter and leave the project? ☐ Yes ☐ No If yes, describe the location(s) and the corrective actions that must be taken.	
Other Observations	
Is an Erosion, Sedimentation and Pollution Control Plan revision required? ☐ Yes ☐ No Date of revision:	
Corrective Actions and Date:	

Signature of Certified Personnel

Printed Name of Certified Personnel

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Weekly Inspection Report

Inspection performed by certified personnel at least once every seven calendar days and within 24 hours of the end of a storm that is 0.5 inches or greater

Project Information	
Date:	Project Name:
Project Location:	
Name of Inspector:	
Inspection Event	
Regular weekly inspection: ☐	Inspection within 24 hours of 0.5" storm event ☐

Inspection Observations

Disturbed areas that have not undergone final stabilization:

Are all of the temporary and permanent controls contained in Plan in place and properly maintained? ☐ Yes ☐ No

If no, describe the location(s) of deficiencies and corrective actions that must be taken.

Corrective Action Taken and Date:

Material storage areas exposed to precipitation:

Are all of the temporary and permanent controls contained in Plan in place and properly maintained? ☐ Yes ☐ No

If no, describe the location(s) of deficiencies and corrective actions that must be taken.

Corrective Action Taken and Date:

Discharge locations or points.

Are erosion control measures preventing impacts to receiving waters? ☐ Yes ☐ No

If no, describe observations:

Structural control measures:

Are all of the temporary and permanent controls contained in Plan in place and properly maintained? ☐ Yes ☐ No

If no, describe the location(s) of deficiencies and corrective actions that must be taken.

Control Measures	Location	Deficiency	Date Corrected

Other Observations:

Is an Erosion, Sedimentation and Pollution Control Plan revision required? ☐ Yes ☐ No Date of revision:

Signature of Certified Personnel

Printed Name of Certified Personnel

Monthly Inspection Report
Inspection performed by certified personnel at least once per month

Project Information	
Date:	Project Name:
Project Location:	
Inspection Observations	
Rainfall within past 24 hours (inches):	Is rainfall greater than 0.5"? Inspection Required ☐
Inspection Observations	
Areas that have undergone final stabilization: Are all permanent stabilization controls contained in Plan in place? ☐ Yes ☐ No If no, describe the location(s) of deficiencies and corrective actions that must be taken.	
Other observations: Are pollutants entering the drainage system or receiving waters? ☐ Yes ☐ No If yes, describe the location(s) and the corrective actions that must be taken. Are all erosion and sediment control measures operating properly? ☐ Yes ☐ No If no, describe the location(s) and the corrective actions that must be taken.	
Other Observations	
Is an Erosion, Sedimentation and Pollution Control Plan revision required? ☐ Yes ☐ No Date of revision:	
Corrective Actions and Date:	

Signature of Certified Personnel

Printed Name of Certified Personnel

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Stormwater Monitoring Records

Month:_____ Year: _____ **Sheet ___ of___**

Submit to EPD by 15th of Following Month

Project Name: _____ **Project Location: _____**

Date Sampled	Rainfall Amount, Inches	Exact Location of Samples	Time Sampled	Sampling Technique Manual or Automatic Grab	Sampled By	Date of Analysis	Time of Analysis	Analyzed By	Analytical Method	Results (NTU)

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Storm Water Discharge Data

Site:_____ **LDA No._____**

Date	Rainfall (in.)	Location	Reading (NTU)	Comments

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APPENDIX 9

FAA AC 150/5345-53D AIRPORT LIGHTING EQUIPMENT CERTIFICATION PROGRAM DATED 9/26/2012

benesch

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U.S. Department
of Transportation

**Federal Aviation
Administration**

Advisory Circular

Subject: AIRPORT LIGHTING EQUIPMENT CERTIFICATION PROGRAM	**Date:** 9/26/2012 **Initiated by:** AAS-100	**AC No:** 150/5345-53D **Change:**

1. PURPOSE. This advisory circular (AC) describes the Airport Lighting Equipment Certification Program (ALECP). It provides information on how an organization can get Federal Aviation Administration (FAA) acceptance as a third party certification body (third party certifier) and how manufacturers may get equipment qualified under the program. It includes a list of the equipments that are certified under the program. This AC does not impose requirements or mandate participation in the ALECP by any party. This revision to the AC is intended to clarify the criteria that FAA will use to determine whether a certification body qualifies for participation and how equipment may be qualified.

2. CANCELLATION. AC 150/5345-53C, *Airport Lighting Equipment Certification Program*, dated September 30, 2005, is cancelled.

3. BACKGROUND. Until December 31, 1989, the FAA administered the Airport Lighting Approval Program under the Federal airport grant programs. Under this program the FAA inspected equipment to confirm that it met FAA standards and to ensure quality control. The program was discontinued as of December 31, 1989, as a result of declining FAA resources. The listing of equipment in AC 150/5345-1, *Approved Lighting Equipment*, was no longer maintained.

On January 1, 1990, a new program was established which named a commercial testing laboratory under the oversight of an Industry Technical Advisory Committee (ITAC), as the program certification body. On May 15, 1995, the FAA, realizing that there were additional commercial laboratories that may want to participate as certification bodies instituted and established ALECP. This program provided that any commercial laboratory meeting certain criteria may participate as a certification body and provided for FAA oversight and acceptance of certification bodies.

Under the ALECP, the FAA has established a list of accepted certification bodies. The certification bodies evaluate and certify airport lighting equipment and license suppliers to mark qualifying products. The FAA maintained a list of certified equipment as part of the AC Addendum. This list was provided to assist airport sponsors in discharging their duty to determine that equipment met the applicable FAA specifications, which is required for eligibility for funding under Federal grant assistance program for airports and to assist the general public in identifying equipment meeting FAA requirements specified in referenced Advisory Circulars.

This AC, as a continuing refinement of the ALECP, institutes and establishes a recertification requirement for the equipment under ALECP (Appendix 2) and a list of the type of equipment with their applicable ACs that are under this program (Appendix 3). The FAA maintains on the Internet lists of currently certified equipment, of manufacturers' addresses, and of third party certifiers that can be used.

4. PRINCIPAL CHANGES. The following changes have been incorporated:

a. Paragraph 5, Acceptance Criteria: Updated to replace ANSI Z34.1, Third Party Certification Programs for Products, Processes, and Services with ISO/IEC Guide 65/ISO 17065.

b. Paragraph 8, Letter of Acceptance -- Letter validity is changed from 2 to 4 years.

c. Appendix 2, Paragraph 5, a, iv -- Modification of minimum warranty statement:
...during a period of 1 year from date of installation or "at least" 2 years from the date of shipment...

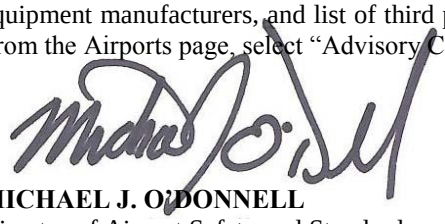
d. Appendix 2, Paragraph 5, c, ii, Recertification --The last sentence is deleted:
Interim limited testing associated with product modification or Advisory Circular revisions is not applicable toward recertification.

e. Appendix 2, Paragraph j, iv --Change:
... the third party certifier will obtain a production sample of the challenged product from the challenged manufacturer (either by purchase on the open market or by selection during a surprise visit).

f. Appendix 3 additions --
Add L-891, Frangible Support Structure (lower to service) (AC 150/5345-45)
Add L-892, Frangible Support Structure (lower to service) mounted on rigid steel tower (AC 150/5345-45)
Add L-893, Lighted Visual Aid to indicate runway closure (AC 150/5345-55)

g. Appendix 7 -- Add the following to the Certification Form (line 6) -- This Certificate is only confirmable in conjunction with equipment being listed in AC 150/5345-53, Appendix 3, Addendum, as currently published by the FAA.

5. INTERNET ACCESS. This AC, the latest certified equipment list, the address list of certified airport lighting equipment manufacturers, and list of third party certifiers are available on the Internet at: http://www.faa.gov/airports/. From the Airports page, select "Advisory Circulars," and continue to "AC 150/5345-53D Addendum."



MICHAEL J. O'DONNELL
Director of Airport Safety and Standards

AIRPORT LIGHTING EQUIPMENT CERTIFICATION PROGRAM

1. GENERAL. The FAA has established the Airport Lighting Equipment Certification Program (ALECP). Third party certification bodies found acceptable to the FAA implement this program. The program is primarily intended for equipment funded under the FAA airport grant program. The purpose of the program is to assist airport sponsors in discharging their duty to ensure that airport lighting equipment meets the applicable FAA standards for safety, performance, quality, and standardization.

2. COSTS. The program is funded entirely by fees paid by participating manufacturers. The fee schedule may be obtained from the third party certification body(s) listed in Appendix 1.

3. PROCEDURES. Manufacturers of lighting and visual aids equipment that desire to participate in the program may select any third party certification body from the list obtainable by direction in Appendix 1, Third Party Certification Bodies. An exclusive licensing agreement, as outlined in Appendix 2, paragraph 4, detailing the relationship between the manufacturer and the third party certification body and their respective responsibilities is then developed. A procedural guide as outlined in Appendix 2, paragraph 5, supplements the license agreement and describes the operational aspects of the program. The third party certification body under the procedures contained in Appendix 2, Third Party Certification Program and Procedures evaluates equipment. The manufacturer is issued a Certificate of Conformance by the third party certifier for each type of equipment that meets the applicable FAA standards. A copy of each Certificate of Conformance shall be submitted to the FAA by the third party certification body. On a monthly basis, the certified equipment will be added to Appendix 3 in the Addendum of this Advisory Circular, under the Internet home page for FAA Airports. Copies of this file may be obtained from the FAA Airport Engineering Division or from FAA Regional Airports and District/Field Offices (http://www.faa.gov/airports/news_information/contact_info/regional/).

4. THIRD PARTY CERTIFICATION BODY. In addition to administering the qualification program in accordance with this AC, a third party certification body must assure that the manufacturer provides and maintains a quality control system in accordance with FAA-STD-013, *Quality Control Program Requirements*, or suitable alternative, such as the ISO 9000 family of standards or Department of Defense quality standards. It must also assure that testing laboratories that perform qualification testing conform to the requirements of the International Organization for Standardization/ International Electrotechnical Commission (ISO/IEC) Guide 17025, "General Requirements for the Competence of Testing and Testing Laboratories."

5. ACCEPTANCE CRITERIA. An independent testing laboratory may become an FAA accepted third party certification body if it demonstrates conformance with the International Organization for Standardization (ISO) / International Electrotechnical Commission (IEC) Guide 65, General requirements for bodies operating product certification system/ISO 17065, and:

a. complies to FAA sponsored audit under the requirements of this AC;

b. demonstrates the ability and competency to perform required testing in the areas of electrical, mechanical, environmental, and photometry;

c. has been in operation as a third party certification body for a minimum of 3 years;

d. has a permanent assigned staff, knowledgeable in photometrics, if required for the scope of services offered and other disciplines related to testing and quality control;

e. is under the supervision of a professional (Bachelor of Science Degree in related field; i.e., engineering, physics, physical science, etc.) with a minimum 4 years of experience in interpreting testing standards/specifications, test methods; and evaluating test reports and quality assurance programs.

6. APPLICATION. To be listed as a third party certification body, the certification body must agree to undergo an assessment to determine if it qualifies. The FAA will provide application information upon request. Requests should be submitted to:

Federal Aviation Administration
Airport Engineering Division, AAS-100
800 Independence Ave., SW
Washington, DC 20591

The following information must be submitted with the application:

a. summary of background as a third party certification body;

b. documentation confirming the laboratory has competency in testing in related disciplines; (ANSI audit report, etc.);

c. resumes of permanent staff members who will be assigned to the certification program;

d. draft copy of procedural guide and licensing agreement for the Airport Lighting Equipment Certification Program. A schedule of fees does not have to be included in the licensing agreement.

7. INSPECTION OF FACILITIES. Each participating third party certification body must agree to make facilities and program records available to the auditing party (per paragraph 5) for an initial compliance audit, and scheduled audits thereafter with reports including compliance with this AC to be provided to FAA. The FAA reserves the right to accompany the auditing party during the visit to the third party certifier for review of its program. The FAA also reserves the right to accompany the third party certification body to a manufacturer's facility or testing laboratory to witness qualification tests, quality assurance audits, site production tests, or inspections.

8. LETTER OF ACCEPTANCE. If the FAA determines that the third party certification body conforms to all criteria, a letter of acceptance will be issued to that body and they will be listed as stated in Appendix 1. A letter of acceptance by the FAA is valid for a period of 4 years. A third party certification body that wishes to continue in the program shall reapply by resubmitting the information called for in paragraph 6 above, and demonstrate successful compliance of scheduled audit. However, should a third party certifier make any changes in their program prior to that time, the FAA is to be notified and changes approved before said changes are implemented. Any questions concerning this program or the operation of any of the accepted third party certification bodies should be sent to:

Federal Aviation Administration
Airport Engineering Division, AAS-100
800 Independence Ave., SW
Washington, DC 20591

9. THIRD PARTY CERTIFICATION PROGRAM. Manufacturers of airport lighting equipment may request to participate in a third party certification program, be licensed by the third party certifier, and use a Certificate of Conformance as evidence that the Qualifying Equipment has been evaluated, tested to and meets the provisions of Appendix 2 of FAA AC 150/5345-53 (current revision) "Third Party Certification Program and Procedures." Products certified in the Program are included in the list of FAA "Certified Airport Equipment" in Appendix 3 in the Addendum of AC 150/5345-53 published by the FAA. Manufacturers submitting products for qualification must have a representative in North America to provide aftermarket services to purchasers of the equipment.

Requirements of Appendix 2 "Third Party Certification Program and Procedures" include:

a. Procedural Guide. The Procedural Guide describes the operational aspects of the third party certification program, the relationship between third party certifier and manufacturer, and the equipment qualification procedures.

b. License Agreement. The licensing agreement details the relationship between the manufacturer and the third party certifier, and their respective responsibilities in the program. A schedule of fees for participation in the program, including at a minimum the yearly Administrative Services fee and fees for quality control review and witnessing of tests will be part of the agreement.

c. Equipment Qualification. Manufacturers' equipment qualification tests must be conducted in accordance with guidelines of Appendix 2, "Third Party Certification Program and Procedures."

d. Certificate of Conformance. The third party certifier will issue a Certificate of Conformance to a licensed manufacturer upon successful equipment qualification. The Certificate of Conformance must be representative of the sample shown in Appendix 7.

10. CHALLENGE PROCEDURE: INTER-PROGRAM MANUFACTURERS. In the event the performance and/or design of a certified manufacturer's product is challenged by a manufacturer licensed by another third party certification body, the process below will be followed. The third party certifiers and FAA will maintain the confidentiality of each manufacturer. The costs associated with the challenge process are the responsibility of the challenger, not the FAA or third party certifier (see Appendix 2, paragraph 5j. for procedure). Testing can be accomplished or witnessed by either third party certifier.

a. The challenging manufacturer must submit to their third body certifier supporting documentation--outlining details of the challenge including applicable test data. The documentation must specify the section(s) of the applicable specification being challenged.

b. The challenger's third party certifier will evaluate the documentation and applicable test data to determine if the documentation supports the challenge. If the third party certifier determines that the supporting documentation is not sufficient, that data supplied with support documentation requires retesting with a witness, or additional testing is required, the third party certifier will notify the challenger. Costs associated with further activities are the responsibility of the challenger.

c. The third party certifier must submit a documentation package to the FAA.

d. Within 10 business days of submission to the FAA, the FAA will notify the challenged manufacturer's third party certifier, and forward submitted documentation to the challenged manufacturer's third party certifier.

e. Within 60 business days of notice by the FAA, the challenged manufacturer's third party certifier must submit to the FAA verification that the challenged product has been determined to be in compliance with the requirements of the applicable Advisory Circular and any related provisions of this AC. Activities culminating in data associated with the challenge are coordinated between the challenged party and their third party certifier.

f. If the product is found to be non-compliant, notification to rescind the product certification and/or details of corrective action plan will be submitted by the challenged manufacturer's third party certifier to the FAA. The challenged manufacturer's third party certifier must contact the challenged manufacturer and direct appropriate changes be made to all applicable support documentation, advertising media, and websites

g. The FAA will forward disposition documentation to the challenger's third party certifier.

h. The challenger's third party certifier will notify the challenger only of the completion of the challenge. Details of the challenge disposition may not be revealed to any party other than the third party certifiers and the FAA.

11. CHALLENGE PROCEDURE: THIRD PARTY CERTIFICATION BODY. If the FAA receives documentation from a third party certification body to support that another third party certification body is not performing in accordance with the minimum criteria of this AC, the FAA will notify the challenged party and investigate the charges. If the challenge is upheld, and the third party certifier is not performing in accordance with the criteria set forth in this Advisory Circular, at the end of 30 days, the FAA reserves the right to withdraw the letter of acceptance.

12. REVISION OF SPECIFICATIONS. The FAA may, at times, revise the specification for a particular equipment to reflect changing needs of aviation or of new technology. The process of specification revision is intended to allow for constructive interaction between the FAA and other affected parties.

a. The process of specification revision is generally as follows:

i. The FAA distributes a draft revised Advisory Circular to allow for comment from third party certifiers, certified manufacturers, and selected users of the equipment.

ii. Once the FAA has received comments, either a meeting of affected parties is scheduled for discussion of comments or resolution will be by direct communication based on the changes requested.

iii. The FAA distributes a second draft to all parties and posts it on the Internet for general comment from the public. Certified manufacturers in the program are advised of the posting.

iv. Once the FAA has considered all comments, FAA releases the new revised equipment specification as a new revised Advisory Circular.

v. The Advisory Circular will contain an effective date, normally 6 months from date of issue, at which time the prior equipment certification automatically expires unless the manufacturer has been requalified to the revised specification. Manufacturers will be informed by the FAA by letter and supplied a copy of the revised specification.

b. If a manufacturer has a form of new airport lighting technology to be considered for inclusion in a particular Advisory Circular, the following process is to be followed:

i. The manufacturer must coordinate with a third party certification body to determine the level of compliance with the existing Advisory Circular.

ii. The manufacturer/third party certifier must submit to the FAA the proposal for inclusion of the new technology into the Advisory Circular, including a detailed explanation of proposed changes.

iii. If the FAA determines that a revision to the Advisory Circular is required, the process listed in paragraph 12a above will be followed.

13. WITHDRAWAL OF LETTER OF ACCEPTANCE. In the event the third party certification body does not meet the criteria of this Advisory Circular, the FAA reserves the right to withdraw the letter of acceptance. A third party certifier may reapply for reinstatement after 3 months.

14. LISTING OF CERTIFIED AIRPORT LIGHTING EQUIPMENT. A listing of equipment that has been certified by third party certification bodies will be published on a monthly basis by the FAA under the Internet home page for Airports as an Addendum file to this Advisory Circular. FAA will update Appendix 3 of the Addendum only upon notification from the third party certifier.

This AC, the latest certified equipment list (Appendix 3), the address list of certified airport lighting equipment manufacturers (Appendix 4), and the list of third party certifiers (Appendix 1) are available at Internet address: http://www.faa.gov/airports/. From the Airports page, select “Advisory Circulars” and continue to “AC 150/5345-53D Addendum.”

APPENDIX 1. THIRD PARTY CERTIFICATION BODIES.

The Third Party Certification Bodies (Third Party Certifiers) meeting the requirements contained in this Advisory Circular and accepted are listed in Appendix 1in the Addendum to the AC on the Internet (see prior paragraph 14).

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APPENDIX 2. THIRD PARTY CERTIFICATION PROGRAM AND PROCEDURES.

1. BASIS OF QUALIFICATION PROGRAM. The purpose of the qualification program is to provide airport operators with a list of equipment that meets the required standards for safety, performance, quality, and standardization. Manufacturers of lighting and visual aids equipment that desire to participate in the program may select any third party certification body from the list contained in Appendix 1 in the Addendum Third Party Certification Bodies. Manufacturers of airport lighting equipment may request to be approved by a third party certifier and use a Certificate of Conformance as evidence that the Qualifying Equipment has been tested to and meets the requirements of this Appendix, "Third Party Certification Program and Procedures." Products certified in the Program are included in the list of FAA "Certified Airport Equipment" in Appendix 3 in the Addendum of this AC.

2. THIRD PARTY CERTIFIER'S ROLE. A testing laboratory accepted by the Federal Aviation Administration (FAA) as a third party certification body as defined in this Advisory Circular evaluates and certifies airport lighting equipment for manufacturers. The third party certification body, under the procedures contained in the Procedural Guide, evaluates equipment. The manufacturer is issued a Certificate of Conformance by the third party certifier for each type of equipment that meets the applicable FAA standards. A copy of each Certificate of Conformance must be submitted to the FAA by the third party certification body. FAA accepts this Program, and products qualified under this Program will be subsequently listed as certified equipment in Appendix 3 in the Addendum of this AC. The third party certification body may also serve the function of a testing laboratory when necessary or when requested by the manufacturer.

3. PARTICIPANT'S ROLE. The manufacturer must certify to the third party certifier by notarized affidavit that the equipment initially and continuously meets all provisions of the applicable FAA Advisory Circular. Any manufacturer of airport lighting equipment may participate by satisfying all program requirements and signing an exclusive license agreement with a third party certifier and paying the appropriate schedule of fees. The program is funded entirely out of fees paid by the manufacturers. A principal feature of the program is that it is accepted by the Federal Aviation Administration as a means of meeting the FAA equipment certification requirements. Manufacturers are subject to a quality audit and twice yearly quality assurance inspections by the third party certifier. Manufacturers submitting products for qualification must have a representative in North America to provide aftermarket services to purchasers of the equipment.

4. LICENSE AGREEMENT. An exclusive licensing agreement details the relationship between the manufacturer and the third party certification body and their respective roles. It is the responsibility of each manufacturer/participant to conduct its business related to a certified product in a manner which is consistent with the pertinent FAA Advisory Circular and the provisions of the Procedural Guide and License Agreement for this certification program. The Procedural Guide supplements the License Agreement.

Prior to entering into a License Agreement with an equipment manufacturer and issuance of the Certificate of Conformance, an initial quality audit in accordance with FAA-STD-013, "Quality Control Program Requirements," or suitable alternative, of the manufacturer and all manufacturing facilities must be performed by the third party certifier.

a. Any manufacturer of airport lighting equipment within the scope of the FAA Advisory Circular 150/5345 series may participate by satisfying all program requirements, including demonstrating that equipment produced is eligible for qualification. Upon entering the program, an initial facility audit will be scheduled. The facility audit must include a review of the manufacturer's Quality Control Program.

b. Each manufacturing facility of the Licensee and/or Licensee's subcontractor must be licensed individually (except for multiple operations under the same control located in the same city or within 30 miles of each other), and equipment therefrom tested, inspected and certified separately and apart from equipment manufactured in other facilities or branches of any Licensee.

5. PROCEDURAL GUIDE. The Procedural Guide supplements the License Agreement, describes the operational aspects of the third party certification program, and details the manufacturer requirements and equipment qualification process.

a. Equipment Qualification Request. Only complete systems of airport lighting equipment conforming to all the requirements of the applicable Advisory Circular(s) may be certified. No individual components of these systems may be considered for certification. Request for equipment qualification shall be submitted in writing to a third party certifier listed in Appendix 1 of this Advisory Circular. At a minimum, this request must include the following:

i. A list of the types, classes, styles, and sizes of equipment, along with the manufacturer's catalog number(s) for which qualification certification is requested. Manufacturer's catalog numbers must be representative of specific equipment certified and not a series of equipment. A list of equipment options should also be included when so specified in individual equipment specifications.

ii. Engineering assembly and schematic drawings of the equipment to permit determination of adherence to specification design requirements.

iii. A copy of the proposed test procedures and test data sheets, and a statement as to whether the manufacturer proposes to conduct the tests at its own facility, or the name and location of a third party testing laboratory where the tests are to be conducted. Third party certifier may provide testing services for the manufacturer. Since the third party certifier reserves the right to witness any or all tests, the manufacturer should not commence the tests without authorization from the third party certification body. The third party certifier may conduct initial inspections and audits of any laboratories used for testing. The third party certifier may elect to witness or waive the option to witness the tests. In any instance, the third party certifier must verify that laboratories conducting testing conform to the requirements of International Organization for Standardization /International Electrotechnical Commission (ISO/IEC) Guide 17025 for applicable testing. The manufacturer must give the third party certifier at least a 2 week notice prior to starting tests.

iv. A statement that the manufacturer agrees to provide the following minimum warranty for the equipment:

"That the equipment has been manufactured and will perform in accordance with applicable specifications and that any defect in design, materials, (excluding lamps), or workmanship which may occur during proper and normal use during a period of 1 year from date of installation or at least 2 years from date of shipment will be corrected by repair or replacement by the manufacturers f.o.b. factory."

v. A statement that the manufacturer agrees to provide and maintain a quality control program in accordance with FAA-STD-013 or suitable alternative such as ISO 9000 family of standards or Department of Defense quality standards. The manufacturer should provide a copy of the proposed quality control program.

vi. A copy of the proposed instruction manual for the equipment and a copy of each product listed Product Description Sheet (i.e. marketing material).

vii. Lamp life test procedure, if applicable, in accordance with Appendix 5.

b. Review Procedure for Qualification Testing Request. After receipt by the third party certifier of the request for equipment qualification documentation, the manufacturer will be notified as to whether the proposed test procedures, test data sheets, and other documentation are acceptable. Notification of acceptance, or of changes required for acceptance, will be made to the manufacturer.

c. Tests. All equipment and each configuration of equipment (for example: size, type, class, style, wattage, color) offered for certification to the program will be subject to the required qualification tests of each applicable Advisory Circular before it can be certified.

i. **Qualification Tests.** The tests may be conducted at the third party certifier laboratory, or witnessed by the third party certifier at the manufacturer's laboratory or at a third party laboratory. All testing laboratories utilized must conform to the requirements of the ISO/IEC Guide 17025, "General Requirements for the Competence of Testing and Testing Laboratories." Where the third party certifier waives the option to witness tests, the manufacturer must submit a certified copy of all test reports. Only test data collected after contact with the third party certifier may be utilized toward certification of equipment. The manufacturer must bear all associated costs.

ii. **Recertification.** Each piece of equipment must be requalified to the applicable Advisory Circular in its entirety every 8 years, or as specified in the applicable AC.

iii. **Equipment Requirements.** The equipment must meet all of the design requirements described in the applicable Advisory Circular. The third party certifier may require additional testing of equipment and/or system components to demonstrate compliance to design requirements in areas where qualification testing does not address a specific requirement.

iv. **Modification To Equipment.** Once an equipment type has been certified, the manufacturer may not make any changes in the equipment without submission of the changes to and recertification by the third party certification body. Requests for design or component changes must be submitted in writing to the third party certification body and must be accompanied by supporting documentation plus (if applicable) copies of the revised instruction manual pages, which reflect the proposed change. The third party certifier will review the modification. If acceptable and required, it will issue a revised Certificate of Conformance. Substitution of stock electrical items such as resistors, capacitors, which are identical in form, fit, and function and which are equal or better in quality and rating is permissible. Although such substitution does not necessarily require recertification, the manufacturer must supply the third party certifier a list of the substituted items for filing with the inspection records. This exception does not apply to light sources.

v. **Substitution of Lamp/Light Sources**. Once an equipment type has been certified, only the lamp or light sources (for example: a light emitting diode (LED) array) subjected to all applicable specifications per the applicable Advisory Circular, and as referenced in conjunction with equipment listed in AC150/5345-53 Appendix 3 in the Addendum as currently published by the FAA, Lamp Descriptions, may be utilized. When a manufacturer chooses to utilize an alternative lamp or light source (i.e. different OEM, wattage, voltage amperage, type) in any fixture, complete photometry and chromaticity testing, and any other testing related to light source/lamp operation must be conducted successfully.

vi. **Production Tests.** In addition to qualification tests and equipment requirements, each equipment specification requires some tests to be conducted on production units. The manufacturer must demonstrate/document acceptable production testing processes to the third party certifier during initial and annual Quality Assurance Audits. Records of production test results must be traceable to equipment serial numbers or production lots when not serialized and retained for a minimum period of 3 years.

vii. **Lamp Life Tests.** Within 6 months of certification, lamp life tests, if applicable, shall be conducted in accordance with the procedures contained in Appendix 5, Lamp Life Test Procedure.

d. Requirements for Certification. The manufacturer must be a licensee to have its equipment certified in the program. The equipment must successfully pass all qualification tests described in the applicable Advisory Circular. If a manufacturer has no product certified for a period of 180 days, or does not produce any certified product for a period of 180 days, that manufacturer may not be a licensee.

e. Product Acceptance. Prior to issuance of the Certificate of Conformance, the following documentation is required for review:

i. The written test report(s) covering all required testing and design verification.

ii. Within 6 months of certification, lamp life test procedure, if applicable, in accordance with Appendix 5.

iii. Required documentation as listed in paragraph 5a of Appendix 2.

iv. Each certified product's Listed Products Description Sheet (marketing material). Reference to "FAA" approval or certification is unacceptable. Reference to non-certified product characteristics or components must be denoted clearly as such.

After the last submittal of the required documentation, if acceptable, the manufacturer will be notified that the equipment is certifiable. The Certificate of Conformance is then issued. A complete file, containing all supporting documentation, must be maintained by the third party certifier for every certified product.

f. Quality Control. After the manufacturer has entered the program, inspections and audits will be conducted on a semi-annual basis at each manufacturing facility.

i. Quality Assurance Audit. Prior to licensing, and once annually thereafter, the manufacturing facility will be subjected to an in-depth Quality Audit. At a minimum, the audit must evaluate the following:

- Management Commitment Organization Documentation of the quality System
- Control of Procured Material
- Manufacturing Quality Controls
- Final Inspection and Testing
- Equipment Calibration and Maintenance
- Control of Non-conforming Material
- Corrective Action Program
- Handling, Packaging and Storage
- Product Identification
- Periodic Product Qualification
- Collection and Analysis of Field Performance Data

ii. Inspections. Production of certified equipment is audited annually to verify that the product is the same as the sample subjected to the qualification tests. It is intended that samples of all certified equipment produced in a given year be inspected.

a) The inspections may be scheduled or unannounced, at the option of the third party certifier.

b) Production test records must be made available for review for compliance to applicable FAA Advisory Circulars, and production testing may be witnessed by the third party certifier.

c) If equipment is not being produced during the inspection, production test records and test data will be reviewed.

d) After verbal review of findings with a designated representative of the manufacturer, a formal report documenting the inspection will be made by the third party certifier to the manufacturer detailing the status of certification and identifying any actions that are required to correct any deficiencies.

e) Nonconformance to specifications found during these inspections will result in suspension of the model, as certified, unless corrections are made. Additional inspections or testing may be necessary to resolve any suspension or withdrawal of certification.

g. Revision of Specifications. The FAA may, at times, revise the specification for a particular equipment to reflect changing needs of aviation or of new technology. The procedure for requalification of currently qualified equipment is the same as for the original qualification as discussed in Appendix 2, paragraph 5 with the following exceptions:

i. The manufacturer does not have to resubmit the quality control plan unless changed.

ii. Depending on the nature of an Advisory Circular revision, it may not be necessary to perform all qualification tests. The manufacturer must submit an action plan to the third party certifier, which will in turn complete an engineering review to determine the extent of testing required complying with the revised Advisory Circular.

h. Certificate of Conformance. The manufacturer must have a Certificate of Conformance (see Appendix 7) issued by the third party certifier verifying the acceptance of the equipment by the program. Optional labeling and/or other markings may be utilized, but is not recognized as proof of certification. The certification will be subject to the condition that it may be rescinded if:

i. The manufacturer fails to provide the required documentation.

ii. The manufacturer fails to honor the warranty or does not maintain quality control in accordance with the approved plan.

iii. The equipment has an unsatisfactory failure rate. Since reliable equipment is of prime importance to safety of airport operations, equipment that proves unreliable in use (as determined by the FAA) may be removed from the certified listing. The determination of unreliability will be based on judgment and experience with equipment of a like nature. Where any such equipment is deemed to have an unsatisfactory failure rate or is deficient in workmanship or materials, the FAA will notify the manufacturer in writing. The manufacturer must then notify the FAA in writing within 15 working days as to its plan of action for correcting the problem. If the manufacturer does not resolve the problem within a reasonable time (the time frame will, of necessity, be based on safety considerations and/or the nature of the problem), the manufacturer and third party certifier will be notified and the equipment will be removed from the certified listing. The FAA reserves the right to require the equipment to be subjected to any or all qualification tests when the equipment has been deemed unreliable.

iv. The manufacturer fails to perform the required production tests.

v. Changes are made in the equipment without approval from the third party certifier.

vi. The equipment specification is canceled or is revised and the manufacturer fails to requalify.

vii. The manufacturer is found not in conformance with the quality control requirements of paragraph 5f in this appendix or other program and licensing requirements.

viii. The equipment does not comply with the requirements for recertification (Appendix 2, paragraph 5c(ii)).

ix. The equipment is determined to be non-compliant as a result of a manufacturer challenge.

The third party certifier must notify the manufacturer and the FAA within 24 hours of any suspension or withdrawal of equipment. Non-conformance to FAA specifications found during inspection visits may result in suspension of the equipment model as certified unless corrections are made to the satisfaction of the third party certifier. Corrective action must be taken by the manufacturer. Manufacturers are given 15 working days to advise the third party certifier of corrective action to be taken, including a schedule for any necessary retesting and/or inspections. Corrective action schedules may not be longer than 30 days.

i. Infractions. It is the responsibility of each manufacturer to conduct its business related to the program in a manner which is consistent with the pertinent FAA Advisory Circular(s) and the provisions of the Program Procedural Guide and License Agreement.

Appropriate sanctions may be imposed by the third party certifier if it is determined that a manufacturer within their program is manufacturing/marketing a product in a manner inconsistent with the program requirements. Penalties will be proportional to the offense or infraction.

j. Challenge Procedure - Intra-Program Manufacturer. In the event the performance and/or design of a certified manufacturer's product is challenged by a maufacturer licensed by the same third party certifier, the process below must be followed. The confidentiality of each manufacturer must be maintained by the third party certifier at all times. The challenged manufacturer's equipment will remain on the Certified Airport Lighting Equipment list while the challenge is underway.

i. The challenger must submit in writing by certified mail to the third party certifier supporting documentation outlining details of the challenge and applicable test data. The documentation must specify the section(s) of the particular specification being challenged.

ii. The third party certifier will estimate the full cost of testing and or audits that will be required to verify the challenge and invoice the challenger for that amount.

iii. The challenger must then agree to accept the challenge costs or discontinue the challenge.

iv. Within 30 days of the challenger's acceptance of costs, the third party certifier will obtain a production sample of the challenged product from the challenged manufacturer (either by purchase on the open market or by selection during a surprise visit). The third party certifier will then perform testing and/or audits within 15 days of procurement as necessary to confirm or deny the challenge.

v. An initial determination will be made by the third party certifier whether each challenged characteristic is controlled in manufacturing solely by the design of the product or by control of variation in the maufacturing process. Testing or auditing will be performed only on the challenged characteristics of the challenged model. Non-conformance found by test or audit will constitute challenge confirmation. If the challenge is confirmed, then the challenge applies to all other models from the manufacturer sharing the same design characteristics.

vi. If the characteristic is controlled solely by design, testing of a randomly acquired unit should be sufficient to confirm or deny the challenge.

vii. If the characteristic is also controlled by process (i.e., by adjustments, set up, technique, methods) an audit at the maufacturer's facility will be performed.

viii. After a challenge confirmation (test or audit failure), the third party certifier must notify the challenged party and the challenger within 24 hours. A challenged product may not be shipped until corrective action and/or a retest is completed.

ix. Upon failure of tests, the challenged party is given 15 days working days to correct the discrepancy and submit the product for retest. The third party certifier will use the means necessary (e.g., testing and auditing) to assure that the subsequent modifications by the manufacturerer to meet FAA specification did not adversely affect any other performance characteristics, and that tests, inspections, and/or procedures are in practice at the challenged manufacturer's facility to assure 100% product conformance to specifications.

x. Upon failure of an audit, the challenged party, within the same 15 day period, must submit a detailed auditable test/inspection plan to control the characteristics. The third party certifier will increase the frequency of facility visits to assure conformance to approved plan.

xi. If no redesigned product is submitted within the 15 day period, or the resubmitted product fails any test, or no acceptable test/inspection plan (if required) is submitted within the 15 day period, then the product will be removed from the Certified Equipment List until full qualification tests are performed on the resubmitted product. The FAA, challenger, and challenged manufacturer are notified by the third party certifier.

xii. Equipment utilized in the challenge becomes the property of the third party certifier and will be destroyed 90 days after completion of the challenge process.

xiii. The full costs of the challenge procedure must be paid by the challenger or the challenged manufacturer. If the challenge is found to have merit, the challenged party pays all costs plus any costs for

requalification testing and/or follow up facility audits. If the challenge is without merit, the challenger pays all costs associated with the challenge.

k. Appeals Procedure. A manufacturer who is affected by an adverse determination by their third party certifier with respect to its certified equipment or its participation in the program may appeal the determination to the third party certification body per the guidelines detailed in the third party certifier's procedural guide.

l. Forms. The use and function of forms to be used in administering the program shall be addressed in the third party certifier's procedural guide. The Certificate of Conformance must follow the sample shown in Appendix 7.

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APPENDIX 3. CERTIFIED AIRPORT LIGHTING EQUIPMENT.

NOTICE TO USERS

This appendix provides a list of the current equipment under the certification program. The specification for each type of equipment listed below in this document is contained in the AC given. The equipment specification defines the type, class, and style classifications used in the listing. Not all combinations of type, class, and style are permissible. The equipment specification should be consulted for approved equipment configurations.

An addendum to this appendix listing all current certified equipment with the manufacturer is updated monthly. It is available on the Internet at http://www.faa.gov/airports/ under "Advisory Circulars" in the file titled "150/5345-53 Addendum". This addendum can also be obtained from the Office of Airport Safety and Standards, Attention: AAS-100, Federal Aviation administration, 800 Independence Ave., SW, Washington, DC or from FAA Regional Airports and District/Field Offices:

http://www.faa.gov/airports/news_information/contact_info/regional/

Users should consult equipment manufacturers' catalogs or literature for complete ordering. For each fixture listed in the addendum, the number in parentheses ( ) after the manufacturer's catalog number indicates the specific lamp type used in testing the equipment. A description of each lamp used is provided in the addendum.

For latest approved equipment specification go to the Internet address list above for ACs.

L-801 Beacons, Medium Intensity (AC 150/5345-12)

L-802 Beacons, High Intensity (AC 150/5345-12)

L-804 Light, Holding Position Edge (AC 150/5345-46)

L-806 Wind Cones, Frangible (AC 150/5345-27)

L-807 Wind Cones, Rigid (AC 150/5345-27)

L-810 Lights, Obstruction (AC 150/5345-43)

L-821 Panel, Airport Lighting Control (AC 150/5345-3)

L-823 Connectors, Cable (AC 150/5345-26)

L-824 Underground Electrical Cable for Airport Lighting Circuits (AC 150/5345-7)

L-827 Monitors, Regulator (AC 150/5345-10)

L-828 Regulators, Constant Current (AC 150/5345-10)

L-829 Regulators, Monitored Constant Current (AC 150/5345-10)

L-830 Isolation Transformers, 60Hz (AC 150/5345-47)

L-831 Isolation Transformers, 50Hz (AC 150/5345-47)

L-841 Cabinet, Auxiliary Relay (AC 150/5345-13)

L-847 Switch, Circuit Selector (AC 150/5345-5)

L-849 Lights, Runway End Identification (AC 150/5345-51)

L-850 Lights, Runway, Inpavement (AC 150/5345-46)

L-852 Lights, Taxiway, Inpavement (AC 150/5345-46)

L-853 Markers, Retroreflective (AC 150/5345-39)

L-854 Radio Controls (AC 150/5345-49)

L-856 Lights, Obstruction, High Intensity, White, 40 FPM (AC 150/5345-43)

L-857 Lights, Obstruction, High Intensity, White, 60 FPM (AC 150/5345-43)

L-858 Signs, Runway and Taxiway (AC 150/5345-44)

L-859 Lights, Flashing, Omnidirectional (AC 150/5345-51)

L-860 Lights, Runway Edge, Low Intensity (AC 150/5345-46)

L-861 Lights, Runway & Taxiway Edge, Medium Intensity (AC 150/5345-46)

L-862 Lights, Runway Edge, High Intensity (AC 150/5345-46)

L-863 Lights, Portable Runway (AC 150/5345-50)

L-864 Lights, Obstruction, Red, 20-40 FPM (AC 150/5345-43)

L-865 Lights, Obstruction, Medium Intensity, White, 40 FPM (AC 150/5345-43)

L-866 Lights, Obstruction, Medium Intensity, White, 60 FPM (AC 150/5345-43)

L-867 Light Base, Non-Load Bearing (AC 150/5345-42)

L-868 Light Base, Load Bearing (AC 150/5345-42)

L-880 Precision Approach Path Indicator (AC 150-5345-28)

L-881 Abbreviated Precision Approach Path Indicator (AC 150/5345-28)

L-882 Generic Visual Approach Descent Indicator (AC 150/5345-52)

L-883 Generic Visual Approach Descent Indicator (AC 150/5345-52)

L-884 Power and Control Unit for Land and Hold Short Lighting Systems (AC 150/5345-54)

L-885 Lights, Obstruction (AC 150/5345-43)

L-890 Airport Lighting Control and Monitoring Systems (AC 150/5345-56)

L-891 Frangible Support Structure (lower to service) (AC 150/5345-45)

L-892 Frangible Support Structure (lower to service) mounted on a rigid steel tower (AC 150/5345-45)

L-893 Lighted Visual Aid to indicate runway closure (AC 150/5345-55)

APPENDIX 4. ADDRESS LIST OF CERTIFIED AIRPORT LIGHTING EQUIPMENT MANUFACTURERS.

An addendum to this appendix, listing all current certified equipment manufacturer's addresses, is updated monthly. The addendum is available on the Internet at http://www.faa.gov/airports/ under "Advisory Circulars" in the file titled "150/5345-53C Addendum." The addendum can also be obtained from the Office of Airport Safety and Standards, Attention: AAS-100, Federal Aviation administration, 800 Independence Ave., SW, Washington, DC 20591, or from FAA Regional Airports and District/Field Offices (http://www.faa.gov/airports/news_information/contact_info/regional/).

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APPENDIX 5. LAMP LIFE TEST PROCEDURE.

1. PURPOSE. This appendix specifies a test method for establishing lamp life for airport lighting fixtures. This procedure shall be accomplished on each new fixture, design or on any design change which will affect lamp life.

2. SCOPE. This procedure shall be performed on all lamps having a specified lamp useful life of 8,750 hours or less.

3. DEFINITIONS. The following terms are defined for the purpose of this procedure:

a. RATED LAMP LIFE. The mean life of the lamp while installed and operated in a lighting fixture as established by test and calculation described in this procedure.

b. LAMP USEFUL LIFE. The portion of the lamp operating characteristic where the photometric output of the lamp operating in the fixture is within specification requirements.

c. LAMP OPERATING TIME. The time that electrical service to the lighting system is on and contacts to lamp circuits are closed.

d. ACCELERATED TESTING. The testing technique used to compress the time to operate a lamp to end of useful life while under test. A correlation between performance of the lamp under normal operating conditions and the conditions for accelerated testing must be established. Note: Accelerated testing cannot be performed on tungsten halogen lamps***, or any other current controlled lamp***.

4. CONDITIONAL CERTIFICATION OF EQUIPMENT. Equipment submitted for qualification testing prior to completion of lamp life tests may be given a conditional certification if the following conditions have been met:

a. The lighting fixture manufacturer has submitted its written procedure for conducting the lamp life tests in accordance with paragraph 5 below.

b. A schedule for conducting the tests has been established.

c. The procedure has been reviewed and approved by a third party certification body.

If a conditional certification has been given for a piece of equipment and it subsequently does not pass the lamp life tests, the certification will be rescinded.

5. TEST SPECIFICATION. The test procedure is divided into two parts: normal and accelerated testing. Although normal testing is preferred, accelerated testing is acceptable under special circumstances. When accelerated testing is performed, the test shall be backed up with a normal test as soon as practical. Accelerated test reports shall include a schedule indicating when normal testing will be completed. Normal testing may be waived by the third party certifier if a correlation, verified by test, exists.

The lighting fixture manufacturer shall use the most conservative lamp designer's life rating, derated by 15 percent, in determining lamp life. No credit shall be given for any techniques or devices used to extend lamp life. Lamp life shall be quoted as "Lamp life estimated" during this period.

a. Normal Testing.

(1) The test shall consist of a minimum of 10 randomly selected lamps installed in the fixture for which life data is being established. If additional lamps are to be tested, the tests shall be performed in multiples of 10 lamps.

(2) Lamps shall be installed in the fixture and tested in the configuration which simulates the actual "as installed" condition of the light system (e.g., in-pavement lights should be tested with the lamp fixture installed on the smallest base can which in turn is buried in a non-heat absorbing medium, such as sand).

(3) Where lighting system power conditioning equipment is located remote from lamp units in the field, cabling between lamp and system components shall be shortest allowed by design.

(4) A light system shall be operated at highest lamp manufacturer rated voltage or current using approved regulators or a current supply having one percent regulation. The duty cycle shall consist of 20 hours lamp operating time and 4 hours deenergized. A voltage controlled system shall be operated from a supply having three percent regulation.

(5) Testing shall continue until 90 percent of all lamps have reached the end of useful life.

(6) Tests shall be performed in a controlled environment at an ambient temperature between 60 and 80 degrees Fahrenheit.

(7) Electrical service voltage and current; lamp voltage and current; and for discharge type lights, pulse train wave shape and frequency shall be randomly recorded using calibrated instruments during the test period to verify that control circuits are functioning and that input energy is maintained within tolerance. As a minimum, these parameters shall be checked twice a week.

(8) A daily log shall be maintained at the test site. The log shall record lamp condition (e.g., whether the photometric output of the lamp exceeds minimum specification requirements), date, time, comments, and person performing the check.

(9) The pulse train wave shapes shall be monitored regularly during the duty cycle for discharge type lamps. Out-of-tolerance condition shall be logged. As a minimum, the following shall be monitored for out of tolerance conditions:

(a) Pulse train wave shape.

(b) Pulse train frequency.

(c) Voltage or current to lamp circuits.

b. Accelerated Testing.

(1) Accelerated testing shall be conducted in acordance with the applicable IES guideline on voltage controlled lamps only. Accelerated testing may be performed when normal testing is estimated to exceed 180 calendar days or to provide a basis for estimating lamp life on short notice, such as when evaluating new designs. Under no circumstances should accelerated testing reduce the normal test time by more than 1/3 of the normal test time based on lamp manufacturer life estimates. All accelerated tests shall be followed by normal testing in accordance with paragraph 5a to establish a correlation between accelerated and normal test rated lamp life test results.

(2) Accelerated tests shall follow the procedure described in paragraph 5a with the exception that the appropriate parameters are increased so that the estimated test time is reduced as specified above.

(3) In addition to the documentation requirements defined below, the testing authority should provide the rationale for selecting the parameters for the accelerated tests. Lamp vendor data shall form the basis for the rationale.

6. ANALYSIS OF DATA.

a. Form a list of the 90 percent of the lamps which have reached the end of lamp useful life. The list should include lamp number and lamp operating time as calculated below. This information should be arranged in ascending order of lamp operating time.

b. Lamp operating time is calculated by multiplying the number of full days that the lamp was operating by 20 (hours).

c. Delete the lamps with the 10 percent lowest lamp operating times from the calculations below.

d. Calculate the mean and standard deviation for the 80 percent of the lamps remaining on the list.

e. If the standard deviation is greater than 50 percent of the mean, delete the lamps with the 10 percent highest and 10 percent lowest lamp operating times from the table. Recalculate the mean and standard deviation for the remaining 60 percent of the lamps on the list.

f. Lamp life is the mean calculated above, rounded to the nearest 50 hours.

7. DOCUMENTATION. A test report documenting the test results and containing a copy of' the calculations shall be prepared. As a minimum, the report shall include the information listed below.

a. A drawing or sketch of the test setup indicating installation of the test fixture(s), instrumentation, and a block diagram indicating all electrical interconnections. This drawing shall be of sufficient detail so that an independent laboratory may perform the test and replicate the test results.

b. A calculation sheet indicating number of days each lamp operated, lamp operating hours, and data used in calculating the mean and standard deviation.

c. Copy of all wave shapes recorded in paragraph 5a(9) with calibration markings.

d. A description of all malfunctions which occurred during the test period including type of malfunction, date of occurrence, corrective action taken, and quality assurance concurrence on resolution.

e. A summary of the pulse train out-of-tolerance conditions shall be included. The summary shall list specific type of out-of-tolerance condition, number of times occurred, and frequency of occurrence.

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APPENDIX 6. PROCEDURAL GUIDE OUTLINE.

1. SCOPE.

- **a.** Basis of Program
- **b.** Certifier's Role
- **c.** Manufacturer's Role
- **d.** FAA Role

2. LICENSE AGREEMENTS.

- **a.** License Agreement
- **b.** Fee schedule
- **c.** Certification Affidavit

3. EQUIPMENT QUALIFICATION PROCEDURES.

Use procedures in Appendix 2 as a guide.

4. SEMIANNUAL INSPECTIONS.

- **a.** Timing of Inspections
- **b.** Production Records
- **c.** Inspection Review Report
- **d.** Corrective Action
- **e.** FAA Notification

5. QUALITY CONTROL.

- **a.** Quality Assurance
- **b.** Quality Assurance Audit
- **c.** Inspections

6. PRODUCTION TESTING.

7. CHALLENGE PROCEDURE.

- **a.** Written Challenge
- **b.** Documentation
- **c.** Costs
- **d.** Sample Product
- **e.** Testing
- **f.** Corrective Action
- **g.** Payment

8. APPEALS PROCEDURE.

9. USE AND FUNCTION OF FORMS.

10. FORMS

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APPENDIX 7. SAMPLE CERTIFICATION.

PROGRAM ADMINISTRATOR

REVISION DATE: _____
(This is date of revised certificate if issued)

ORIGINAL ISSUE DATE: _____
(This date is the date certificate is issued)

(Name and address of Third party certifier)

_____
_____
_____

RECERTIFICATION DUE Date:_____
(Eight years from earliest test report data referenced below in 2(A), or as specified in AC)

AIRPORT LIGHTING EQUIPMENT CERTIFICATION PROGRAM

CERTIFICATION OF CONFORMANCE

Name and Address of Manufacturer
_____
_____
_____

The product described below is hereby approved for listing in the next issue of the Federal Aviation Administration (FAA) Advisory Circular (AC) 150/5345-53, Appendix 3 Addendum, Airport Lighting Equipment Certification Program. The approval is based on successful completion of tests in accordance with the specifications listed in and the requirements for approval described in the AC 150/5345-xx and the reporting to the Program Administrator the results of such tests, accompanied by related documents by (third party certifier) recognized testing laboratory. This Certificate is only confirmable in conjunction with equipment being listed in AC 150/5345-53 Appendix 3 Addendum as currently published by the FAA. The certification is not valid for a product modified with non-OEM replacement parts or non-production components.

_____

L-type – EQUIPMENT NAME
(AC 150/5345-xx)

Mfgr's (column heading/data as detailed per L-type AC in AC 150/5345-53 and Appendix 3 listing in the Addendum)

List lamp used in ( ) after part number. If not listed, indicate lamp designation (number, watts, description designation, volts, amps, as appropriate) and manufacturer

1. This equipment requires continuing validation in accordance with the requirements of AC 150/5345-53.

2. Product tested and report issued by:

(A) Report No.:_____(all applicable test reports issued)_____

(B) Date of Report:___(issue date of report each listed in 2(A))_____

APPROVED FOR CERTIFICATION:

BY: Certifier's Signature_____

Certifier's Typed Name_____

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APPENDIX 9

FAA AC 150/5345-53D AIRPORT LIGHTING EQUIPMENT CERTIFICATION PROGRAM, NOVEMBER 2024 ADDENDUM

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APPENDIX 1. THIRD PARTY CERTIFICATION BODIES.

The following Third Party Certification Bodies (Third Party Certifiers) have met the requirements contained in ADVISORY CIRCULAR 150/5345-53D, AIRPORT LIGHTING EQUIPMENT CERTIFICATION PROGRAM, dated 9/26/12 and have been accepted as Third Party Certifiers under the Airport Lighting Equipment Certification Program.

Intertek Testing Services
(Formerly ETL Testing Laboratories, Inc.
3933 U.S. Route 11
Cortland, New York 13045
(607) 753-6711 or (800) 345-3851

Elite Electronic Engineering, Inc.
1516 Centre Circle Downers
Grove, Illinois 60515
(630) 495-9770

THIS LISTING CONTAINS A COMPLETE UPDATE OF THE CERTIFIED EQUIPMENT AND MANUFACTURERS LISTS, ADDENDUM TO APPENDIX 3 AND APPENDIX 4, OF ADVISORY CIRCULAR 150/5345-53D, AIRPORTING LIGHTING EQUIPMENT CERTIFICATION PROGRAM, DATED 09/26/12. EQUIPMENT NOT LISTED HERE, BUT LISTED IN PRIOR ADDENDUMS TO THE ADVISORY CIRCULAR HAVE BEEN DELETED.

Users should consult equipment manufacturers' catalogs or literature for complete ordering. For each lighting fixture listed in the addendum, the number in parentheses () after the manufacturer's catalog number indicates the specific lamp used in certification of the equipment. The (L), in parentheses (), the last letter after the L-number designation indicated a LED lamp required for the listed manufacturer part numbers.

MFG	FAA type	CLASS	STYLE	MODE	SIZE	RATING	CAT NO.
L-801 Medium Intensity Beacons (FAA AC 150/5345-12F)							
HALI-BRITE INC.	L-801A	1					L801A1116 (410)
HALI-BRITE INC.	L-801A	2					L801A1216 (410)
HALI-BRITE INC.	L-801H	1					L801H7116 (410)
HALI-BRITE INC.	L-801H	2					L801H7216 (410)
HALI-BRITE INC.	L-801A(L)	1					L801AL116 (919)(920)
HALI-BRITE INC.	L-801A(L)	2					L801AL216 (919)(920)
HALI-BRITE INC.	L-801H(L)	1					L801HL116 (921)(922)(923)
HALI-BRITE INC.	L-801H(L)	2					L801HL216 (921)(922)(923)
HUGHEY & PHILLIPS, LLC	L-801A(L)	2					AB-1000 LED (1014) (1015)
L-802 High Intensity Beacons (FAA AC 150/5345-12F)							
HALI-BRITE INC.	L-802A	1					L802A6116 (208); L802A6125 (208)
HALI-BRITE INC.	L-802A	2					L802A6216 (208); L802A6225 (208)
HALI-BRITE INC.	L-802H	1					L801H7116 (410)
HALI-BRITE INC.	L-802H	2					L801H7216 (410)
HALI-BRITE INC.	L-802A(L)	1					L802AL116 (917)(918)
HALI-BRITE INC.	L-802A(L)	2					L802AL216 (917)(918)
HALI-BRITE INC.	L-802M	1					L802M6116 (629)
HALI-BRITE INC.	L-802M	2					L802M6216 (629)
L-804 Runway Guard Lights (FAA AC 150/5345-46E)							
ADB SAFEGATE AMERICAS, LLC	L-804(L)			1			ERGL-1111X(599); ERGL-3111X (599)
ADB SAFEGATE AMERICAS, LLC	L-804 (L)			2			ERGL-5112X(599); ERGL-6112X (599)
AIRPORT LIGHTING COMPANY	L-804(L)			1			RGL-C-X-S-X(518)
AIRPORT LIGHTING COMPANY	L-804(L)			2			RGL-V1-X-S-X(518);RGL-V2-X-S-X(518)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-804 (L)			1			804E-AP1-066-X
Hughey & Phillips, LLC	L-804(L)			1			L804-L-X-1-1-0(669)
L-806/L-807 Wind Cones (FAA AC 150/5345-27E)							
HALI-BRITE INC.	L-806 (L)		IB		1		L806-S1-IN-120-ON-5 (601); L806-S1-IN-66A-ON-5 (602); L-806-S1-IN-12-ON-5 (954)
HALI-BRITE INC.	L-806(L)		IA		1		L806-S1-EX-120-ON-5 (427); L806-S1-EX-66A-ON-5 (429); L806-S1-EX-12-ON-5 (428)
HALI-BRITE INC.	L-806		II		1		L806-S1-UN-NON-ON-N
HALI-BRITE INC.	L-807(L)		IB		2		L-807-S2-IN-66A-ON-3(423); L-807-S2-IN-120-ON-5(443); L807-S2-IN-12-ON-5 (955)
HALI-BRITE INC.	L-807(L)		IA		1		L-807-S1-EX-120-ON-5(427); L-807-S1-EX-12-ON-5(428); L-807-S1-EX-66A-ON-5(429)
HALI-BRITE INC.	L-807(L)		IA		2		L-807-S2-EX-120-ON-5(430); L-807-S2-EX-12-ON-5(431); L-807-S2-EX-66A-ON-5(432)
HALI-BRITE INC.	L-807(L)		IB		1		L-807-S1-IN-120-ON-5(601); L-807-S1-IN-66A-ON-5(602); L807-S2-IN-12-ON-5 (954)
HALI-BRITE INC.	L-807		II		1		L-807-S1-UN-NON-ON-N
HALI-BRITE INC.	L-807		II		2		L-807-S2-UN-NON-ON-N
L-810 Red Obstruction Light (FAA AC 150/5345-43J)							
AVLITE (a brand of SPX Aids to Navigation Pty Ltd)	L-810(L)						AV-OL-LI-DC-04 (1003)
DIALIGHT CORPORATION	L-810(L)		Double Unit				D6CB55-SYS (897); D6CB77-SYS (898); D6CE77-SYS (898); D6CG77-SYS (898)
DIALIGHT CORPORATION	L-810(L)		Double Unit				RTOCR28002(897); RTOCR27002(898);
DIALIGHT CORPORATION	L-810(L)(F)		Double Unit				D6CB55-SYS (897):D6CB77-SYS (898);D6CE77-SYS (898); D6CG77-SYS (898)
DIALIGHT CORPORATION	L-810(L)		Single Unit				D6CB55-SYS (897); D6CB77-SYS (898); D6CE77-SYS (898); D6CG77-SYS (898)
DIALIGHT CORPORATION	L-810(L)		Single Unit				RTOCR27001(898); RTOCR27004(898); RTOCR28001(897); RTOCR28004(897)
DIALIGHT CORPORATION	L-810(L)(F)		Single Unit				D6CB55-SYS (897); D6CB77-SYS (898); D6CE77-SYS (898); D6CG77-SYS (898)
Flash (a brand of SPX Aids to Navigation, LLC)	L-810(L); L-810(L)(F)		Single Unit				FTS 371 AC (894) FTS 371 DC 24V (894) FTS 371 DC 48V (894)
Flash (a brand of SPX Aids to Navigation, LLC)	L-810(L); L-810(L)(F)		Double Unit				FTS 371 AC (894) FTS 371 DC 24V (894) FTS 371 DC 48V (894)
Flash (a brand of SPX Aids to Navigation, LLC)	L-810(L); L-810(L)(F)		Single Unit				FTS 371 SMART AC (894) FTS 371 SMART DC 24V (894) FTS 371 SMART DC (-)24V (894) FTS 371 SMART DC 48V (894) FTS 371 SMART DC (-)48V (894)
Flash (a brand of SPX Aids to Navigation, LLC)	L-810(L); L-810(L)(F)		Double Unit				FTS 371 SMART AC (894) FTS 371 SMART DC 24V (894) FTS 371 SMART DC (-)24V (894) FTS 371 SMART DC 48V (894) FTS 371 SMART DC (-)48V (894)
Flash (a brand of SPX Aids to Navigation, LLC)	L-810(L)(F)		Single Unit				FTS 370d (894)
Flash (a brand of SPX Aids to Navigation, LLC)	L-810(L)(F)		Double Unit				FTS 370d (894)
Flash (a brand of SPX Aids to Navigation, LLC)	L-810(L)		Single Unit				MKR 372 (894)
Flash (a brand of SPX Aids to Navigation, LLC)	L-810(L)		Double Unit				MKR 372 (894)
Flash (a brand of SPX Aids to Navigation, LLC)	L-810(L)		Single Unit				MKR 372 (894)
Flash (a brand of SPX Aids to Navigation, LLC)	L-810(L)		Double Unit				MKR 372 (894)
FLIGHT LIGHT INC.	L-810(L)		Single Unit				FL-810NV-R-XXX-S-10B(944); FL-810LNV-R-XXX-S-10S(944)
FLIGHT LIGHT INC.	L-810(L)		Double Unit				FL-810NV-R-XXX-D-10B(944); FL-810LNV-R-XXX-D-10S(944)
FLIGHT LIGHT INC.	L-810		Single Unit				FL-810-R-AC1-S-10B (32B); FL-810-R-AC1-D-34B(32B)
FLIGHT LIGHT INC.	L-810		Double Unit				FL-810-R-AC1-D-10B (32B); FL-810-R-AC1-S-34B(32B)
INTERNATIONAL TOWER LIGHTING, LLC	L-810(L)		Single				ILS-1900-0IR-A0(910)
INTERNATIONAL TOWER LIGHTING, LLC	L-810F(L)		Single				ILS-1900-0IR (910)
ITL (a brand of SPX Aids to Navigation, LLC)	L-810(L)		SIngle Unit				MKR-LTG1-0IR(910)
ITL (a brand of SPX Aids to Navigation, LLC)	L-810(L)		Double Unit				MKR-LTG2-0IR (910)
ITL (a brand of SPX Aids to Navigation, LLC)	L-810(L)		Double Unit				MKR-LTG2-0IR-FB (910)
ITL (a brand of SPX Aids to Navigation, LLC)	L-810F(L)		Single Unit				ILS-3600-0IR (910)
ITL (a brand of SPX Aids to Navigation, LLC)	L-810F(L)		Double Unit				ILS-3600-0IR (910)
OBSTA	L-810(L)(F)		Single Unit				113969IR (915)
POINT LIGHTING CORPORATION	L-810(L)		Single Unit				POL-21006-1F-R-10B-S2 (912) POL-21006-1F-R-34B-S2 (912) POL-21006-3F-R-10B-S2 (1002) POL-21006-3F-R-34B-S2 (1002)
POINT LIGHTING CORPORATION	L-810(L)		Double Unit				POL-21006-1F-R-10B-DXX (912)
QUANTEC NETWORKS GMBH	L-810(L)		Single				16814 (976)
QUANTEC NETWORKS GMBH	L-810(F)(L)						16813 (976); 16821 (976)
Technostrobe	L-810(L);						ECPS-BASE-KIT4(E101)
TWR Lighting Inc.	L-810(L)(F)						STAR (975)
UNIMAR INC	L-810(L)(F)		Double Unit				U429C-x (898)
AIRSAFE AIRPORT EQUIPMENT CO LTD	L-850(L)		3				RCLZ-08-LED-XX-XP-X (1016) (1017)
L-821 Airport Lighting Control Panel (FAA AC 150/5345-3G)							
ADB SAFEGATE AMERICAS, LLC	III	W	3	1			44A7675/XXXXX2-XX0
ADB SAFEGATE AMERICAS, LLC	I	F, S, W	1	1			L-821
AIRPORT LIGHTING COMPANY	I	F,S,W	1	1			CMS-M-x
AIRPORT LIGHTING COMPANY	III	F,S,W	3	1			CMS-P-x
CONTROLLED POWER INC.	I	F, S, W	1	1			RLP-10; RLP-20: RLP-30; RLP-40; RLP-50; RLP-60; RLP-70; RLP-80
RURAL ELECTRIC INC.	III	F, S, W	3	1			L-821-III
RURAL ELECTRIC INC.	I	F, S, W	1	1			L-821

MFG	FAA type	CLASS	STYLE	MODE	SIZE	RATING	CAT NO.
L-823 Cable Connectors (FAA AC 150/5345-26D)							
ABB INSTALLATION PRODUCTS, INC.	I	B	3, 10				52SUPER-I-XXX-XXX
ABB INSTALLATION PRODUCTS, INC.	II	B	4, 11				90PX-X; 90RX-X
ABB INSTALLATION PRODUCTS, INC.	I	A	2				54MPN-X; 54MPPN-X
ABB INSTALLATION PRODUCTS, INC.	I	A	9				54MRN-X; 54MRRN-X
ABB INSTALLATION PRODUCTS, INC.	I	A	2, 9				54MPRN-X
ABB INSTALLATION PRODUCTS, INC.	II	A	1				95MPX-X
ABB INSTALLATION PRODUCTS, INC.	II	A	1, 7				96MPR7R7X-X; 96MPPR7X-X
ABB INSTALLATION PRODUCTS, INC.	II	A	1, 8				98MPPR8X-X
ABB INSTALLATION PRODUCTS, INC.	II	A	6				95MP6X-X
ABB INSTALLATION PRODUCTS, INC.	II	A	7				95MR7X-X
ABB INSTALLATION PRODUCTS, INC.	II	A	8				95MR8X-X
ABB INSTALLATION PRODUCTS, INC.	II	B	5, 12				91PX-X; 91RX-X
ABB INSTALLATION PRODUCTS, INC.	I	B	3, 10				54XXXX
ABB INSTALLATION PRODUCTS, INC.	I	B	3, 10				54Super XX-XX
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	I	A	2				FMC-1-P(N)T-XX-XX
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	I	A	9				FMC-1-R(N)T-XX-XX
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	II	A	1				FMC-2-P(N)T-XX-XX
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	II	A	8				FMC-2-R(N)T-XX-XX
ADB SAFEGATE AMERICAS, LLC	II	A	1				73A0107-XX
ADB SAFEGATE AMERICAS, LLC	II	A	6				73A0136-XX
ADB SAFEGATE AMERICAS, LLC	II	A	8				73A0190
ADB SAFEGATE AMERICAS, LLC	I	A	2				73A0169
ADB SAFEGATE AMERICAS, LLC	I	A	9				73A0170
ADB SAFEGATE AMERICAS, LLC	II	A	8				AS00262-xxx
ADB SAFEGATE BV	I	B	3,10				PRKXXX000000
Bildal Electricals Pvt Ltd	II	A	7				BE20R
Bildal Electricals Pvt Ltd	I	A	2,9				BE10P;BE10R
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	II	A	6				21121; 21122; 40919-X
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	II	A	6				K3326992
EFLA OY	I	B	3				KDL1; KDL10
EFLA OY	I	B	10				KDL1; KDL10
EFLA OY	I	B	3, 10				KD510; KD510.1; KD510.2; KD510.3; KD510.4; KD510.5; KD510.6
EFLA OY	I	B	3, 10				KD500; KD500.1; KD500.2; KD500.3; KD500.4; KD500.5; KD500.6
EFLA OY	I	B	3, 10				KD510; KD510.1; KD510.2; KD510.3; KD510.4; KD510.5; KD510.6
EFLA OY	I	B	3, 10				KD500; KD500.1; KD500.2; KD500.3; KD500.4; KD500.5; KD500.6
EFLA OY	II	B	5				KD501; KD501.X
EFLA OY	II	B	12				KD502; KD502.X
EFLA OY	II	B	4				KD503; KD503.X
EFLA OY	II	B	11				KD503R; KD503R.X
EFLA OY	I	A	2				KDCP510.XX
EFLA OY	I	A	9				KDCP510.XX
EFLA OY	II	A	1				KDC501.X.XX
EFLA OY	II	A	7				KDC502.X.XX
EFLA OY	II	A	1				KDC503.X.XX
EFLA OY	II	A	7				KDC503R.X.XX
EFLA OY	II	A	6				KDC506.X.XX
EFLA OY	II	A	8				KDC508.X.XX
MONROE INTEGRO, LLC.	II	B	4				11254-11; 11254-12; 11254-21; 11254-22
MONROE INTEGRO, LLC.	II	B	5				11432-31; 11432-32; 11432-41; 11432-42
MONROE INTEGRO, LLC.	II	B	11				11255-11; 11255-12; 11255-21; 11255-22
MONROE INTEGRO, LLC.	II	B	12				11433-31; 11433-32; 11433-41; 11433-42
MONROE INTEGRO, LLC.	I	B	3,10				11174-01; 11174-02; 11174-04; 11174-05
MONROE INTEGRO, LLC.	I	B	3,10				11805-01; 11805-02; 11805-04; 11805-05
MONROE INTEGRO, LLC.	II	A	1				10518-01-XXX; 10518-14-XXX;10518-16-XXX; 10518-17-XXX; 10518-19-XXX
MONROE INTEGRO, LLC.	II	A	7				10519-07-YYY; 10519-08-YYY; 10519-10-YYY
MONROE INTEGRO, LLC.	I	A	2				10949-02-YYY
MONROE INTEGRO, LLC.	II	A	8				10875-05-YYY
MONROE INTEGRO, LLC.	I	A	9				10950-02-YYY
MONROE INTEGRO, LLC.	II	A	8				10875-06-YYY
MONROE INTEGRO, LLC.	II	A	6				11155-01-XXX; 11155-03-XXX
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	II	A	6				FMC-2-P(N)F-02-06
L-824 Underground Electrical Cable for Airport Lighting Circuits (FAA AC 150/5345-7F)							
Advanced Digital Cable Inc.	L-824C					5kV	308-ALC; 306-ALC; 304-ALC
CONDUCTORES MONTERREY, S.A. de C.V./ViAKON	L-824C					5000V	AIR5KV8; AIR5KV6; AIR5KV4
CONDUCTORES MONTERREY, S.A. de C.V./ViAKON	L-824C					5000V	AIR5KVS8; AIR5KVS6
KUKDONG ELECTRIC WIRE CO., LTD A NEXANS COMPANY	L-824C					5000V	5KV FR-TX 1x8AWG FAA-L-824 C (BT); 5KV FR-TX 1x8AWG FAA-L-824 C (CT); 5KV FR-TX 1x8AWG FAA-L-824 C (CB); 5KV UW-FR-TX 1x8AWG FAA-L-824 C (CB)
KUKDONG ELECTRIC WIRE CO., LTD A NEXANS COMPANY	L-824B					5000V	5KV FR-PP 1x8AWG FAA-L-824 B (BT); 5KV FR-PP 1x8AWG FAA-L-824 B (CT); NEXANS 5KV UW-FR-PP 1x8AWG FAA-L-824 B (CB)
NEHRING ELECTRICAL WORKS COMPANY	L-824C					600V	8-7/W SD AIR 600V; 6-7/W SD AIR 600V; 4-7/W SD AIR 600V
NEHRING ELECTRICAL WORKS COMPANY	L-824C					5000V	8-7/W SD AIR 5000V; 6-7/W SD AIR 5000V; 4-7/W SD AIR 5000V
NEHRING ELECTRICAL WORKS COMPANY	L-824C					5000V	8-19/W SD AIR 5000V; 6-19/W SD AIR 5000V; 4-19/W SD AIR 5000V
PRYSMIAN POWER CABLES AND SYSTEMS USA, LLC	L-824C					5000V	389171; 393000; 393001; 393002; 393003; 393004; 393005; 393006; 393007; 393010; 389172; 393018; 393012; 393013; 393014; 393015; 393016; 393017; 389181; 393020; 393021; 393008; 393009; 393011; 393019; 393022; 393023; 393024; 393025; 393026; 393027; 393028; 393029;393030; 393031; 393032; 393033; 393034; 393035; 393036; 393037; 393038; 393039; 393040; 393041;393042; 393043; 393044; 393045; 393046; 393047; 393048; 393049; 393050; 393051; 393052; 393053; 393054; 393055; 393056; 393057; 393058; 393059
PRYSMIAN POWER CABLES AND SYSTEMS USA, LLC	L-824B					5000V	388270; 388270-XX; 388271; 388271-XX; 388150; 388150-XX 388278; 388278-XX; 388785; 388785-XX; 388287; 388287-XX
PRYSMIAN POWER CABLES AND SYSTEMS USA, LLC	L-824C					5000V	389171; 389171-XX; 389172; 389172-XX; 389181; 389181-XX 389201; 389201-XX; 389202; 389202-XX; 389203; 389203-XX 389221; 389221-XX; 389222; 389222-XX; 389223; 389223-XX
PRYSMIAN POWER CABLES AND SYSTEMS USA, LLC	L-824C					5000V	EXT SEMI-CON/XLPE 389431; EXT SEMI-CON/XLPE 389432, EXT SEMI-CON/XLPE 389433; EXT SEMI-CON/XLPE 389434; EXT SEMI-CON/XLPE 389435; EXT SEMI-CON/XLPE 389436; EXT SEMI-CON/XLPE 389437; EXT SEMI-CON/XLPE 389438; EXT SEMI-CON/XLPE 389439; EXT SEMI-CON/XLPE 389440; EXT SEMI-CON/XLPE 389441; EXT SEMI-CON/XLPE 389442; EXT SEMI-CON/XLPE 389443; EXT SEMI-CON/XLPE 389444; EXT SEMI-CON/XLPE 389445; EXT SEMI-CON/XLPE 389446; EXT SEMI-CON/XLPE 389447; EXT SEMI-CON/XLPE 389448; EXT SEMI-CON/XLPE 389449; EXT SEMI-CON/XLPE 389450; EXT SEMI-CON/XLPE 389451; EXT SEMI-CON/XLPE 389452; EXT SEMI-CON/XLPE 389453; EXT SEMI-CON/XLPE 389454; EXT SEMI-CON/XLPE 389455; EXT SEMI-CON/XLPE 389456; EXT SEMI-CON/XLPE 389457; EXT SEMI-CON/XLPE 389458; EXT SEMI-CON/XLPE 389459, EXT SEMI-CON/XLPE 389460

MFG	FAA type	CLASS	STYLE	MODE	SIZE	RATING	CAT NO.
PRYSMIAN POWER CABLES AND SYSTEMS USA, LLC	L-824C					5000V	EXT SEMI-CON/XLPE 389461; EXT SEMI-CON/XLPE 389462, EXT SEMI-CON/XLPE 389463; EXT SEMI-CON/XLPE 389464; EXT SEMI-CON/XLPE 389465; EXT SEMI-CON/XLPE 389466; EXT SEMI-CON/XLPE 389467; EXT SEMI-CON/XLPE 389468; EXT SEMI-CON/XLPE 389469; EXT SEMI-CON/XLPE 389470; EXT SEMI-CON/XLPE 389471; EXT SEMI-CON/XLPE 389472; EXT SEMI-CON/XLPE 389473; EXT SEMI-CON/XLPE 389474; EXT SEMI-CON/XLPE 389475; EXT SEMI-CON/XLPE 389476; EXT SEMI-CON/XLPE 389477; EXT SEMI-CON/XLPE 389478; EXT SEMI-CON/XLPE 389479; EXT SEMI-CON/XLPE 389480
SERVICE WIRE CO.	L-824C					600V	USE8; USE6, USE4, USEVW8, USEVW6, USEVW4
SERVICIOS CONDUMEX S.A. DE C.V.	L-824C					5000V	VULCANEL 2000; VULCANEL 2000 shielded
SERVICIOS CONDUMEX S.A. DE C.V.	L-824B					600V	Flexanel
SOUTHWIRE CO.	L-824C					5000V	14723; 14724; 14726
THE OKONITE COMPANY	L-824B					5000V	114-24-2425; 114-24-2426; 114-24-2427; 114-24-2412;
UNIKA UNIVERSAL KABLO SANAYI VE TIC A.S.	L-824B					600V	T5ARAE; T5ARAR
UNIKA UNIVERSAL KABLO SANAYI VE TIC A.S.	L-824C					600V	TAXAY
UNIKA UNIVERSAL KABLO SANAYI VE TIC A.S.	L-824C					5000V	TEXYBAP; KEXYBAP; TEXYPAP; KEXYPAP TEXYBAY; KEXYBAY;TEXYPAY; KEXYPAY
UNIKA UNIVERSAL KABLO SANAYI VE TIC A.S.	L-824C					5000V	KEXYATP
UNIKA UNIVERSAL KABLO SANAYI VE TIC A.S.	L-824B					5kV	KERYBAE
UNIKA UNIVERSAL KABLO SANAYI VE TIC A.S.	L-824C					5000V	KEXAAAP; TEXAAAP
UNIKA UNIVERSAL KABLO SANAYI VE TIC A.S.	L-824C					600V	TAXAP
UNTEL KABLOLARI SAN VE TIC A.S.	L-824C					600 V	UNT AGL Type C Secondary Power Cable
UNTEL KABLOLARI SAN VE TIC A.S.	L-824B					5 kV	UNT AGL Brass Power Flex
UNTEL KABLOLARI SAN VE TIC A.S.	L-824B					5 kV	UNT AGL Copper Power Flex
UNTEL KABLOLARI SAN VE TIC A.S.	L-824B					600 V	UNT AGL Secondary Power Flex
UNTEL KABLOLARI SAN VE TIC A.S.	L-824B					5 kV	UNT AGL Unscreened Power Flex
UNTEL KABLOLARI SAN VE TIC A.S.	L-824B					5kV	UNT AGL BRAIDING POWER FLEX-B
UNTEL KABLOLARI SAN VE TIC A.S.	L-824C					5kV	UNT AGL BRAIDING POWER-C
UNTEL KABLOLARI SAN VE TIC A.S.	L-824C					5000V	UNT-AGL UNSCREENED POWER C PRIMARY CABLE; UNT-AGL COPPER POWER PRIMARY CABLE; UNT-AGL BRASS POWER PRIMARY CABLE
L-827 Constant Current Regulator Monitors (FAA AC 150/5345-10H)							
ADB SAFEGATE AMERICAS, LLC	L-827						ACE2™ 44A6602-XXXX20;ACE2™ 44A6505-X0; ACE2™ 44A6507-21X0
ADB SAFEGATE AMERICAS, LLC	L-827						ACE3-CXXXDXX10001
L-828 Constant Current Regulators (FAA AC 150/5345-10H)							
ADB SAFEGATE AMERICAS, LLC	L-828	2	2			20kW	CRF2020X5X0AXX0
ADB SAFEGATE AMERICAS, LLC	L-828	2	2			25kW	CRF2025X5X0AXX0
ADB SAFEGATE AMERICAS, LLC	L-828	2	2			30kW	CRF2030X5X0AXX0
ADB SAFEGATE AMERICAS, LLC	L-828	1	1,2			2.5kW	CRF6602XXX0AXX0
ADB SAFEGATE AMERICAS, LLC	L-828	1	1,2			4kW	CRF6604XXX0AXX0
ADB SAFEGATE AMERICAS, LLC	L-828	1	1,2			5kW	CRF6605XXX0AXX0
ADB SAFEGATE AMERICAS, LLC	L-828	1	1,2			7.5kW	CRF6607XXX0AXX0
ADB SAFEGATE AMERICAS, LLC	L-828	1	1,2			10kW	CRF6610XXX0AXX0
ADB SAFEGATE AMERICAS, LLC	L-828	1,2	1,2			15kW	CRFXX15XXX0AXX0
ADB SAFEGATE AMERICAS, LLC	L-828	1,2	1,2			20kW	CRFXX20NXX0AXX0
ADB SAFEGATE AMERICAS, LLC	L-828	1,2	1,2			25kW	CRFXX25NXX0AXX0
ADB SAFEGATE AMERICAS, LLC	L-828	1,2	1,2			30kW	CRFXX30NXX0AXX0
ADB SAFEGATE AMERICAS, LLC	L-828	1	1,2			4kW	CRT6604XXX0AXX0
ADB SAFEGATE AMERICAS, LLC	L-828	1	1,2			7.5kW	CRT6607XXX0AXX0
ADB SAFEGATE AMERICAS, LLC	L-828	1	1,2			10kW	CRT6610XXX0AXX0
ADB SAFEGATE AMERICAS, LLC	L-828	1	1,2			15kW	CRT6615XXX0AXX0
ADB SAFEGATE AMERICAS, LLC	L-828	1	1,2			20kW	CRT6620NXX0AXX0
ADB SAFEGATE AMERICAS, LLC	L-828	1	1,2			30kW	CRT6630NXX0AXX0
ADB SAFEGATE AMERICAS, LLC	L-828	1	1, 2			2.5 kW	CSF6602-X100; CSF6602-X200; CSF6602-X300; CSF6602-X400; CSF6602-X500; CSF6602-XB00
ADB SAFEGATE AMERICAS, LLC	L-828	1	1, 2			4 kW	CSF6604-X100; CSF6604-X200; CSF6604-X300; CSF6604-X400; CSF6604-X500; CSF6604-XB00
ADB SAFEGATE AMERICAS, LLC	L-828	1	1, 2			5 kW	CSF6605-X100; CSF6605-X200; CSF6605-X300; CSF6605-X400; CSF6605-X500; CSF6605-XB00
ADB SAFEGATE AMERICAS, LLC	L-828	1	1, 2			7.5 kW	CSF6607-X100; CSF6607-X200; CSF6607-X300; CSF6607-X400; CSF6607-X500; CSF6607-XB00
ADB SAFEGATE AMERICAS, LLC	L-828	1	1, 2			10 kW	CSF6610-X100; CSF6610-X200; CSF6610-X300; CSF6610-X400; CSF6610-X500; CSF6610-XB00
ADB SAFEGATE AMERICAS, LLC	L-828	1, 2	1, 2			15 kW	CSFXX15-X100; CSFXX15-X200; CSFXX15-X300; CSFXX15-X400; CSFXX15-X500; CSFXX15-XB00
ADB SAFEGATE AMERICAS, LLC	L-828	1, 2	1, 2			20 kW	CSFXX20-X100; CSFXX20-X200; CSFXX20-X300; CSFXX20-X400; CSFXX20-X500; CSFXX20-XB00
ADB SAFEGATE AMERICAS, LLC	L-828	1, 2	1, 2			25 kW	CSFXX25-X100; CSFXX25-X200; CSFXX25-X300; CSFXX25-X400; CSFXX25-X500; CSFXX25-XB00
ADB SAFEGATE AMERICAS, LLC	L-828	1, 2	1, 2			30 kW	CSFXX30-X100; CSFXX30-X200; CSFXX30-X300; CSFXX30-X400; CSFXX30-X500; CSFXX30-XB00
ADB SAFEGATE AMERICAS, LLC	L-828	2	2			50 kW	CHF2050-5300; CHF2050-5310; CHF2050-5320; CHF2050-5360
ADB SAFEGATE AMERICAS, LLC	L-828	2	2			70 kW	CHF2070-5300; CHF2070-5310; CHF2070-5320; CHF2070-5360
ADB SAFEGATE AMERICAS, LLC	L-828	2	2			50 kW	PHF2050-5300; PHF2050-5310; PHF2050-5320; PHF2050-5360
ADB SAFEGATE AMERICAS, LLC	L-828	2	2			70 kW	PHF2070-5300; PHF2070-5310; PHF2070-5320; PHF2070-5360
ADB SAFEGATE AMERICAS, LLC	L-828	2	2			50 kW	PHSF2050-5300; PHSF2050-5310; PHSF2050-5320; PHSF2050-5360
ADB SAFEGATE AMERICAS, LLC	L-828	2	2			70 kW	PHSF2070-5300; PHSF2070-5310; PHSF2070-5320; PHSF2070-5360
ADB SAFEGATE AMERICAS, LLC	L-828	1	1, 2			2.5 kW	PSF6602-X100; PSF6602-X200; PSF6602-X300; PSF6602-X400; PSF6602-X500; PSF6602-XB00
ADB SAFEGATE AMERICAS, LLC	L-828	1	1, 2			4 kW	PSF6604-X100; PSF6604-X200; PSF6604-X300; PSF6604-X400; PSF6604-X500; PSF6604-XB00
ADB SAFEGATE AMERICAS, LLC	L-828	1	1, 2			5 kW	PSF6605-X100; PSF6605-X200; PSF6605-X300; PSF6605-X400; PSF6605-X500; PSF6605-XB00
ADB SAFEGATE AMERICAS, LLC	L-828	1	1, 2			7.5 kW	PSF6607-X100; PSF6607-X200; PSF6607-X300; PSF6607-X400; PSF6607-X500; PSF6607-XB00
ADB SAFEGATE AMERICAS, LLC	L-828	1	1, 2			10 kW	PSF6610-X100; PSF6610-X200; PSF6610-X300; PSF6610-X400; PSF6610-X500; PSF6610-XB00
ADB SAFEGATE AMERICAS, LLC	L-828	1, 2	1, 2			15 kW	PSFXX15-X100; PSFXX15-X200; PSFXX15-X300; PSFXX15-X400; PSFXX15-X500; PSFXX15-XB00
ADB SAFEGATE AMERICAS, LLC	L-828	1, 2	1, 2			20 kW	PSFXX20-X100; PSFXX20-X200; PSFXX20-X300; PSFXX20-X400; PSFXX20-X500; PSFXX20-XB00
ADB SAFEGATE AMERICAS, LLC	L-828	1, 2	1, 2			25 kW	PSFXX25-X100; PSFXX25-X200; PSFXX25-X300; PSFXX25-X400; PSFXX25-X500; PSFXX25-XB00
ADB SAFEGATE AMERICAS, LLC	L-828	1, 2	1, 2			30 kW	PSFXX30-X100; PSFXX30-X200; PSFXX30-X300; PSFXX30-X400; PSFXX30-X500; PSFXX30-XB00
ADB SAFEGATE AMERICAS, LLC	L-828	1	1, 2			2.5 kW	PSSF6602-X100; PSSF6602-X200; PSSF6602-X300; PSSF6602-X400; PSSF6602-X500; PSSF6602-XB00
ADB SAFEGATE AMERICAS, LLC	L-828	1	1, 2			4 kW	PSSF6604-X100; PSSF6604-X200; PSSF6604-X300; PSSF6604-X400; PSSF6604-X500; PSSF6604-XB00
ADB SAFEGATE AMERICAS, LLC	L-828	1	1, 2			5 kW	PSSF6605-X100; PSSF6605-X200; PSSF6605-X300; PSSF6605-X400; PSSF6605-X500; PSSF6605-XB0
ADB SAFEGATE AMERICAS, LLC	L-828	1	1, 2			7.5 kW	PSSF6607-X100; PSSF6607-X200; PSSF6607-X300; PSSF6607-X400; PSSF6607-X500; PSSF6607-XB00
ADB SAFEGATE AMERICAS, LLC	L-828	1	1, 2			10 kW	PSSF6610-X100; PSSF6610-X200; PSSF6610-X300; PSSF6610-X400; PSSF6610-X500; PSSF6610-XB00
ADB SAFEGATE AMERICAS, LLC	L-828	1, 2	1, 2			15 kW	PSSFXX15-X100; PSSFXX15-X200; PSSFXX15-X300; PSSFXX15-X400; PSSFXX15-X500; PSSFXX15-XB00

MFG	FAA type	CLASS	STYLE	MODE	SIZE	RATING	CAT NO.
ADB SAFEGATE AMERICAS, LLC	L-828	1, 2	1, 2			20 kW	PSSFXX20-X100; PSSFXX20-X200; PSSFXX20-X300; PSSFXX20-X400; PSSFXX20-X500; PSSFXX20-XB00
ADB SAFEGATE AMERICAS, LLC	L-828	1, 2	1, 2			25 kW	PSSFXX25-X100; PSSFXX25-X200; PSSFXX25-X300; PSSFXX25-X400; PSSFXX25-X500; PSSFXX25-XB00
ADB SAFEGATE AMERICAS, LLC	L-828	1, 2	1, 2			30 kW	PSSFXX30-X100; PSSFXX30-X200; PSSFXX30-X300; PSSFXX30-X400; PSSFXX30-X500; PSSFXX30-XB00
ADB SAFEGATE AMERICAS, LLC	L-828	1	1,2			4 kW	CCT6604-XX00; CCT6604-XX60
ADB SAFEGATE AMERICAS, LLC	L-828	1	1,2			5 kW	CCT6605-XX00; CCT6605-XX60
ADB SAFEGATE AMERICAS, LLC	L-828	1	1,2			7.5 kW	CCT6607-XX00; CCT6607-XX60
ADB SAFEGATE AMERICAS, LLC	L-828	1	1,2			10 kW	CCT6610-XX00; CCT6610-XX60
ADB SAFEGATE AMERICAS, LLC	L-828	1	1,2			15 kW	CCT6615-XX00; CCT6615-XX60
ADB SAFEGATE AMERICAS, LLC	L-828	1	1,2			20 kW	CCT6620-XX00; CCT6620-XX60
ADB SAFEGATE AMERICAS, LLC	L-828	1	1,2			25 kW	CCT6625-XX00; CCT6625-XX60
ADB SAFEGATE AMERICAS, LLC	L-828	1	1,2			30 kW	CCT6630-XX00; CCT6630-XX60
AIRPORT LIGHTING COMPANY	L-828	1,2	1,2			1	FR828-1XXXX
AIRPORT LIGHTING COMPANY	L-828	1,2	1,2			2	FR828-2XXXX
AIRPORT LIGHTING COMPANY	L-828	1,2	1,2			4	FR828-4XXXX
AIRPORT LIGHTING COMPANY	L-828	1,2	1,2			5	FR828-5XXXX
AIRPORT LIGHTING COMPANY	L-828	1,2	1,2			7.5	FR828-7XXXX
AIRPORT LIGHTING COMPANY	L-828	1,2	1,2			10	FR828-10XXXX
AIRPORT LIGHTING COMPANY	L-828	1,2	1,2			15	FR828-15XXXX
AIRPORT LIGHTING COMPANY	L-828	1,2	1,2			20	FR828-20XXXX
AIRPORT LIGHTING COMPANY	L-828	1,2	1,2			25	FR828-25XXXX
AIRPORT LIGHTING COMPANY	L-828	1,2	1,2			30	FR828-30XXXX
AIRPORT LIGHTING COMPANY	L-828	1	1,2			1 kW	SRA828-1A3XX-XX;SRA828-1A4XX-XX
AIRPORT LIGHTING COMPANY	L-828	1	1,2			2 kW	SRA828-2A3XX-XX;SRA828-2A4XX-XX
AIRPORT LIGHTING COMPANY	L-828	1	1,2			4 kW	SRA828-4A3XX-XX; SRA828-4A4XX-XX
AIRPORT LIGHTING COMPANY	L-828	1	1,2			5 kW	SRA828-5A3XX-XX; SRA828-5A4XX-XX
AIRPORT LIGHTING COMPANY	L-828	1	1,2			7.5 kW	SRA828-7A3XX-XX; SRA828-7A4XX-XX
AIRPORT LIGHTING COMPANY	L-828	1	1,2			10 kW	SRA828-10A3XX-XX; SRA828-10A4XX-XX
AIRPORT LIGHTING COMPANY	L-828	1	1,2			15 kW	SRA828-15A3XX-XX; SRA828-15A4XX-XX
AIRPORT LIGHTING COMPANY	L-828	1	1,2			20 kW	SRA828-20A3XX-XX; SRA828-20A4XX-XX
AIRPORT LIGHTING COMPANY	L-828	1	1,2			25 kW	SRA828-25A3XX-XX; SRA828-25A4XX-XX
AIRPORT LIGHTING COMPANY	L-828	1	1,2			30 kW	SRA828-30A3XX-XX; SRA828-30A4XX-XX
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-828	1	1, 2			4	828SGSPR-480-04-X
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-828	1	1, 2			7.5	828SGSPR-480-07-X
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-828	1	1, 2			10	828SGSPR-480-10-X
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-828	1	1, 2			15	828SGSPR-480-15-X
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-828	1	1, 2			20	828SGSPR-480-20-X
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-828	2	2			20KW	828SGSPR-480-21-5
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-828	1	1, 2			30	828SGSPR-480-30-X
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-828	2	2			30KW	828SGSPR-480-31-5
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-828	1	1, 2			10kW	82860PXS-XXX-10-X
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-828	1	1, 2			15KW	82860PXM-XXX-15-X
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-828	2	2			15KW	82860PRM-XXX-16-5
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-828	1	1, 2			20KW	82860PXM-XXX-20-X
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-828	2	2			20KW	82860PRM-XXX-21-5
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-828	1	1, 2			30KW	82860PXL-XXX-30-X
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-828	2	2			30KW	82860PRL-XXX-31-5
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-828	1	1, 2			4kW	82860PXS-XXX-04-X
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-828	1	1, 2			7.5kW	82860PXS-XXX-07-X
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-828	2	2			15KW	828SGSGSPR-480-16-5
HONEYWELL	L-828	1	1,2			2.5kW 5kW 7.5kW	CCR30-L-828-X-2.5-XXX-6.6-O-PIO; CCR30-L-828-X-2.5-XXX-6.6-Si-PIO; CCR30-L-828-X-5-XXX-6.6-O-PIO;CCR30-L-828-X-5-XXX-6.6-Si-PIO; CCR30-L-828-X-7.5-XXX-6.6-O-PIO; CCR30-L-828-X-7.5-XXX-6.6-Si-PIO
HUGHEY & PHILLIPS, LLC	L-828	1	1, 2			1kW	L-828-7-X-X-1-X-X-1-X-X-X
HUGHEY & PHILLIPS, LLC	L-828	1	1, 2			2kW	L-828-8-X-X-1-X-X-1-X-X-X
HUGHEY & PHILLIPS, LLC	L-828	1	1, 2			4kW	L-828-1-X-X-1-X-X-1-X-X-X
HUGHEY & PHILLIPS, LLC	L-828	1	1, 2			5kW	L-828-9-X-X-1-X-X-1-X-X-X
HUGHEY & PHILLIPS, LLC	L-828	1	1, 2			7.5kW	L-828-2-X-X-1-X-X-1-X-X-X
HUGHEY & PHILLIPS, LLC	L-828	1	1, 2			10kW	L-828-3-X-X-1-X-X-1-X-X-X
HUGHEY & PHILLIPS, LLC	L-828	1	1, 2			15kW	L-828-4-X-X-1-X-X-1-X-X-X
HUGHEY & PHILLIPS, LLC	L-828	1	1, 2			20kW	L-828-5-X-X-1-X-X-1-X-X-X
HUGHEY & PHILLIPS, LLC	L-828	1	1, 2			30kW	L-828-6-X-X-1-X-X-1-X-X-X
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-828	1	1, 2			20kW	CCR1-12022
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-828	1	1, 2			30kW	CCR1-12042
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-828	1	1, 2			5kW	CCR1-12052
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-828	1	1, 2			7.5kW	CCR1-12072
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-828	1	1, 2			10kW	CCR1-12102
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-828	1	1, 2			15kW	CCR1-12152
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-828	1	1, 2			20kW	CCR1-12202
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-828	1	1, 2			25kW	CCR1-12252
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-828	1	1, 2			30kW	CCR1-12302
L-829 Constant Current Regulators with Monitoring (FAA AC 150/5345-10H							
ADB SAFEGATE AMERICAS, LLC	L-829	1	1,2			4kW	CRF6604XXXXAXX0
ADB SAFEGATE AMERICAS, LLC	L-829	1	1,2			7.5kW	CRF6607XXXXAXX0
ADB SAFEGATE AMERICAS, LLC	L-829	1	1,2			10kW	CRF6610XXXXAXX0
ADB SAFEGATE AMERICAS, LLC	L-829	1	1,2			2.5kW	CRF6602XXXXAXX0
ADB SAFEGATE AMERICAS, LLC	L-829	1	1,2			5kW	CRF6605XXXXAXX0
ADB SAFEGATE AMERICAS, LLC	L-829	1,2	1,2			15kW	CRFXX15XXXXAXX0
ADB SAFEGATE AMERICAS, LLC	L-829	2	2			20kW	CRF2020X5XXAXX0
ADB SAFEGATE AMERICAS, LLC	L-829	2	2			25kW	CRF2025X5XXAXX0
ADB SAFEGATE AMERICAS, LLC	L-829	2	2			30kW	CRF2030X5XXAXX0
ADB SAFEGATE AMERICAS, LLC	L-829	1	1,2			15kW	CRT6615XXXXAXX0
ADB SAFEGATE AMERICAS, LLC	L-829	1	1,2			20kW	CRT6620NXXXAXX0
ADB SAFEGATE AMERICAS, LLC	L-829	1	1,2			30kW	CRT6630NXXXAXX0
ADB SAFEGATE AMERICAS, LLC	L-829	1,2	1,2			20kW	CRFXX20NXXXAXX0
ADB SAFEGATE AMERICAS, LLC	L-829	1,2	1,2			25kW	CRFXX25NXXXAXX0
ADB SAFEGATE AMERICAS, LLC	L-829	1,2	1,2			30kW	CRFXX30NXXXAXX0
ADB SAFEGATE AMERICAS, LLC	L-829	1	1,2			10kW	CRT66010XXXAXX0
ADB SAFEGATE AMERICAS, LLC	L-829	1	1,2			4kW	CRT6604XXXXAXX0
ADB SAFEGATE AMERICAS, LLC	L-829	1	1,2			7.5kW	CRT6607XXXXAXX0
ADB SAFEGATE AMERICAS, LLC	L-829	1,2	1, 2			15kW	FSPP-XX15X310
ADB SAFEGATE AMERICAS, LLC	L-829	1	1, 2			20kW	FSPP6620-3310:FSPP6620-5310
ADB SAFEGATE AMERICAS, LLC	L-829	1	1, 2			25kW	FSPP6625-3310; FSPP6625-5310
ADB SAFEGATE AMERICAS, LLC	L-829	1	1, 2			30kW	FSPP6630-3310; FSPP6630-5310
ADB SAFEGATE AMERICAS, LLC	L-829	2	2			20	FSPP2020-2310; FSPP2020-5310
ADB SAFEGATE AMERICAS, LLC	L-829	2	2			25	FSPP2025-2310; FSPP2025-2310
ADB SAFEGATE AMERICAS, LLC	L-829	2	2			30	FSPP2030-2310; FSPP2030-2310
ADB SAFEGATE AMERICAS, LLC	L-829	1	1,2			2.5kW	FSPP6602-X310
ADB SAFEGATE AMERICAS, LLC	L-829	1	1,2			4kW	FSPP6604-X310
ADB SAFEGATE AMERICAS, LLC	L-829	1	1,2			5kW	FSPP6605-X310
ADB SAFEGATE AMERICAS, LLC	L-829	1	1,2			7.5kW	FSPP6607-X310
ADB SAFEGATE AMERICAS, LLC	L-829	1	1,2			10kW	FSPP6610-X310
ADB SAFEGATE AMERICAS, LLC	L-829	1	1, 2			2.5 kW	FLPP6602-X310, FLPP6602-XB10
ADB SAFEGATE AMERICAS, LLC	L-829	1	1, 2			4 kW	FLPP6604-X310, FLPP6604-XB10
ADB SAFEGATE AMERICAS, LLC	L-829	1	1, 2			5 kW	FLPP6605-X310, FLPP6605-XB10
ADB SAFEGATE AMERICAS, LLC	L-829	1	1, 2			7.5 kW	FLPP6607-X310, FLPP6607-XB10
ADB SAFEGATE AMERICAS, LLC	L-829	1	1, 2			10 kW	FLPP6610-X310, FLPP6610-XB10

MFG	FAA type	CLASS	STYLE	MODE	SIZE	RATING	CAT NO.
ADB SAFEGATE AMERICAS, LLC	L-829	1, 2	1, 2			15 kW	FLPP6615-X310, FLPP6615-XB10, FLPP2015-2310, FLPP2015-5310, FLPP2015-2B10, FLPP2015-5B10
ADB SAFEGATE AMERICAS, LLC	L-829	1, 2	1, 2			20 kW	FLPP6620-3310, FLPP6620-5310, FLPP6620-3B10,FLPP6620-5B10, FLPP2020-5310, FLPP2020-5B10
ADB SAFEGATE AMERICAS, LLC	L-829	1, 2	1, 2			25 kW	FLPP6625-3310, FLPP6625-5310, FLPP6625-3B10, FLPP6625-5810, FLPP2025-5310, FLPP2025-5B10
ADB SAFEGATE AMERICAS, LLC	L-829	1, 2	1, 2			30 kW	FLPP6630-3310, FLPP6630-5310, FLPP6630-3B10, FLPP6630-5B10, FLPP2030-5310, FLPP2030-5810
ADB SAFEGATE AMERICAS, LLC	L-829	1	1, 2			2.5kW	CSF6602-X1X3; CSF6602-X2X3; CSF6602-X3X3; CSF6602-X4X3; CSF6602-X5X3; CSF6602-XBX3
ADB SAFEGATE AMERICAS, LLC	L-829	1	1, 2			4kW	CSF6604-X1X3; CSF6604-X2X3; CSF6604-X3X3; CSF6604-X4X3; CSF6604-X5X3; CSF6604-XBX3
ADB SAFEGATE AMERICAS, LLC	L-829	1	1, 2			5kW	CSF6605-X1X3; CSF6605-X2X3; CSF6605-X3X3; CSF6605-X4X3; CSF6605-X5X3; CSF6605-XBX3
ADB SAFEGATE AMERICAS, LLC	L-829	1	1, 2			7.5kW	CSF6607-X1X3; CSF6607-X2X3; CSF6607-X3X3; CSF6607-X4X3; CSF6607-X5X3; CSF6607-XBX3
ADB SAFEGATE AMERICAS, LLC	L-829	1	1, 2			10kW	CSF6610-X1X3; CSF6610-X2X3; CSF6610-X3X3; CSF6610-X4X3; CSF6610-X5X3; CSF6610-XBX3
ADB SAFEGATE AMERICAS, LLC	L-829	1, 2	1, 2			15 kW	CSFXX15-X1X3; CSFXX15-X2X3; CSFXX15-X3X3; CSFXX15-X4X3; CSFXX15-X5X3; CSFXX15-XBX3
ADB SAFEGATE AMERICAS, LLC	L-829	1, 2	1, 2			20 kW	CSFXX20-X1X3; CSFXX20-X2X3; CSFXX20-X3X3; CSFXX20-X4X3; CSFXX20-X5X3; CSFXX20-XBX3
ADB SAFEGATE AMERICAS, LLC	L-829	1, 2	1, 2			25 kW	CSFXX25-X1X3; CSFXX25-X2X3; CSFXX25-X3X3; CSFXX25-X4X3; CSFXX25-X5X3; CSFXX25-XBX3
ADB SAFEGATE AMERICAS, LLC	L-829	1, 2	1, 2			30 kW	CSFXX30-X1X3; CSFXX30-X2X3; CSFXX30-X3X3; CSFXX30-X4X3; CSFXX30-X5X3; CSFXX30-XBX3
ADB SAFEGATE AMERICAS, LLC	L-829	1, 2	1, 2			15kW	PSSFXX15-X1X3; PSSFXX15-X2X3; PSSFXX15-X3X3; PSSFXX15-X4X3; PSSFXX15-X5X3; PSSFXX15-XBX3
ADB SAFEGATE AMERICAS, LLC	L-829	2	2			50kW	PHF2050-53XX
ADB SAFEGATE AMERICAS, LLC	L-829	2	2			70kW	PHF2070-53XX
ADB SAFEGATE AMERICAS, LLC	L-829	2	2			50kW	PHSF2050-53XX
ADB SAFEGATE AMERICAS, LLC	L-829	2	2			70kW	PHSF2070-53XX
ADB SAFEGATE AMERICAS, LLC	L-829	2	2			50kW	CHF2050-53XX
ADB SAFEGATE AMERICAS, LLC	L-829	2	2			70kW	CHF2070-53XX
ADB SAFEGATE AMERICAS, LLC	L-829	1	1, 2			2.5 kW	PSSF6602-X1X3; PSSF6602-X2X3; PSSF6602-X3X3; PSSF6602-X4X3; PSSF6602-X5X3; PSSF6602-XBX3
ADB SAFEGATE AMERICAS, LLC	L-829	1	1, 2			4 kW	PSSF6604-X1X3; PSSF6604-X2X3; PSSF6604-X3X3; PSSF6604-X4X3; PSSF6604-X5X3; PSSF6604-XBX3
ADB SAFEGATE AMERICAS, LLC	L-829	1	1, 2			5 kW	PSSF6605-X1X3; PSSF6605-X2X3 PSSF6605-X3X3; PSSF6605-X4X3; PSSF6605-X5X3; PSSF6605-XBX3
ADB SAFEGATE AMERICAS, LLC	L-829	1	1, 2			7.5 kW	PSSF6607-X1X3; PSSF6607-X2X3; PSSF6607-X3X3; PSSF6607-X4X3; PSSF6607-X5X3; PSSF6607-XBX3
ADB SAFEGATE AMERICAS, LLC	L-829	1	1, 2			10 kW	PSSF6610-X1X3; PSSF6610-X2X3; PSSF6610-X3X3; PSSF6610-X4X3; PSSF6610-X5X3; PSSF6610-XBX3
ADB SAFEGATE AMERICAS, LLC	L-829	1, 2	1, 2			20 kW	PSSFXX20-X1X3; PSSFXX20-X2X3; PSSFXX20-X3X3; PSSFXX20-X4X3; PSSFXX20-X5X3; PSSFXX20-XBX3
ADB SAFEGATE AMERICAS, LLC	L-829	1, 2	1, 2			25 kW	PSSFXX25-X1X3; PSSFXX25-X2X3; PSSFXX25-X3X3; PSSFXX25-X4X3; PSSFXX25-X5X3; PSSFXX25-XBX3
ADB SAFEGATE AMERICAS, LLC	L-829	1, 2	1, 2			30 kW	PSSFXX30-X1X3; PSSFXX30-X2X3; PSSFXX30-X3X3; PSSFXX30-X4X3; PSSFXX30-X5X3; PSSFXX30-XBX3
ADB SAFEGATE AMERICAS, LLC	L-829	1	1,2			4 kW	CCT6604-XX73; CCT6604-XX83
ADB SAFEGATE AMERICAS, LLC	L-829	1	1,2			5kW	CCT6605-XX73; CCT6605-XX83
ADB SAFEGATE AMERICAS, LLC	L-829	1	1,2			7.5kW	CCT6607-XX73; CCT6607-XX83
ADB SAFEGATE AMERICAS, LLC	L-829	1	1,2			10kW	CCT6610-XX73; CCT6610-XX83
ADB SAFEGATE AMERICAS, LLC	L-829	1	1,2			15kW	CCT6615-XX73; CCT6615-XX83
ADB SAFEGATE AMERICAS, LLC	L-829	1	1,2			20 kW	CCT6620-XX73; CCT6620-XX83
ADB SAFEGATE AMERICAS, LLC	L-829	1	1,2			25 kW	CCT6625-XX73; CCT6625-XX83
ADB SAFEGATE AMERICAS, LLC	L-829	1	1,2			30 kW	CCT6630-XX73; CCT6630-XX83
AIRPORT LIGHTING COMPANY	L-829	1,2	1,2			1	FR829-1XXXX
AIRPORT LIGHTING COMPANY	L-829	1,2	1,2			2	FR829-2XXXX
AIRPORT LIGHTING COMPANY	L-829	1,2	1,2			4	FR829-4XXXX
AIRPORT LIGHTING COMPANY	L-829	1,2	1,2			5	FR829-5XXXX
AIRPORT LIGHTING COMPANY	L-829	1,2	1,2			7.5	FR829-7XXXX
AIRPORT LIGHTING COMPANY	L-829	1,2	1,2			10	FR829-10XXXX
AIRPORT LIGHTING COMPANY	L-829	1,2	1,2			15	FR829-15XXXX
AIRPORT LIGHTING COMPANY	L-829	1,2	1,2			20	FR829-20XXXX
AIRPORT LIGHTING COMPANY	L-829	1,2	1,2			25	FR829-25XXXX
AIRPORT LIGHTING COMPANY	L-829	1,2	1,2			30	FR829-30XXXX
AIRPORT LIGHTING COMPANY	L-829	1	1, 2			1	SRA829-1A3XX-XX;SRA829-1A4XX-XX
AIRPORT LIGHTING COMPANY	L-829	1	1, 2			2	SRA829-2A3XX-XX;SRA829-2A4XX-XX
AIRPORT LIGHTING COMPANY	L-829	1	1, 2			4	SRA829-4A3XX-XX; SRA829-4A4XX-XX
AIRPORT LIGHTING COMPANY	L-829	1	1, 2			5	SRA829-5A3XX-XX; SRA829-5A4XX-XX
AIRPORT LIGHTING COMPANY	L-829	1	1, 2			7.5	SRA829-7A3XX-XX; SRA829-7A4XX-XX
AIRPORT LIGHTING COMPANY	L-829	1	1, 2			10	SRA829-10A3XX-XX; SRA829-10A4XX-XX
AIRPORT LIGHTING COMPANY	L-829	1	1, 2			15	SRA829-15A3XX-XX; SRA829-15A4XX-XX
AIRPORT LIGHTING COMPANY	L-829	1	1, 2			20	SRA829-20A3XX-XX; SRA829-20A4XX-XX
AIRPORT LIGHTING COMPANY	L-829	1	1, 2			25	SRA829-25A3XX-XX; SRA829-25A4XX-XX
AIRPORT LIGHTING COMPANY	L-829	1	1, 2			30	SRA829-30A3XX-XX; SRA829-30A4XX-XX
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-829	1	1, 2			4	829SGSPR-480-04-X
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-829	1	1, 2			7.5	829SGSPR-480-07-X
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-829	1	1, 2			10	829SGSPR-480-10-X
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-829	1	1, 2			15	829SGSPR-480-15-X
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-829	2	2			15	829SGSPR-480-16-5
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-829	1	1, 2			20	829SGSPR-480-20-X
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-829	2	2			20	829SGSPR-480-21-5
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-829	2	2			30	829SGSPR-480-31-5
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-829	1	1, 2			30	829SGSPR-480-30-X
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-829	1	1, 2			10kW	82960PXS-XXX-10-X
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-829	1	1, 2			15KW	82960PXM-XXX-15-X
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-829	2	2			15KW	82960PRM-XXX-16-5
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-829	1	1, 2			20KW	82960PXM-XXX-20-X
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-829	2	2			20KW	82960PRM-XXX-21-5
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-829	1	1, 2			30KW	82960PXL-XXX-30-X
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-829	2	2			30KW	82960PRL-XXX-31-5
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-829	1	1, 2			4kW	82960PXS-XXX-04-X
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-829	1	1, 2			7.5kW	82960PXS-XXX-07-X
HONEYWELL	L-829	1	1, 2			2.5kW 5kW 7.5kW	CCR30-L-829-X-2.5-XXX-6.6-XX-PIO; CCR30-L-829-X-2.5-XXX-6.6-XX-PIO; CCR30-L-829-X-5-XXX-6.6-XX-PIO; CCR30-L-829-X-5-XXX-6.6-XX-PIO; CCR30-L-829-X-7.5-XXX-6.6-XX-PIO; CCR30-L-829-X-7.5-XXX-6.6-XX-PIO
HUGHEY & PHILLIPS, LLC	L-829	1	1, 2			1kW	L-829-7-X-X-1-X-X-1-X-X-X
HUGHEY & PHILLIPS, LLC	L-829	1	1, 2			2kW	L-829-8-X-X-1-X-X-1-X-X-X
HUGHEY & PHILLIPS, LLC	L-829	1	1, 2			4kW	L-829-1-X-X-1-X-X-1-X-X-X
HUGHEY & PHILLIPS, LLC	L-829	1	1, 2			5kW	L-829-9-X-X-1-X-X-1-X-X-X
HUGHEY & PHILLIPS, LLC	L-829	1	1, 2			7.5kW	L-829-2-X-X-1-X-X-1-X-X-X
HUGHEY & PHILLIPS, LLC	L-829	1	1, 2			10kW	L-829-3-X-X-1-X-X-1-X-X-X
HUGHEY & PHILLIPS, LLC	L-829	1	1, 2			15kW	L-829-4-X-X-1-X-X-1-X-X-X
HUGHEY & PHILLIPS, LLC	L-829	1	1, 2			20kW	L-829-5-X-X-1-X-X-1-X-X-X
HUGHEY & PHILLIPS, LLC	L-829	1	1, 2			30kW	L-829-6-X-X-1-X-X-1-X-X-X

MFG	FAA type	CLASS	STYLE	MODE	SIZE	RATING	CAT NO.
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-829	1	1, 2			1kW	CCR2-12012
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-829	1	1, 2			2kW	CCR2-12022
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-829	1	1, 2			4kW	CCR2-12042
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-829	1	1, 2			5kW	CCR2-12052
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-829	1	1, 2			7.5kW	CCR2-12072
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-829	1	1, 2			10kW	CCR2-12102
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-829	1	1, 2			15kW	CCR2-12152
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-829	1	1, 2			20kW	CCR2-12202
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-829	1	1, 2			25kW	CCR2-12252
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-829	1	1, 2			30kW	CCR2-12302
L-830 Isolation Transformers 60Hz (FAA AC 150/5345-47CL-830 Isolation Transformers 60Hz (FAA AC 150/5345-47C							
ABB INSTALLATION PRODUCTS, INC.	L-830-19					150W	TA150266-01; TA150266-10
ABB INSTALLATION PRODUCTS, INC.	L-830-15					500W	TA500266-01; TA500266-10
ABB INSTALLATION PRODUCTS, INC.	L-830-17					20/25W	TA025666-01; TA025666-10
ABB INSTALLATION PRODUCTS, INC.	L-830-14					500W	TA500666-01; TA500666-10
ABB INSTALLATION PRODUCTS, INC.	L-830-16					10/15W	TA010666-01; TA010666-10
ABB INSTALLATION PRODUCTS, INC.	L-830-3					65W	TA065666-01; TA065666-10
ABB INSTALLATION PRODUCTS, INC.	L-830-7					200W	TA200266-01; TA200266-10
ABB INSTALLATION PRODUCTS, INC.	L-830-6					200W	TA200666-01; TA200666-10
ABB INSTALLATION PRODUCTS, INC.	L-830-2					30/45W	TA045266-01; TA045266-10
ABB INSTALLATION PRODUCTS, INC.	L-830-5					100W	TA100266-01; TA100266-10
ABB INSTALLATION PRODUCTS, INC.	L-830-10					300W	TA300666-01; TA300666-10
ABB INSTALLATION PRODUCTS, INC.	L-830-4					100W	TA10066D-01; TA10066D-10
ABB INSTALLATION PRODUCTS, INC.	L-830-3					65W	TA06566D-01; TA06566D-10
ABB INSTALLATION PRODUCTS, INC.	L-830-1					30/45W	TA045666-01; TA045666-10; TA04566D-01; TA04566D-10
ABB INSTALLATION PRODUCTS, INC.	L-830-8					300W	TA300626-01; TA300626-10
ABB INSTALLATION PRODUCTS, INC.	L-830-9					300W	TA300226-01; TA300226-10
ABB INSTALLATION PRODUCTS, INC.	L-830-11					300W	TA300266-01; TA300266-10
ABB INSTALLATION PRODUCTS, INC.	L-830-12					500W	TA500626-01; TA500626-10
ABB INSTALLATION PRODUCTS, INC.	L-830-13					500W	TA500226-01; TA500226-10
ABB INSTALLATION PRODUCTS, INC.	L-830-18					150W	TA150666-01; TA150666-10
ADB SAFEGATE AMERICAS, LLC	L-830-16					10/15W	1ST010666010
ADB SAFEGATE AMERICAS, LLC	L-830-17					20/25W	1ST020666010
ADB SAFEGATE AMERICAS, LLC	L-830-1					30/45W	1ST045666010
ADB SAFEGATE AMERICAS, LLC	L-830-3					65W	1ST065666010
ADB SAFEGATE AMERICAS, LLC	L-830-4					100W	1ST100666010
ADB SAFEGATE AMERICAS, LLC	L-830-16					10/15W	1ST01066601001
ADB SAFEGATE AMERICAS, LLC	L-830-17					20/25W	1ST02066601001
ADB SAFEGATE AMERICAS, LLC	L-830-6					200W	1ST20066601001
ADB SAFEGATE AMERICAS, LLC	L-830-1					30/45W	1ST04566601001
ADB SAFEGATE AMERICAS, LLC	L-830-3					65W	1ST06566601001
ADB SAFEGATE AMERICAS, LLC	L-830-4					100W	1ST10066601001
ADB SAFEGATE AMERICAS, LLC	L-830-18					150W	1ST15066601001
ADB SAFEGATE AMERICAS, LLC	L-830-10					300W	1ST30066601001
Bildal Electricals Pvt Ltd	L-830-1					45W	BE045665
Bildal Electricals Pvt Ltd	L-830-4					100W	BE100667
Bildal Electricals Pvt Ltd	L-830-6					200W	BE2006612
Bildal Electricals Pvt Ltd	L-830-16					10/15W	BE101156622
Bildal Electricals Pvt Ltd	L-830-18					150W	BE1506624
EFLA OY	L-830-3					65W	KR536.1A
EFLA OY	L-830-4					100W	KR541.1A
EFLA OY	L-830-18					150W	KR546.1A
EFLA OY	L-830-6					200W	KR551.1A
EFLA OY	L-830-10					300W	KR561.1A
EFLA OY	L-830-1					30/45	KR631.1A
EFLA OY	L-830-6					200	KR651.1A
EFLA OY	L-830-10					300	KR661.1A
EFLA OY	L-830-18					150	KR.646.1A
EFLA OY	L-830-4					100W	KR641.1A
EFLA OY	L-830-1					30/45	KR631.1A
EFLA OY	L-830-6					200	KR651.1A
EFLA OY	L-830-10					300	KR661.1A
EFLA OY	L-830-18					150	KR.646.1A
EFLA OY	L-830-16					10/15W	KR621.1A
EFLA OY	L-830-17					20/25W	KR625.1A
EFLA OY	L-830-1					30/45W	KR531.1A
EFLA OY	L-830-3					65W	KR636.1A
MONROE INTEGRO, LLC.	L-830-19					150W	11731
MONROE INTEGRO, LLC.	L-830-11					300W	11760
MONROE INTEGRO, LLC.	L-830-2					30/45W	11681
MONROE INTEGRO, LLC.	L-830-5					100W	11684
MONROE INTEGRO, LLC.	L-830-7					200W	11686
MONROE INTEGRO, LLC.	L-830-10					300W	11736
MONROE INTEGRO, LLC.	L-830-4					100W	11683
MONROE INTEGRO, LLC.	L-830-6					200W	11685
MONROE INTEGRO, LLC.	L-830-16					10/15W	11717
MONROE INTEGRO, LLC.	L-830-18					150W	11730
MONROE INTEGRO, LLC.	L-830-1					30/45W	11680
MONROE INTEGRO, LLC.	L-830-3					65W	11682
MONROE INTEGRO, LLC.	L-830-17					20/25W	11729
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-830-16					15W	IT1-066-015-60
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-830-4					100W	IT1-066-100-60
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-830-18					150W	IT1-066-150-60
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-830-6					200W	IT1-066-200-60
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-830-10					300W	IT1-066-300-60
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-830-1					45W	IT1-066-045-60
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-830-3					65W	IT1-066-065-60
L-831 Isolation Transformers 50Hz (FAA AC 150/5345-47C)							
ABB INSTALLATION PRODUCTS, INC.	L-831-18					150W	TA150665-01; TA150665-10
ABB INSTALLATION PRODUCTS, INC.	L-831-14					500W	TA500665-01; TA500665-10
ABB INSTALLATION PRODUCTS, INC.	L-831-16					10/15W	TA010665-01; TA010665-10
ABB INSTALLATION PRODUCTS, INC.	L-831-17					20/25W	TA025665-01; TA025665-10
ABB INSTALLATION PRODUCTS, INC.	L-831-19					150W	TA150265-01; TA150265-10
ABB INSTALLATION PRODUCTS, INC.	L-861-15					500W	TA500265-01; TA500265-10
ABB INSTALLATION PRODUCTS, INC.	L-831-15					500W	TA500265-01; TA500265-10
ABB INSTALLATION PRODUCTS, INC.	L-831-3					65W	TA065665-01; TA065665-10
ABB INSTALLATION PRODUCTS, INC.	L-831-6					200W	TA200665-01;TA200665-10
ABB INSTALLATION PRODUCTS, INC.	L-831-7					200W	TA200265-01; TA200265-10
ABB INSTALLATION PRODUCTS, INC.	L-831-2					30/45W	TA045265-01; TA045265-10
ABB INSTALLATION PRODUCTS, INC.	L-831-8					300W	TA300625-01; TA300625-10
ABB INSTALLATION PRODUCTS, INC.	L-831-10					300W	TA300665-01; TA300665-10
ABB INSTALLATION PRODUCTS, INC.	L-831-4					100W	TA10066D-01; TA10066D-10
ABB INSTALLATION PRODUCTS, INC.	L-831-5					100W	TA100265-01; TA100265-10
ABB INSTALLATION PRODUCTS, INC.	L-831-3					65W	TA06566D-01; TA06566D-10
ABB INSTALLATION PRODUCTS, INC.	L-831-11					300W	TA300265-01; TA300265-10
ABB INSTALLATION PRODUCTS, INC.	L-831-1					30/45W	TA045665-01; TA045665-10; TA04566D-01; TA04566D-10
ABB INSTALLATION PRODUCTS, INC.	L-831-9					300W	TA300225-01; TA300225-10

MFG	FAA type	CLASS	STYLE	MODE	SIZE	RATING	CAT NO.
ABB INSTALLATION PRODUCTS, INC.	L-831-12					500W	TA500625-01; TA500625-10
ABB INSTALLATION PRODUCTS, INC.	L-831-13					500W	TA500225-01; TA500225-10
Bildal Electricals Pvt Ltd	L-831-1					45W	BE045665
Bildal Electricals Pvt Ltd	L-831-4					100W	BE100667
Bildal Electricals Pvt Ltd	L-831-6					200W	BE2006612
Bildal Electricals Pvt Ltd	L-831-16					10/15W	BE101156622
Bildal Electricals Pvt Ltd	L-831-18					150W	BE1506624
EFLA OY	L-831-18					150W	KR546.1
EFLA OY	L-831-1					30/45W	KR531.1
EFLA OY	L-831-3					65W	KR536.1
EFLA OY	L-831-4					100W	KR541.1
EFLA OY	L-831-6					200W	KR551.1
EFLA OY	L-831-10					300W	KR561.1
EFLA OY	L-831-4					100W	KR641.1
EFLA OY	L-831-3					65W	KR636.1
EFLA OY	L-831-16					10/15W	KR621.1
EFLA OY	L-831-17					20/25W	KR625.1
EFLA OY	L-831-1					30/45	KR631.1
EFLA OY	L-831-6					200	KR651.1
EFLA OY	L-831-10					300	KR661.1
EFLA OY	L-831-18					150	KR646.1
MONROE INTEGRO, LLC.	L-831-3					65W	11712
MONROE INTEGRO, LLC.	L-831-18					150W	11734
MONROE INTEGRO, LLC.	L-831-1					30/45W	11710
MONROE INTEGRO, LLC.	L-831-6					200W	11715
MONROE INTEGRO, LLC.	L-831-19					150W	11731
MONROE INTEGRO, LLC.	L-831-4					100W	11683
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-831-16					15W	IT1-066-015-50
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-831-4					100W	IT1-066-100-50
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-831-18					150W	IT1-066-150-50
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-831-6					200W	IT1-066-200-50
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-831-10					300W	IT1-066-300-50
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-831-1					45W	IT1-066-045-50
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-831-3					65W	IT1-066-065-50
L-847 Circuit Selector Switch (FAA AC 150/5345-5B)							
ADB SAFEGATE AMERICAS, LLC	L-847 1, 2, 3, 4	A, B				1, 2	44D4520-XXX0
AIRPORT LIGHTING COMPANY	L-847 1, 2, 3, 4	A,B				1	847-X-X-1-X-XXX
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-847 1, 2, 3, 4	A				1	84700-X-66; 84700-X-66-10
HUGHEY & PHILLIPS, LLC	L-847 1, 2, 3, 4	A,B				1	L-847-X-X
L-849 Runway End Identifier Lights (FAA AC 150/5345-51B)							
ADB SAFEGATE AMERICAS, LLC	L-849I(L)		C				REIL-C1XXX010 (321)
ADB SAFEGATE AMERICAS, LLC	L-849V (L)		C				REIL-C2XXX010 (321)
ADB SAFEGATE AMERICAS, LLC	L-849I(L)		A				REIL-A1XXX012(875)
ADB SAFEGATE AMERICAS, LLC	L-849V (L)		A				REIL-A2XXX012(875)
ADB SAFEGATE AMERICAS, LLC	L-849I(L)		C				REIL-C1XXX012(875)
ADB SAFEGATE AMERICAS, LLC	L-849V(L)		C				REIL-C2XXX012(875)
ADB SAFEGATE AMERICAS, LLC	L-849I(L)		E				REIL-E1XXX012(875)
ADB SAFEGATE AMERICAS, LLC	L-849V(L)		E				REIL-E2XXX012(875)
Flash Technology, LLC.	L-849V(L); L-849I(L)		A,E				FTS 812(L) (E100); FTS 832(L) (E100)
Hughey & Phillips, LLC	L-849I(L)		A,C,E				L-849I-L-1-X (738)
HUGHEY & PHILLIPS, LLC	L-849I(L)		A				L-849I-L-A-1 (738)
HUGHEY & PHILLIPS, LLC	L-849I(L)		C				L-849I-L-C-1(738)
HUGHEY & PHILLIPS, LLC	L-849I(L)		E				L-849I-L-E-1(738)
STROBE APPROACH LIGHTING TECHNOLOGY	L-849V(L)		A				SAL1030-V-A (525)
STROBE APPROACH LIGHTING TECHNOLOGY	L-849V(L)		E				SAL1030-V-E (525)
STROBE APPROACH LIGHTING TECHNOLOGY	L-849V(L)		C				SAL1030-V-C (525)
STROBE APPROACH LIGHTING TECHNOLOGY	L-849I(L)		A				SAL1030-I-A (525)
STROBE APPROACH LIGHTING TECHNOLOGY	L-849I(L)		C				SAL1030-I-C (525)
STROBE APPROACH LIGHTING TECHNOLOGY	L-849I(L)		E				SAL1030-I-E (525)
STROBE APPROACH LIGHTING TECHNOLOGY	L-849V		A				L849-V1-A; (282)
STROBE APPROACH LIGHTING TECHNOLOGY	L-849V		E				L849-V1-E (282)
STROBE APPROACH LIGHTING TECHNOLOGY	L-849V		B				L849-V1-B (287)
STROBE APPROACH LIGHTING TECHNOLOGY	L-849V		F				L849-I-F (287)
STROBE APPROACH LIGHTING TECHNOLOGY	L-849I		A				L-849-I-A (282)
STROBE APPROACH LIGHTING TECHNOLOGY	L-849I		E				L-849-I-E (282)
STROBE APPROACH LIGHTING TECHNOLOGY	L-849I		B				L-849-I-B (287)
STROBE APPROACH LIGHTING TECHNOLOGY	L-849I		F				L-849-I-F (287)
L-850 Runway Inpavement Lights (FAA AC 150/5345-46E)							
ADB SAFEGATE AMERICAS, LLC	L-850B(L)	1, 2	3	1			SLXRZI8UXSW6.6AX1CL-850B(L) (849); SIRZS1UXXWNXGA22 (849)
ADB SAFEGATE AMERICAS, LLC	L-850A(L)	1, 2	3	1			SLXRCI8BSSWW6.6AXXCL850A(L)(620);SIRCS1BSXWWXGA22 (620); SLXRCI8BSSWR6.6AXXCL850A(L) (620)(621); SIRCS1BSXWRXGA22 (620)(621)
ADB SAFEGATE AMERICAS, LLC	L-850A(L)	1, 2	3	1			SLXRCI12BSSWW6.6AX1CL850A(L) (690); SIRCS2BSXWWXGX21(690); SLXRCI12BSSWR6.6AX1CL850A(L) (690)(691); SIRCS2BSXWRXGX21 (690)(691)
ADB SAFEGATE AMERICAS, LLC	L-850B(L)	1, 2	3	1			SLXRZI12UXSW6.6AX1CL-850B(L) (850); SIRZS2UXXWNXGX21 (850)
ADB SAFEGATE AMERICAS, LLC	L-850C	2	3	1			44A6009-XXXX (123)
ADB SAFEGATE AMERICAS, LLC	L-850C(L)	2	2	1			IREL-XXX0XX0 (499)(500)(501)(502); IREL-XXX0XX1 (499)(500)(501)(502)
ADB SAFEGATE AMERICAS, LLC	L-850D(L)	2	2	1			IREL-C4X0XX0 (499)(500);IREL-C4X0XX1 (499)(500); IREL-4BX0XX0 (499)(500); IREL-4BX0XX1 (499)(500); IREL-C0X0XX0 (499); IREL-C0X0XX1 (499); IREL-40X0XX0 (500); IREL-40X0XX1 (500); IREL-0BX0XX0 (499); IREL-0BX0XX1 (499); IREL-44X0XX0 (500); IREL-44X0XX1 (500)
ADB SAFEGATE AMERICAS, LLC	L-850A(L)	1,2	3	1			RSRC1xxxxNxxxxx1 (968)(963)(967)(962)
ADB SAFEGATE AMERICAS, LLC	L-850B(L)	1,2	3	1			RSRZ1xxx1xWNxxx1 (965)(964)
ADB SAFEGATE AMERICAS, LLC	L-850C(L)	1,2	3	1			RSRE1x2x2Cxxxxx1(966)(980)(969)(979)
ADB SAFEGATE AMERICAS, LLC	L-850T(L)	1,2	3	1			RSRS2x2x1NRNRxx1 (999)
ADB SAFEGATE AMERICAS, LLC	L-850D(L)	1,2	3	1			RSRx2x2xxxxxxx1(980)(970)
ADB SAFEGATE AMERICAS, LLC	L-850F	2	3	1			44A5950-0211(973)
ADB SAFEGATE AMERICAS, LLC	L-850A	2	3	1			44A4817-XXX1 (973)
ADB SAFEGATE AMERICAS, LLC	L-850B	2	3	1			44A4763--2X1 (973)
ADB SAFEGATE AMERICAS, LLC	L-850T(L)	2	3	1			DTHJ2RN0DMF00R0
ADB SAFEGATE AMERICAS, LLC	L-850D	2	2	1			44A6656-01XX (318); 44A6656-21XX (318);
ADB SAFEGATE AMERICAS, LLC	L-850D	2	2	1			44A6656-31XX (318); 44A6656-20XX (318)
ADB SAFEGATE AMERICAS, LLC	L-850D	2	2	1			44A6656-30XX (318)
ADB SAFEGATE AMERICAS, LLC	L-850E	2	2	1			44A6248-1X10 (123)
ADB SAFEGATE BV	L-850A(L)	1,2	3	1			RSRC1xxxxNxxxxx1 (968)(963)(967)(962)
ADB SAFEGATE BV	L-850B(L)	1,2	3	1			RSRZ1xxx1xWNxxx1 (965)(964)
ADB SAFEGATE BV	L-850C(L)	1,2	3	1			RSRE1x2x2Cxxxxx1(966)(980)(969)(979)
ADB SAFEGATE BV	L-850T(L)	1,2	3	1			RSRS2x2x1NRNRxx1 (999)
ADB SAFEGATE BV	L-850D(L)	1,2	3	1			RSRx2x2xxxxxxx1(980)(970)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-850A	2	3	1			850A3-XX-12F-XX (219)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-850B	2	3	1			850B3-C-12F-P1-X (219)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-850A	2	3	1			850A3-XX-PX (219)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-850B	2	3	1			850B3-C-P1–X (219)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-850C	2	3	1			850C3-XX-PX (219)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-850F	2	3	1			850F3-PX (219)

MFG	FAA type	CLASS	STYLE	MODE	SIZE	RATING	CAT NO.
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-850C(L)	2	3	1			850C-AP1-WW-12-PX-X (812); 850C-AP1-WR-12-PX-X (812)(815); 850C-AP1-RW-12-PX-X (815)(812): 850C-AP1-WY-12-PX-X (812)(813);850C-AP1-YW-12-PX-X (813)(812): 850C-AP1-YR-12-PX-X (813)(815); 850C-AP1-RY-12-PX-X (815)(813); 850C-AP1-YG-12-PX-X (813)(814); 850C-AP1-GY-12-PX-X (814)(813);
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-850D(L)	2	3	1			850D-AP1-RR-12-PX-X (815); 850D-AP1-GR-12-PX-X (814)(815); 850D-AP1-RG-12-PX-X (815)(814): 850D-AP1-GN-12-PX-X (814); 850D-AP1-NG-12-PX-X (814); 850D-AP1-RN-12-PX-X (815); 850D-AP1-NR-12-PX-X (815);
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-850A(L)	2	3	1			850A-AP1-XX-F1-12S-XX-X-0 (589) (590)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-850B(L)	2	3	1			850B-AP1-WN-F1-12X-XX-X-0 (590)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-850A(L)	2	3	1			850A-AP1-XX-F1-8FS-XX-X-X (574) (575)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-850B(L)	2	3	1			850B-AP1-WN-F1-8FX-XX-X-X (575)
HONEYWELL	L-850A(L)	1	3	1			RCL-WW-1I08BSC015SN0M1L200 (931) RCL-WR-1I08BSC015SN0M1L200 (931)932) RCL-RW-1I08BSC015SN0M1L200 (932)(931) RCL-WN-1I08USC015SN0M1L100 (931) RCL-RN-1I08USC015SN0M1L100 (932)
HONEYWELL	L-850B(L)	1	3	1			TDZ-WN-1I08USC010SN0M1L100 (931) TDZ-WN-1I08USC010CR0M1L100 (931) TDZ-WN-1I08USC010CL0M1L100 (931)
Hughey & Phillips, LLC	L-850A(L)	2	3	1			L850A-L-X-WW-X-X (E102); L850A-L-X-WR-X-X (E102)(E105); L850A-L-X-W-X-X (E102); L850A-L-X-R-X-X (E105)
Hughey & Phillips, LLC	L-850B(L)	2	3	1			L850B-L-X-W-X-X (E102)
Hughey & Phillips, LLC	L-850C(L)	2	3	1			L850C-L-X-WW-X-X (E102); L850C-L-X-WY-X-X (E102)(E103); L850C-L-X-WR-X-X (E102)(E105); L850C-L-X-YR-X-X (E103)(E105); L850C-L-X-YG-X-X (E103)(E104)
Hughey & Phillips, LLC	L-850D(L)	2	3	1			L850D-L-X-GR-X-X (E104)(E105); L850D-L-X-RR-X-X (E105); L850D-L-X-GB-X-X (E104); L850D-L-X-BG-X-X (E104); L850D-L-X-R-X-X (E105)
Hughey & Phillips, LLC	L-850E(L)	2	3	1			L850D-L-X-GB-X-X (E104); L850D-L-X-BG-X-X (E104); L850D-L-X-R-X-X (E105)
Hughey & Phillips, LLC	L-850T(L)	2	3	1			L850D-L-X-GB-X-X (E104); L850D-L-X-BG-X-X (E104); L850D-L-X-R-X-X (E105)
HUGHEY & PHILLIPS, LLC	L-850A(L)	2	3	1			850A-L-X-WW-0-X(736); 850A-L-X-WR-0-X(734)(736); 850A-L-X-W-0-1(736); 850A-L-X-R-0-1(734)
HUGHEY & PHILLIPS, LLC	L-850B(L)	2	3	1			850B-L-X-W-X-1(736)
HUGHEY & PHILLIPS, LLC	L-850T(L)	2	3	1			850T-L-X-R-0-1(734)
MULTI-ELECTRIC MANUFACTURING, INC.	L-850T(L)	1, 2	3	1			LRCL04-F-TS-1P-X-X (532); LRCL04-F-TM-1P-X-X (532)
MULTI-ELECTRIC MANUFACTURING, INC.	L-850B(L)	1, 2	3	1			LTDZ04-F-X-X-X (533)
MULTI-ELECTRIC MANUFACTURING, INC.	L-850A(L)	1, 2	3	1			LRCL04-F-WW-XX-X-X (533); LRCL04-F-WR-XX-X-X (533)(532)(536) LRCL04-F-WS-1P-X-X (533); LRCL04-F-WM-1P-X-X (533) LRCL04-F-RS-1P-X-X (532); LRCL04-F-RM-1P-X-X (532)
MULTI-ELECTRIC MANUFACTURING, INC.	L-850D(L)	1, 2	3	1			LTHE04-F-GR-X-XX-X-X (539)(532); LTHE04-F-RR-L-XX-X-X (532) LTHE04-F-GS-X-1P-X-X (539); LTHE04-F-GM-X-1P-X-X (539)
MULTI-ELECTRIC MANUFACTURING, INC.	L-850E(L)	1, 2	3	1			LRTH04-F-X-X-X (539)
MULTI-ELECTRIC MANUFACTURING, INC.	L-850C(L)	1, 2	3	1			LRED04-F-WW-XX-X-X (533); LRED04-F-WY-XX-X-X (533)(538) LRED04-F-YW-XX-X-X (538)(533); LRED04-WR-XX-X-X (533)(536) LRED04-F-RW-XX-X-X (536)(533); LRED04-F-YR-XX-X-X (538)(536); LRED04-F-RY-XX-X-X (536)(538); LRED04-F-YG-XX-X-X (538)(537); LRED04-F-GY-XX-X-X (537)(538)
OCEM AIRFIELD TECHNOLOGY	L-850A	1	3	1			RCLF-F-CC-090-XP-O-F (519); RCLF-F-CR-090-XP-O-F (519) RCLF-F-CM-045-1P-O-F (519); RCLF-F-RM-045-1P-O-F (519)
OCEM AIRFIELD TECHNOLOGY	L-850A	1,2	3	1			RCLF-F-CC-090-XP-R-F (519); RCLF-F-CR-090-XP-R-F (519) RCLF-F-CM-045-1P-R-F (519); RCLF-F-RM-045-1P-R-F (519)
OCEM AIRFIELD TECHNOLOGY	L-850B	1	3	1			TDZF-F-C-RI-045-O-F (519); TDZF-F-C-LI-045-O-F (519)
OCEM AIRFIELD TECHNOLOGY	L-850B	1, 2	3	1			TDZF-F-C-RI-045-R-F (519); TDZF-F-C-LI-045-R-F (519)
OCEM AIRFIELD TECHNOLOGY	L-850C	1, 2	2	1			SLRE-E-CCP-XP-200-O-F (520); SLRE-E-CPC-XP-200-O-F (520) SLRE-E-CPR-XP-200-O-F (520); SLRE-E-CPY-XP-200-O-F (520) SLRE-E-CRP-XP-200-O-F (520); SLRE-E-CYP-XP-200-O-F (520) SLRE-E-GPY-XP-200-O-F (520); SLRE-E-RPY-XP-200-O-F (520) SLRE-E-RYP-XP-200-O-F (520); SLRE-E-YCP-XP-200-O-F (520) SLRE-E-YPC-XP-200-O-F (520); SLRE-E-YPG-XP-200-O-F (520)
OCEM AIRFIELD TECHNOLOGY	L-850D	1, 2	2	1			SLRE-A-GRP-XP-200-O-F (520); SLRE-A-GXP-1P-100-O-F (520) SLRE-A-RPG-XP-200-O-F (520); SLRE-A-RPR-XP-200-O-F (520) SLRE-A-XPG-1P-100-O-F (520)
OCEM AIRFIELD TECHNOLOGY	L-850E	1, 2	2	1			SLTH-A-ST-200-O-F (520)
OCEM AIRFIELD TECHNOLOGY	L-850T	1	3	1			RCLF-F-TM-100-1P-O-F (520)
OCEM AIRFIELD TECHNOLOGY	L-850T	1, 2	3	1			RCLF-F-TM-100-1P-R-F (520)
OCEM AIRFIELD TECHNOLOGY	L-850A(L)	1	3	1			LIRC-F-WW-XP-0-0-X (534); LIRC-F-WR-XP-0-0-X (534)(535); LIRC-F-WM-1P-0-0-X (534); LIRC-F-RM-1P-0-0-X (535)
OCEM AIRFIELD TECHNOLOGY	L-850A(L)	1, 2	3	1			LIRC-F-WW-XX-R-0-X (534); LIRC-F-WR-XX-R-0-X (534) (535); LIRC-F-WM-1X-R-0-X (534); LIRC-F-RM-1X-R-0-X (535); LIRL-F-WW-XP-0-X (1023); LIRL-F-WR-XP-0-X (1023)(536); LIRL-F-WM-1P-0-X (1023); LIRL-F-RM-1P-0-X (535)
OCEM AIRFIELD TECHNOLOGY	L-850T(L)	1	3	1			LIRC-F-TM-1P-0-0-X (535)
OCEM AIRFIELD TECHNOLOGY	L-850T(L)	1, 2	3	1			LIRC-F-TM-1P-0-0-X (535)
OCEM AIRFIELD TECHNOLOGY	L-850T(L)	1, 2	3	1			LIRL-F-TM-1P-0-X (532)
OCEM AIRFIELD TECHNOLOGY	L-850D(L)	1, 2	3				LIRH-F-GR-R-XP-0-X (539)(532); LIRH-F-GR-L-XP-0-X (539)(532); LIRH-F-RR-S-XP-0-X (532);LIRH-F-GM-R-1P-0-X (539); LIRH-F-GM-L-1P-0-X (539);LIRH-F-RM-S-1P-0-X (532);
OCEM AIRFIELD TECHNOLOGY	L-850E(L)	1, 2	3				LIRT-F-S-0-X (539)
OCEM AIRFIELD TECHNOLOGY	L-850B(L)	1	3	1			LIRD-F-X-0-0-X (534)
OCEM AIRFIELD TECHNOLOGY	L-850B(L)	1,2	3	1			LIRD-F-X-R-0-X (534)
OCEM AIRFIELD TECHNOLOGY	L-850B(L)	1,2	3	1			LIRZ-F-X-0-X (1023)
OCEM AIRFIELD TECHNOLOGY	L-850C(L)	1, 2	3	1			LIRE-F-WW-XP-0-X (1023); LIRE-F-WY-XP-0-X (1023)(538); LIRE-F-YW-XP-0-X (538)(1023); LIREF-WR-XP-0-X (1023)(536); LIRE-F-RW-XP-0-X (536)(1023); LIRE-F-YR-XP-0-X (538)(536); LIRE-F-RY-XP-0-X (536)(538); LIRE-F-YG-XP-0-X (538)(537); LIRE-F-GY-XP-0-X (537)(538)
TKH AIRPORT SOLUTIONS	L-850A(L)	1	3	1			RCL-S-F-x1-W00R00-1-xx-1000 (863)(864)
TKH AIRPORT SOLUTIONS	L-850A(L)	1	3	1			RCL-S-F-x1-W00W00-1-xx-1000 (863)
TKH AIRPORT SOLUTIONS	L-850A(L)	1	3	1			RCL-S-F-x1-000R00-1-xx-1000 (864)
TKH AIRPORT SOLUTIONS	L-850A(L)	1	3	1			RCL-S-F-x1-000W00-1-xx-1000 (863)
TKH AIRPORT SOLUTIONS	L-850B(L)	1	3	1			TDZ-S-F-x1-W00000-1-xx-1000 (863)
TKH AIRPORT SOLUTIONS	L-850C(L)	2	3	1			REH-L-F-x2-W35R35-1-xx-1000 (867)(868)
TKH AIRPORT SOLUTIONS	L-850C(L)	2	3	1			REH-R-F-x2-W35R35-1-xx-1000 (867)(868)
TKH AIRPORT SOLUTIONS	L-850C(L)	2	3	1			REH-L-F-x2-W35W35-1-xx-1000 (867)
TKH AIRPORT SOLUTIONS	L-850C(L)	2	3	1			REH-R-F-x2-W35W35-1-xx-1000 (867)
TKH AIRPORT SOLUTIONS	L-850C(L)	2	3	1			REH-S-F-x2-W3535-1-xx-1000 (867)(909)
TKH AIRPORT SOLUTIONS	L-850C(L)	2	3	1			REH-S-F-x2-Y35R35-1-xx-1000 (909)(868)
TKH AIRPORT SOLUTIONS	L-850D(L)	2	3	1			THRE-L-F-x2-G35R00-1-xx-1000 (869)(870) THRE-R-F-x2-R00G35-1-xx-1000 (870)(869) THR-L-F-x2-G35000-1-xx-1000 (869); THR-R-F-x2-000G35-1-xx-1000(869) RWE-S-F-x2-R00R00-1-xx-1000 (870); RWE-S-F-x2-R00000-1-xx-1000(870)
TKH AIRPORT SOLUTIONS	L-850E(L)	2	3	1			THR-S-F-x2-G00000-1-xx-1000 (869)
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-850A	2	3	1			IHG-RCLL-2-048-2-01-1 (842) IHG-RCLL-2-048-2-02-1 (842)
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-850B	1,2	3	1			IHD-RTZL-1-048-1-01-1-X (842)
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-850A(L)	1,2	3	1			IHH(L)-RCLL-W/W-11 (956)(956);IHH(L)-RCLL-W/W-41 (956)(956); IHH(L)-RCLL-W/R-11 (956)(957);IHH(L)-RCLL-W/R-41 (956)(957); IHH(L)-RCLL-W-11 (956);IHH(L)-RCLL-R-11(957)
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-850B(L)	1,2	3	1			IHH(L)-RTZL-W--11 (956);IHH(L)-RTZL-W-21 (956); IHH(L)-RTZL-W-31 (956);

MFG	FAA type	CLASS	STYLE	MODE	SIZE	RATING	CAT NO.
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-850D(L)	1	2	1			IHF(L)-RTHL/RENL-G/R-21(996)(995);IHF(L)-RTHL/RENL-G/R-31(996)(995) IHF(L)-RTHL-G-21(996); IHF(L)-RTHL-G-31(996) IHF(L)-RENL-R/R-11(995);IHF(L)-RENL-R-11(995)
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-850C(L)	1	2	1			IHF(L)-REDL-W/W-21(993) IHF(L)-REDL-W/Y-21(993)(994); IHF(L)-REDL-W/Y-31(993)(994) IHF(L)-REDL-W/R-21(993)(995); IHF(L)-REDL-W/R-31(993)(995) IHF(L)-REDL-Y/R-21(994)(995); IHF(L)-REDL-Y/R-31(994)(995)
L-852 Taxiway Inpavement Lights (FAA AC 150/5345-46E							
ADB SAFEGATE AMERICAS, LLC	L-852C(L)	1, 2	3	1			SLXTCI8UNSY6.6AX1CL852C(L) (721);SITCS1UNXYNXGA22 (721); SLXTCI8BNSYY6.6AX1CL852C(L) (721);SITCS1BNXYYXGA22 (721); SLXTCI8UNSF6.6AX1CL852C(L) (723);SITCS1UNXFNXGA22 (723); SLXTCI8BNSFF6.6AX1CL852C(L) (723);SITCS1BNXFFXGA22 (723); SLXTCI8BNSFY6.6AX1CL852C(L) (721)(723); SITCS1BNXFYXGA22 (721)(723)
ADB SAFEGATE AMERICAS, LLC	L-852K(L)	1, 2	3	1			SLXTCI8BCSFF6.6AX1CL852K(L) (766)(767); SITCS1BCXFFXGA22 (766)(767);SLXTCI8ULSF6.6AX1CL852K(L) (766); SITCS1ULXFNXGA22 (766);SLXTCI8URSF6.6AX1CL852K(L) (767); SITCS1URXFNXGA22 (767);SLXTCI8BCSYY6.6AX1CL852K(L) (768)(769); SITCS1BCXYYXGA22 (768)(769);SLXTCI8ULSY6.6AX1CL852K(L) (768); SITCS1ULXYNXGA22 (768);SLXTCI8URSY6.6AX1CL852K(L) (769); SITCS1URXYNXGA22 (769)
ADB SAFEGATE AMERICAS, LLC	L-852D(L)	1, 2	3	1			SLXTCI8UDSY6.6AX1CL852D(L) (726);SITCS1UDXYNXGA22 (726); SLXTCI8BDSYY6.6AX1CL852D(L) (726);SITCS1BDXYYXGA22 (726); SLXTCI8UDSF6.6AX1CL852D(L) (728);SITCS1UDXFNXGA22 (728); SLXTCI8BDSFF6.6AX1CL852D(L) (728);SITCS1BDXFFXGA22 (728)
ADB SAFEGATE AMERICAS, LLC	L-852G(L)	1, 2	3	1			SLXRGLI8USSY6.6AX1CL852G(L)(714);SIRGS1USXYNXGA22(714)
ADB SAFEGATE AMERICAS, LLC	L-852D(L)	2	3	1			D2DXXYY0XXF0XU0 (659); D2DXXGG0XXF0XU0 (658) D2DXXYY0XXF1XU0 (659); D2DXXGG0XXF1XU0 (658) D2DXXYN0XXF0XU0 (659); D2DXXGN0XXF0XU0 (658) D2DXXYN0XXF1XU0 (659); D2DXXGN0XXF1XU0 (658) D2DXXWN0XXF0XU0 (666); D2DXXWW0XXF0XU0 (666) D2DXXWN0XXF1XU0 (666); D2DXXWW0XXF1XU0 (666) D2DXXWY0XXF0XU0 (659)(666); D2DXXWY0XXF1XU0 (658)(666)
ADB SAFEGATE AMERICAS, LLC	L-852C(L)	2	3	1			D2CXXYY0XXF0XU0 (663); D2CXXGG0XXF0XU0 (662) D2CXXYY0XXF1XU0 (663); D2CXXGG0XXF1XU0 (662) D2CXXYN0XXF0XU0 (663); D2CXXGN0XXF0XU0 (662) D2CXXYN0XXF1XU0 (663); D2CXXGN0XXF1XU0 (662) D2CXXYG0XXF0XU0 (663)(662); D2CXXYG0XXF1XU0 (663)(662);
ADB SAFEGATE AMERICAS, LLC	L-852A(L)	2	3	1			D2AXXYY0XXF0XU0 (663); D2AXXGG0XXF0XU0 (662) D2AXXYY0XXF1XU0 (663); D2AXXGG0XXF1XU0 (662) D2AXXYN0XXF0XU0 (663); D2AXXGN0XXF0XU0 (662) D2AXXYN0XXF1XU0 (663); D2AXXGN0XXF1XU0 (662) D2AXXYG0XXF0XU0 (663)(662); D2AXXYG0XXF1XU0 (663)(662);
ADB SAFEGATE AMERICAS, LLC	L-852B(L)	2	3	1			D2BXXYY0XXF0XU0 (665); D2BXXGG0XXF0XU0 (664) D2BXXYY0XXF1XU0 (665); D2BXXGG0XXF1XU0 (664) D2BXXYN0XXF0XU0 (665); D2BXXGN0XXF0XU0 (664) D2BXXYN0XXF1XU0 (665); D2BXXGN0XXF1XU0 (664)
ADB SAFEGATE AMERICAS, LLC	L-852J(L)	2	3	1			D2JXXYY3XSF0XU0 (887)(886); D2JXXGG3XSF0XU0 (885)(884) D2JXXYY3XSF1XU0 (887)(886); D2JXXGG3XSF1XU0 (885)(884) D2JXXYN3XSF0XU0 (887); D2JXXGN3XSF0XU0 (885) D2JXXYN3XSF1XU0 (887); D2JXXGN3XSF1XU0 (885) D2JXXNY3XSF0XU0 (886); D2JXXNG3XSF0XU0 (884) D2JXXNY3XSF1XU0 (886); D2JXXNG3XSF1XU0 (884
ADB SAFEGATE AMERICAS, LLC	L-852K(L)	2	3	1			D2KXXYY3XSF0XU0 (891)(890); D2KXXGG3XSF0XU0 (889)(888) D2KXXYY3XSF1XU0 (891)(890); D2KXXGG3XSF1XU0 (889)(888) D2KXXYN3XSF0XU0 (891); D2KXXGN3XSF0XU0 (889) D2KXXYN3XSF1XU0 (891); D2KXXGN3XSF1XU0 (889) D2KXXNY3XSF0XU0 (890); D2KXXNG3XSF0XU0 (888) D2KXXNY3XSF1XU0 (890); D2KXXNG3XSF1XU0 (888
ADB SAFEGATE AMERICAS, LLC	L-852G(L)	2	3	1			IRGL-XXX11 (426)
ADB SAFEGATE AMERICAS, LLC	L-852G(L)	2	3	1			IRGS-X1X00 (426)
ADB SAFEGATE AMERICAS, LLC	L-852S(L)	2	3	1			IRGS-X1X00 (420)
ADB SAFEGATE AMERICAS, LLC	L-852T(L)	2	3	1			ITEL-C11X (445); ITEL-C21X (445)
ADB SAFEGATE AMERICAS, LLC	L-852C	2	3	1			44A4764-XX1X (416); 44A4764-XX3X (416)
ADB SAFEGATE AMERICAS, LLC	L-852D	2	3	1			44A4765-XX1X (316); 44A4765-XX3X (316)
ADB SAFEGATE AMERICAS, LLC	L-852G(L)	1, 2	3				RSRG2X2X1NYXX2X1(1011);RSRG2X1X1NYXX2X1(1012) RSRG2X3X1NYXX2X1(1012)
ADB SAFEGATE AMERICAS, LLC	L-852A(L)	1,2	3				RSTA2xxxxNxxSxx1(981)(982); RSTA2xxxxNxxMxx1(981)(982); RSTA2xxxxNxxRxx1(981)(982);
ADB SAFEGATE AMERICAS, LLC	L-852B(L)	1,2	3				RSTB2xxxxNxxSxx1(981)(982); RSTB2xxxxNxxMxx1(981)(982); RSTB2xxxxNxxRxx1(981)(982);
ADB SAFEGATE AMERICAS, LLC	L-852J(L)	1,2	3				RSTJ2xxxxCxxSxx1(981)(982; RSTJ2xxxxCxxMxx1(981)(982); RSTJ2xxxxCxxRxx1(981)(982)
ADB SAFEGATE AMERICAS, LLC	L-852C(L)	1,2	3				RSTC2xxxxNxxSxx1(983)(984);RSTC2xxxxNxxMxx1(983)(984); RSTC2xxxxNxxRxx1(983)(984);
ADB SAFEGATE AMERICAS, LLC	L-852D(L)	1,2	3				RSTD2xxxxNxxSxx1(985)(986)(987);RSTD2xxxxNxxMxx1(985)(986) (987); RSTD2xxxxNxxRxx1(985)(986)(987)
ADB SAFEGATE AMERICAS, LLC	L-852K(L)	1,2	3				RSTK2xxxxCxxSxx1(989)(990);RSTK2xxxxCxxMxx1(989)(990); RSTK2xxxxCxxRxx1(989)(990);
ADB SAFEGATE AMERICAS, LLC	L-852S(L)	1,2	3				RSSB2xxx1NRNSxx1(988);RSSB2xxx1NRNMxx1(988); RSSB2xxx1NRNRxx1(988);RSTS2x2x1NRNRxx1(988)
ADB SAFEGATE AMERICAS, LLC	L-852S(L)	2	3	1			DREJ2RN0DMF00R0
ADB SAFEGATE AMERICAS, LLC	L-852T(L)	1,2	3				RSTE1XXP3NBNR1X2 (977);RSTE1XXP3NBNR2X2 (977) RSTE1XXP3NBNS1X2 (977);RSTE1XXP3NBNS2X2 (977) RSTE1XXP3NBNM102 (977);RSTE1XXP3NBNM202 (977)
ADB SAFEGATE BV	L-852C(L)	1, 2	3	1			SafeLEDXTCI12UNSY6.6A1CL852C(L) (722); SafeLEDXTCI12BNSYY6.6A1CL852C(L) (722); SafeLEDXTCI12UNSF6.6A1CL852C(L) (724); SafeLEDXTCI12BNSFF6.6A1CL852C(L) (724); SafeLEDXTCI12BNSFY6.6A1CL852C(L) (722)(724)
ADB SAFEGATE BV	L-852C(L)	1	2	1			DTSA3GG0AS00001(772); DTSA3GG0AM00001(772) DTSA3GY0AS00001(772) (773); DTSA3GY0AM00001(772) (773); DTSA3YY0AS00001 (773); DTSA3YY0AM00001 (773) DTSA2GN0AS00001(772); DTSA2GN0AM00001(772) DTSA2YN0AS00001 (773); DTSA2YN0AM00001 (773)
ADB SAFEGATE BV	L-852C(L)	2	2	1			DTSL3GG0AS00001(772); DTSL3GG0AM00001(772) DTSL3GY0AS00001(772)(773); DTSL3GY0AM00001(772)(773) DTSL3YY0AS00001 (773); DTSL3YY0AM00001 (773) DTSL2GN0AS00001(772); DTSL2GN0AM00001(772) DTSL2YN0AS00001 (773); DTSL2YN0AM00001 (773)
ADB SAFEGATE BV	L-852K(L)	1	2	1			DTCA3GG3AS00001(772); DTCA3GG3AM00001(772) DTCA3YY3AS00001(773); DTCA3YY3AM00001(773) DTCA2GN3AS00001(772); DTCA2GN3AM00001(772) DTCA2NG3AS00001(772); DTCA2NG3AM00001(772) DTCA2YN3AS00001(773); DTCA2YN3AM00001(773) DTCA2NY3AS00001(773); DTCA2NY3AM00001(773)

MFG	FAA type	CLASS	STYLE	MODE	SIZE	RATING	CAT NO.
ADB SAFEGATE BV	L-852K(L)	2	2	1			DTCL3GG3AS00001(772); DTCL3GG3AM00001(772) DTCL3YY3AS00001(773); DTCL3YY3AM00001(773) DTCL2GN3AS00001(772); DTCL2GN3AS00001(772) DTCL2NG3AS00001(772); DTCL2NG3AM00001(772) DTCL2YN3AS00001(773); DTCL2YN3AM00001(773) DTCL2NY3AS00001(773); DTCL2NY3AM00001(773)
ADB SAFEGATE BV	L-852G(L)	1, 2	3				RSRG202X1NYXX2X1(1011);RSRG201X1NYXX2X1(1012) RSRG203X1NYXX2X1(1012)
ADB SAFEGATE BV	L-852S(L)	1,2	3				RSSB20xx1NRNSxx1(988);RSSB20xx1NRNMxx1(988); RSSB20xx1NRNRxx1(988);RSTS202x1NRNRxx1 (988)
ADB SAFEGATE BV	L-852A(L)	1,2	3				RSTA20xxxNxxSxx1(981)(982);RSTA20xxxNxxMxx1(981)(982); RSTA20xxxNxxRxx1(981)(982)
ADB SAFEGATE BV	L-852B(L)	1,2	3				RSTB20xxxNxxSxx1(981)(982);RSTB20xxxNxxMxx1(981)(982); RSTB20xxxNxxRxx1(981)(982)
ADB SAFEGATE BV	L-852J(L)	1,2	3				RSTJ20xxxCxxSxx1(981)(982);RSTJ20xxxCxxMxx1(981)(982); RSTJ20xxxCxxRxx1(981)(982)
ADB SAFEGATE BV	L-852C(L)	1,2	3				RSTC20xxxNxxSxx1(983)(984);RSTC20xxxNxxMxx1(983)(984); RSTC20xxxNxxRxx1(983)(984)
ADB SAFEGATE BV	L-852D(L)	1,2	3				RSTD20xxxNxxSxx1(985)(986)(987);RSTD20xxxNxxMxx1(985)(986)(987); RSTD20xxxNxxRxx1(985)(986)(987)
ADB SAFEGATE BV	L-852K(L)	1,2	3				RSTK20xxxCxxSxx1(989)(990);RSTK20xxxCxxMxx1(989)(990); RSTK20xxxCxxRxx1(989)(990)
ADB SAFEGATE BV	L-852T(L)	1	3				RSTE101S3NBNM101(1000); RSTE101S3NBNS101(1000)
ADB SAFEGATE BV	L-852T(L)	1,2	3				RSTE10XP3NBNR1X2 (977);RSTE10XP3NBNR2X2 (977) RSTE10XP3NBNS1X2 (977);RSTE10XP3NBNS2X2 (977) RSTE10XP3NBNM102 (977);RSTE10XP3NBNM202 (977)
AIRSAFE AIRPORT EQUIPMENT CO LTD	L-852C(L)	1, 2	1, 3				TCLZ-08-S-LED-XX-XP-X (1021) (1022)
AIRSAFE AIRPORT EQUIPMENT CO LTD	L-852K(L)	1, 2	1, 3				TCLZ-08-C-LED-GG-XP-X (1019); TCLZ-08-C-LED-YY-XP-X (1020); TCLZ-08-C-LED-BX-1P-X (1019)(1020); TCLZ-08-C-LED-XB-1P-X (1019)(1020)
AIRSAFE AIRPORT EQUIPMENT CO LTD	L-852S(L)	1, 2	1, 3				SBLZ-08-S-LED-F-R-X (1018); RELRZ-08-S-LED-F-R-X (1018)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-852E	2	3	1			852E3-12A (219)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-852T	2	3	1			852T3-12A (219); 852T3-12B (219)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-852T(L)	2	3	1			852T-AP1-12A (397); 852T-AP1-12B (397); 852T-AP1-12A-1(397); 852T-AP1-12B-1(397)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-852G(L)	2	3	1			852GAP1-YN-XX-FS-X (872)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-852S(L)	2	3	1			852SAP1-RN-XX-FS-X (904)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-852G(L)	2	3	1			852GAP1-YN-XX-12-P1-X (872)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-852S(L)	2	3	1			852SAP1-RN-XX-12-P1-X (904)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-852G(L)	2	3	1			852GSAP1-YR-XX-12-XX-X (872)(904)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-852S(L)	2	3	1			852GSAP1-YR-XX-12-XX-X (872)(904)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-852C(L)	2	3	1			852C-AP1-XX-F1-12U-XX-X-0 (586) (587)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-852D(L)	2	3	1			852D-AP1-GN-F1-12U-XX-X-0 (991);852D-AP1-YN-F1-12U-XX-X-0 (992); 852D-AP1-GG-F1-12U-XX-X-0 (991);852D-AP1-YY-F1-12U-XX-X-0 (992)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-852A(L)	2	3	1			852A-AP1-XX-F1-12U-XX-X-0 (584) (585)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-852B(L)	2	3	1			852B-AP1-GN-F1-12U-XX-X-0 (991); 852B-AP1-YN-F1-12U-XX-X-0 (585); 852B-AP1-GG-F1-12U-XX-X-0 (991); 852B-AP1-YY-F1-12U-XX-X-0 (585)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-852J(L)	2	3	1			852J-AP1-GN-F1-12U-XX-X-0 (584); 852J-AP1-YN-F1-12U-XX-X-0 (585); 852J-AP1-NG-F1-12U-XX-X-0 (584);852J-AP1-NY-F1-12U-XX-X-0 (585); 852J-AP1-GG-F1-12U-XX-X-0 (584); 852J-AP1-YY-F1-12U-XX-X-0 (585)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-852K(L)	2	3	1			852K-AP1-GN-F1-12U-XX-X-0 (584); 852K-AP1-YN-F1-12U-XX-X-0 (585); 852K-AP1-NG-F1-12U-XX-X-0 (584); 852K-AP1-NY-F1-12U-XX-X-0 (585); 852K-AP1-GG-F1-12U-XX-X-0 (584); 852K-AP1-YY-F1-12U-XX-X-0 (585)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-852A(L)	2	3	1			852A-AP1-XX-F1-8FS-XX-X-X (991) (585)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-852B(L)	2	3	1			852B-AP1-GN-F1-8FS-XX-X-X (991);852B-AP1-YN-F1-8FS-XX-X-X (585); 852B-AP1-GG-F1-8FS-XX-X-X (991);852B-AP1-YY-F1-8FS-XX-X-X (585)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-852J(L)	2	3	1			852J-AP1-GN-F1-8FL-XX-X-X (991); 852J-AP1-YN-F1-8FL-XX-X-X (992); 852J-AP1-NG-F1-8FR-XX-X-X (991); 852J-AP1-NY-F1-8FR-XX-X-X (992); 852J-AP1-GG-F1-8FC-XX-X-X (991); 852J-AP1-YY-F1-8FC-XX-X-X (992)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-852K(L)	2	3	1			852K-AP1-GN-F1-8FL-XX-X-X (584); 852K-AP1-YN-F1-8FL-XX-X-X (585); 852K-AP1-NG-F1-8FR-XX-X-X (584); 852K-AP1-NY-F1-8FR-XX-X-X (585); 852K-AP1-GG-F1-8FC-XX-X-X (584); 852K-AP1-YY-F1-8FC-XX-X-X (585)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-852C(L)	2	3	1			852C-AP1-XX-F1-8FS-XX-X-X (586) (587)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-852D(L)	2	3	1			852D-AP1-GN-F1-8FS-XX-X-X (991);852D-AP1-YN-F1-8FS-XX-X-X (992); 852D-AP1-GG-F1-8FS-XX-X-X (991);852D-AP1-YY-F1-8FS-XX-X-X (992)
HONEYWELL	L-852C(L)	1	3	1			TCL-GY-1I08BSC003SN0M1L200 (933)(934); TCL-YG-1I08BSC003SN0M1L200 (934)(933); TCL-GG-1I08BSC003SN0M1L200 (933); TCL-GN-1I08USC003SN0M1L100 (933); IHP-YY-1I08BSC003SN0M1L200 (934); IHP-YN-1I08USC003SN0M1L100 (934)
HONEYWELL	L-852D(L)	1	3	1			TCL-GG-1I08BSC025SU0M1L200 (940); TCL-YY-1I08BSC025SU0M1L200 (941); TCL-WW-1I08BSC025SU0M1L100 (939); TCL-WY-1I08BSC025SU0M1L200 (939)(941); TCL-YW-1I08BSC025SU0M1L200 (941)(939); TCL-GN-1I08USC025SU0M1L100 (940); TCL-YN-1I08USC025SU0M1L100 (941); TCL-WN-1I08USC025SU0M1L100 (939)
HONEYWELL	L-852K(L)	1	3	1			TCL-GG-1I08BSC004CL0M1L200 (935)(937); TCL-GG-1I08BSC004CR0M1L200 (937)(935); TCL-YY-1I08BSC004CL0M1L200 (936)(938); TCL-YY-1I08BSC004CR0M1L200 (938)(936); TCL-GN-1I08USC004CL0M1L100 (935); TCL-GN-1I08USC004CR0M1L100 (937); TCL-YN-1I08USC004CL0M1L100 (936); TCL-YN-1I08USC004CR0M1L100 (938)
HUGHEY & PHILLIPS, LLC	L-852G(L)	2	3	1			L852G-L-Y-X-1-X (797)
HUGHEY & PHILLIPS, LLC	L-852S(L)	S	3	1			L-852S-L-R-1-X
HUGHEY & PHILLIPS, LLC	L-852A(L)	2	3	1			L-852A-L-X-GG-2-X-G2; (834); L-852A-L-X-GY-2-X-G2; (834) (833) L-852A-L-X-YY-2-X-G2; (833); L-852A-L-X-YB-1-1-G2;(833) L-852A-L-X-GB-1-1-G2 (834)
HUGHEY & PHILLIPS, LLC	L-852B(L)	2	3	1			L-852B-L-X-GG-2-X-G2 (836);L-852B-L-X-YY-2-X-G2 (835); L-852B-L-X-GB-1-X-G2 (836);L-852B-L-X-YB-1-X-G2 (835)
HUGHEY & PHILLIPS, LLC	L-852C(L)	2	3	1			L-852C-L-X-GG-2-X-G2 (834);L-852C-L-X-GY-2-X-G2 (834) (833); L-852C-L-X-YY-2-X-G2 (833);L-852C-L-X-GB-1-X-G2 (834); L-852C-L-X-YB-1-X-G2 (833)
HUGHEY & PHILLIPS, LLC	L-852D(L)	2	3	1			L-852D-L-X-GG-2-X-G2 (836); L-852D-L-X-YY-2-X-G2 (835); L-852D-L-X-WW-2-X-G2 (832);L-852D-L-X-WY-2-X-G2 (832) (835); L-852D-L-X-GB-1-X-G2 (836);L-852D-L-X-YB-1-X-G2 (835); L-852D-L-X-WB-1-X-G2 (832)
HUGHEY & PHILLIPS, LLC	L-852J(L)	2	3	1			L-852J-L-X-GG-X-X-G2 (834); L-852J-L-X-YY-X-X-G2 (833) L-852J-L-X-GB-X-1-G2 (834); L-852J-L-X-YB-X-1-G2 (833)
HUGHEY & PHILLIPS, LLC	L-852K(L)	2	3	1			L-852K-L-X-GG-X-X-G2 (836); L-852K-L-X-YY-X-X-G2 (835) L-852K-L-X-GB-X-1-G2 (836); L-852K-L-X-YB-X-1-G2 (835)
HUGHEY & PHILLIPS, LLC	L-852T(L)	2	3	1			L-852T-L-X-G2 (841)
MULTI-ELECTRIC MANUFACTURING, INC.	L-852S(L)	1, 2	3	1			LTWS04-X-X (532)
MULTI-ELECTRIC MANUFACTURING, INC.	L-852T(L)	1, 2	3	1			LTO1804-F-0-X-X (543)

MFG	FAA type	CLASS	STYLE	MODE	SIZE	RATING	CAT NO.
MULTI-ELECTRIC MANUFACTURING, INC.	L-852A(L)	1	3	1			LTA0804-F-A-GG-XX-0-X-X (540); LTA0804-F-A-GY-XX-0-X-X (540)(541) LTA0804-F-A-YG-XX-0-X-X (541)(540); LTA0804-F-A-YY-XX-0-X-X (541) LTA0804-F-A-GS-1P-0-X-X (540); LTA0804-F-A-YS-1P-0-X-X (541) LTA0804-F-A-GM-1P-0-X-X (540); LTA0804-F-A-YM-1P-0-X-X (541)
MULTI-ELECTRIC MANUFACTURING, INC.	L-852B(L)	1	3	1			LTA0804-F-B-GG-XX-0-X-X (540);LTA0804-F-B-YY-XX-0-X-X (541) LTA0804-F-B-GS-1P-0-X-X (540);LTA0804-F-B-GM-1P-0-X-X (540) LTA0804-F-B-YS-1P-0-X-X (541); LTA0804-F-B-YM-1P-0-X-X (541) LTA0804-F-B-SG-1P-0-X-X (540);LTA0804-F-B-MG-1P-0-X-X (540) LTA0804-F-B-SY-1P-0-X-X (541);LTA0804-F-B-MY-1P-0-X-X (541)
MULTI-ELECTRIC MANUFACTURING, INC.	L-852C(L)	1	3	1			LTA0804-F-C-GG-XX-0-X-X (540); LTA0804-F-C-GY-XX-0-X-X (540)(541) LTA0804-F-C-YG-XX-0-X-X (541)(540); LTA0804-F-C-YY-XX-0-X-X (541) LTA0804-F-C-GS-1P-0-X-X (540); LTA0804-F-C-GM-1P-0-X-X (540) LTA0804-F-C-YS-1P-0-X-X (541); LTA0804-F-C-YM-1P-0-X-X (541) LTA0804-F-C-SG-1P-0-X-X (540); LTA0804-F-C-MG-1P-0-X-X (540) LTA0804-F-C-SY-1P-0-X-X (541); LTA0804-F-C-MY-1P-0-X-X (541)
MULTI-ELECTRIC MANUFACTURING, INC.	L-852J(L)	1	3	1			LTA0804-F-J-GG-XX-0-X-X (540); LTA0804-F-J-YY-XX-0-X-X (541) LTA0804-F-J-GS-1P-0-X-X (540); LTA0804-F-J-GM-1P-0-X-X (540) LTA0804-F-J-YS-1P-0-X-X (541); LTA0804-F-J-YM-1P-0-X-X (541) LTA0804-F-J-SG-1P-0-X-X (540); LTA0804-F-J-MG-1P-0-X-X (540) LTA0804-F-J-SY-1P-0-X-X (541); LTA0804-F-J-MY-1P-0-X-X (541)
MULTI-ELECTRIC MANUFACTURING, INC.	L-852K(L)	1	3	1			LTA0804-F-K-GG-XX-0-X-X (540); LTA0804-F-K-YY-XX-0-X-X (541) LTA0804-F-K-GS-1P-0-X-X (540); LTA0804-F-K-GM-1P-0-X-X (540) LTA0804-F-K-YS-1P-0-X-X (541); LTA0804-F-K-YM-1P-0-X-X (541) LTA0804-F-K-SG-1P-0-X-X (540); LTA0804-F-K-MG-1P-0-X-X (540) LTA0804-F-K-SY-1P-0-X-X (541); LTA0804-F-K-MY-1P-0-X-X (541)
MULTI-ELECTRIC MANUFACTURING, INC.	L-852A(L)	1, 2	3	1			LTA1204-F-A-GG-XX-0-X-X (540); LTA1204-F-A-GY-XX-0-X-X (540)(541) LTA1204-F-A-YG-XX-0-X-X (541)(540); LTA1204-F-A-YY-XX-0-X-X (541) LTA1204-F-A-GS-1P-0-X-X (540); LTA1204-F-A-YS-1P-0-X-X (541) LTA1204-F-A-GM-1P-0-X-X (540); LTA1204-F-A-YM-1P-0-X-X (541)
MULTI-ELECTRIC MANUFACTURING, INC.	L-852B(L)	1, 2	3	1			LTA1204-F-B-GG-XX-0-X-X (540); LTA1204-F-B-YY-XX-0-X-X (541) LTA1204-F-B-GS-1P-0-X-X (540); LTA1204-F-B-GM-1P-0-X-X (540) LTA1204-F-B-YS-1P-0-X-X (541); LTA1204-F-B-YM-1P-0-X-X (541) LTA1204-F-B-SG-1P-0-X-X (540); LTA1204-F-B-MG-1P-0-X-X (540) LTA1204-F-B-SY-1P-0-X-X (541); LTA1204-F-B-MY-1P-0-X-X (541)
MULTI-ELECTRIC MANUFACTURING, INC.	L-852C(L)	1, 2	3	1			LTA1204-F-C-GG-XX-0-X-X (540); LTA1204-F-C-GY-XX-0-X-X (540)(541) LTA1204-F-C-YG-XP-0-X-X (541)(540); LTA1204-F-C-YY-XP-0-X-X (541) LTA1204-F-C-GS-1P-0-X-X (540); LTA1204-F-C-GM-1P-0-X-X (540) LTA1204-F-C-YS-1P-0-X-X (541); LTA1204-F-C-YM-1P-0-X-X (541) LTA1204-F-C-SG-1P-0-X-X (540); LTA1204-F-C-MG-1P-0-X-X (540) LTA1204-F-C-SY-1P-0-X-X (541); LTA1204-F-C-MY-1P-0-X-X (541)
MULTI-ELECTRIC MANUFACTURING, INC.	L-852D(L)	1	3	1			LTA0804-F-D-GG-XX-0-X-X (540); LTA0804-F-D-YY-XX-0-X-X (541) LTA0804-F-D-GS-1P-0-X-X (540); LTA0804-F-D-GM-1P-0-X-X (540) LTA0804-F-D-YS-1P-0-X-X (541); LTA0804-F-D-YM-1P-0-X-X (541) LTA0804-F-D-WS-1P-0-X-X (542); LTA0804-F-D-WM-1P-0-X-X (542) LTA0804-F-D-SG-1P-0-X-X (540); LTA0804-F-D-MG-1P-0-X-X (540) LTA0804-F-D-SY-1P-0-X-X (541);LTA0804-F-D-MY-1P-0-X-X (541) LTA0804-F-D-SW-1P-0-X-X (542); LTA0804-F-D-MW-1P-0-X-X (542)
MULTI-ELECTRIC MANUFACTURING, INC.	L-852D(L)	1, 2	3	1			LTA1204-F-D-GG-XX-0-X-X (540); LTA1204-F-D-YY-XX-0-X-X (541) LTA1204-F-D-GS-1P-0-X-X (540); LTA1204-F-D-GM-1P-0-X-X (540) LTA1204-F-D-YS-1P-0-X-X (541); LTA1204-F-D-YM-1P-0-X-X (541) LTA1204-F-D-WS-1P-0-X-X (542); LTA1204-F-D-WM-1P-0-X-X (542) LTA1204-F-D-SG-1P-0-X-X (540); LTA1204-F-D-MG-1P-0-X-X (540) LTA1204-F-D-SY-1P-0-X-X- (541); LTA1204-F-D-MY-1P-0-X-X (541) LTA1204-F-D-SW-1P-0-X-X (542); LTA1204-F-D-MW-1P-0-X-X (542)
MULTI-ELECTRIC MANUFACTURING, INC.	L-852J(L)	1, 2	3	1			LTA1204-F-J-GG-XX-0-X-X (540); LTA1204-F-J-YY-XX-0-X-X (541) LTA1204-F-J-GS-1P-0-X-X (540); LTA1204-F-J-GM-1P-0-X-X (540) LTA1204-F-J-YS-1P-0-X-X (541); LTA1204-F-J-YM-1P-0-X-X (541) LTA1204-F-J-SG-1P-0-X-X (540); LTA1204-F-J-MG-1P-0-X-X (540) LTA1204-F-J-SY-1P-0-X-X (541); LTA1204-F-J-MY-1P-0-X-X (541)
MULTI-ELECTRIC MANUFACTURING, INC.	L-852K(L)	1, 2	3	1			LTA1204-F-J-GS-1P-0-X-X (540); LTA1204-F-J-GM-1P-0-X-X (540)
MULTI-ELECTRIC MANUFACTURING, INC.	L-852A(L)	1, 2	3	1			LTA0804-F-A-GG-XX-R-X-X (540) LTA0804-F-A-GY-XX-R-X-X (540)(541) LTA0804-F-A-YG-XX-R-X-X (541)(540) LTA0804-F-A-YY-XX-R-X-X (541) LTA0804-F-A-GS-1P-R-X-X (540) LTA0804-F-A-YS-1P-R-X-X (541) LTA0804-F-A-GM-1P-R-X-X (540) LTA0804-F-A-YM-1P-R-X-X (541)
MULTI-ELECTRIC MANUFACTURING, INC.	L-852K(L)	1, 2	3	1			LTA0804-F-K-GG-XX-R-X-X (540); LTA0804-F-K-YY-XX-R-X-X (541) LTA0804-F-K-GS-1P-R-X-X (540); LTA0804-F-K-GM-1P-R-X-X (540) LTA0804-F-K-YS-1P-R-X-X (541); LTA0804-F-K-YM-1P-R-X-X (541) LTA0804-F-K-SG-1P-R-X-X (540); LTA0804-F-K-MG-1P-R-X-X (540) LTA0804-F-K-SY-1P-R-X-X (541); LTA0804-F-K-MY-1P-R-X-X (541)
MULTI-ELECTRIC MANUFACTURING, INC.	L-852J(L)	1, 2	3	1			LTA0804-F-J-GG-XX-R-X-X (540); LTA0804-F-J-YY-XX-R-X-X (541) LTA0804-F-J-GS-1P-R-X-X (540); LTA0804-F-J-GM-1P-R-X-X (540) LTA0804-F-J-YS-1P-R-X-X (541); LTA0804-F-J-YM-1P-R-X-X (541) LTA0804-F-J-SG-1P-R-X-X (540); LTA0804-F-J-MG-1P-R-X-X (540) LTA0804-F-J-SY-1P-R-X-X (541); LTA0804-F-J-MY-1P-R-X-X (541)
MULTI-ELECTRIC MANUFACTURING, INC.	L-852D(L)	1, 2	3	1			LTA0804-F-D-GG-XX-R-X-X (540); LTA0804-F-D-YY-XX-R-X-X (541) LTA0804-F-D-GS-1P-R-X-X (540); LTA0804-F-D-GM-1P-R-X-X (540) LTA0804-F-D-YS-1P-R-X-X (541); LTA0804-F-D-YM-1P-R-X-X (541) LTA0804-F-D-WS-1P-R-X-X (542); LTA0804-F-D-WM-1P-R-X-X (542) LTA0804-F-D-SG-1P-R-X-X (540); LTA0804-F-D-MG-1P-R-X-X (540) LTA0804-F-D-SY-1P-R-X-X (541); LTA0804-F-D-MY-1P-R-X-X (541) LTA0804-F-D-SW-1P-R-X-X (542); LTA0804-F-D-MW-1P-R-X-X (542)
MULTI-ELECTRIC MANUFACTURING, INC.	L-852C(L)	1, 2	3	1			LTA0804-F-C-GG-XX-R-X-X (540); LTA0804-F-C-GY-XX-R-X-X (540)(541) LTA0804-F-C-YG-XX-R-X-X (541)(540); LTA0804-F-C-YY-XX-R-X-X (541) LTA0804-F-C-GS-1P-R-X-X (540); LTA0804-F-C-GM-1P-R-X-X (540) LTA0804-F-C-YS-1P-R-X-X (541); LTA0804-F-C-YM-1P-R-X-X (541) LTA0804-F-C-SG-1P-R-X-X (540); LTA0804-F-C-MG-1P-R-X-X (540) LTA0804-F-C-SY-1P-R-X-X (541); LTA0804-F-C-MY-1P-R-X-X (541)
MULTI-ELECTRIC MANUFACTURING, INC.	L-852B(L)	1, 2	3	1			LTA0804-F-B-GG-XX-R-X-X (540); LTA0804-F-B-YY-XX-R-X-X (541) LTA0804-F-B-GS-1P-R-X-X (540); LTA0804-F-B-GM-1P-R-X-X (540) LTA0804-F-B-YS-1P-R-X-X (541); LTA0804-F-B-YM-1P-R-X-X (541) LTA0804-F-B-SG-1P-R-X-X (540); LTA0804-F-B-MG-1P-R-X-X (540) LTA0804-F-B-SY-1P-R-X-X (541); LTA0804-F-B-MY-1P-R-X-X (541)
MULTI-ELECTRIC MANUFACTURING, INC.	L-852G(L)	1, 2	3	1			LITG-F-X-X-X (538)
OCEM AIRFIELD TECHNOLOGY	L-852D	1	3	1			TWCD-D-F-GG-XP-090-0-F (519); TWCD-D-F-YY-XP-090-0-F (519)
OCEM AIRFIELD TECHNOLOGY	L-852E	1	3	1			TWOF-F-Y-045-0-F (519)
OCEM AIRFIELD TECHNOLOGY	L-852G	1, 2	3	1			TWGLF-F-Y-100-R-F (520)
OCEM AIRFIELD TECHNOLOGY	L-852S	1, 2	3	1			TWSBF-F-R-100-R-F (520)
OCEM AIRFIELD TECHNOLOGY	L-852T	1	3	1			TWOF-F-B-045-0-F (519)
OCEM AIRFIELD TECHNOLOGY	L-852A	1	3	1			TWCD-A-F-GG-XP-060-0-F (521); TWCD-A-F-GY-XP-060-0-F (521) TWCD-A-F-YG-XP-060-0-F (521); TWCD-A-F-YY-XP-060-0-F (521)
OCEM AIRFIELD TECHNOLOGY	L-852B	1	3	1			TWCD-B-F-GG-XP-060-0-F (521); TWCD-B-F-YY-XP-060-0-F (521)
OCEM AIRFIELD TECHNOLOGY	L-852C	1	3	1			TWCD-C-F-GG-XP-090-0-F (519); TWCD-C-F-GY-XP-090-0-F (519) TWCD-C-F-YG-XP-090-0-F (519); TWCD-C-F-YY-XP-090-0-F (519)
OCEM AIRFIELD TECHNOLOGY	L-852J	1	3	1			TWCD-J-F-GG-XP-060-0-F (521); TWCD-J-F-YY-XP-060-0-F (521)
OCEM AIRFIELD TECHNOLOGY	L-852A	1, 2	3	1			TWCD-A-F-GG-XP-060-R-F (521); TWCD-A-F-GY-XP-060-R-F (521) TWCD-A-F-YG-XP-060-R-F (521); TWCD-A-F-YY-XP-060-R-F (521)

MFG	FAA type	CLASS	STYLE	MODE	SIZE	RATING	CAT NO.
OCEM AIRFIELD TECHNOLOGY	L-852A	1	3	1			TWCS-A-F-GG-030-0-F (521); TWCS-A-F-GM-030-0-F (521) TWCS-A-F-GY-030-0-F (521); TWCS-A-F-YG-030-0-F (521) TWCS-A-F-YM-030-0-F (521); TWCS-A-F-YY-030-0-F (521)
OCEM AIRFIELD TECHNOLOGY	L-852A	1, 2	3	1			TWCS-A-F-GG-030-R-F (521); TWCS-A-F-GM-030-R-F (521) TWCS-A-F-GY-030-R-F (521); TWCS-A-F-YG-030-R-F (521) TWCS-A-F-YM-030-R-F (521); TWCS-A-F-YY-030-R-F (521)
OCEM AIRFIELD TECHNOLOGY	L-852G	1	3	1			TWGLF-F-Y-100-0-F (520)
OCEM AIRFIELD TECHNOLOGY	L-852S	1	3	1			TWSBF-F-R-100-0-F (520)
OCEM AIRFIELD TECHNOLOGY	L-852J	1, 2	3	1			TWCD-J-F-GG-XP-060-R-F (521); TWCD-J-F-YY-XP-060-R-F (521)
OCEM AIRFIELD TECHNOLOGY	L-852J	1	3	1			TWCS-J-F-GG-030-0-F (521); TWCS-J-F-GM-030-0-F (521) TWCS-J-F-MG-030-0-F (521); TWCS-J-F-MY-030-0-F (521) TWCS-J-F-YM-030-0-F (521); TWCS-J-F-YY-030-0-F (521)
OCEM AIRFIELD TECHNOLOGY	L-852J	1, 2	3	1			TWCS-J-F-GG-030-R-F (521); TWCS-J-F-GM-030-R-F (521) TWCS-J-F-MG-030-R-F (521); TWCS-J-F-MY-030-R-F (521) TWCS-J-F-YM-030-R-F (521); TWCS-J-F-YY-030-R-F (521)
OCEM AIRFIELD TECHNOLOGY	L-852E	1, 2	3	1			TWOF-F-Y-045-R-F (519); TWOFXXX-F-Y-045-0-F (519)
OCEM AIRFIELD TECHNOLOGY	L-852T	1, 2	3	1			TWOF-F-B-045-R-F (519); TWOFXXX-F-B-045-0-F (519)
OCEM AIRFIELD TECHNOLOGY	L-852D	1,2	3	1			TWCD-D-F-GG-XP-090-R-F (519); TWCD-D-F-YY-XP-090-R-F (519)
OCEM AIRFIELD TECHNOLOGY	L-852D	1	3	1			TWCS-D-F-CM-045-0-F (519); TWCS-D-F-GG-045-0-F (519) TWCS-D-F-GM-045-0-F (519); TWCS-D-F-YM-045-0-F (519) TWCS-D-F-YY-045-0-F (519)
OCEM AIRFIELD TECHNOLOGY	L-852D	1,2	3	1			TWCS-D-F-CM-045-R-F (519); TWCS-D-F-GG-045-R-F (519) TWCS-D-F-GM-045-R-F (519); TWCS-D-F-YM-045-R-F (519) TWCS-D-F-YY-045-R-F (519)
OCEM AIRFIELD TECHNOLOGY	L-852C	1, 2	3	1			TWCD-C-F-GG-XP-090-R-F (519); TWCD-C-F-GY-XP-090-R-F (519) TWCD-C-F-YG-XP-090-R-F (519); TWCD-C-F-YY-XP-090-R-F (519)
OCEM AIRFIELD TECHNOLOGY	L-852C	1	3	1			TWCS-C-F-GG-045-0-F (519); TWCS-C-F-GM-045-0-F (519) TWCS-C-F-GY-045-0-F (519); TWCS-C-F-YG-045-0-F (519) TWCS-C-F-YM-045-0-F (519); TWCS-C-F-YY-045-0-F (519)
OCEM AIRFIELD TECHNOLOGY	L-852C	1, 2	3	1			TWCS-C-F-GG-045-R-F (519); TWCS-C-F-GM-045-R-F (519) TWCS-C-F-GY-045-R-F (519); TWCS-C-F-YG-045-R-F (519) TWCS-C-F-YM-045-R-F (519); TWCS-C-F-YY-045-R-F (519)
OCEM AIRFIELD TECHNOLOGY	L-852B	1, 2	3	1			TWCD-B-F-GG-XP-060-R-F (521); TWCD-B-F-YY-XP-060-R-F (521)
OCEM AIRFIELD TECHNOLOGY	L-852B	1	3	1			TWCS-B-F-GG-030-0-F (521); TWCS-B-F-GM-030-0-F (521) TWCS-B-F-YM-030-0-F (521); TWCS-B-F-YY-030-0-F (521)
OCEM AIRFIELD TECHNOLOGY	L-852B	1, 2	3	1			TWCS-B-F-GG-030-R-F (521); TWCS-B-F-GM-030-R-F (521) TWCS-B-F-YM-030-R-F (521); TWCS-B-F-YY-030-R-F (521)
OCEM AIRFIELD TECHNOLOGY	L-852K	1	3	1			TWCD-K-F-GG-XP-090-O-F (519); TWCD-K-F-YY-XP-090-O-F (519)
OCEM AIRFIELD TECHNOLOGY	L-852K	1, 2	3	1			TWCD-K-F-GG-XP-090-R-F (519); TWCD-K-F-YY-XP-090-R-F (519)
OCEM AIRFIELD TECHNOLOGY	L-852K	1	3	1			TWCS-K-F-GG-045-O-F (519); TWCS-K-F-GM-045-O-F (519) TWCS-K-F-MG-045-O-F (519); TWCS-K-F-MY-045-O-F (519) TWCS-K-F-YM-045-O-F (519); TWCS-K-F-YY-045-O-F (519)
OCEM AIRFIELD TECHNOLOGY	L-852K	1, 2	3	1			TWCS-K-F-GG-045-R-F (519); TWCS-K-F-GM-045-R-F (519) TWCS-K-F-MG-045-R-F (519); TWCS-K-F-MY-045-R-F (519) TWCS-K-F-YM-045-R-F (519); TWCS-K-F-YY-045-R-F (519)
OCEM AIRFIELD TECHNOLOGY	L-852B(L)	1	3	1			LITC08-F-B-GG-XP-0-0-X (540); LITC08-F-B-YY-XP-0-0-X (541); LITC08-F-B-GM-1P-0-0-X (540); LITC08-F-B-YM-1P-0-0-X (541)
OCEM AIRFIELD TECHNOLOGY	L-852T(L)	1	3	1			LITE08-F-0-0-X (1033)
OCEM AIRFIELD TECHNOLOGY	L-852A(L)	1	3	1			LITC08-F-A-GG-XP-0-0-X (540); LITC08-F-A-GY-XP-0-0-X(540)(541); LITC08-F-A-YY-XP-0-0-X (541); LITC08-F-A-GM-1P-0-0-X (540); LITC08-F-A-YM-1P-0-0-X (541)
OCEM AIRFIELD TECHNOLOGY	L-852C(L)	1	3	1			LITC08-F-C-GG-XX-0-X-X (540); LITC08-F-C-GY-XX-0-X-X (540)(541) LITC08-F-C-YG-XX-0-X-X (541)(540); LITC08-F-C-YY-XX-0-X-X (541) LITC08-F-C-GS-1P-0-X-X (540); LITC08-F-C-GM-1P-0-X-X (540) LITC08-F-C-YS-1P-0-X-X (541); LITC08-F-C-YM-1P-0-X-X (541) LITC08-F-C-SG-1P-0-X-X (540); LITC08-F-C-MG-1P-0-X-X (540) LITC08-F-C-SY-1P-0-X-X (541);LITC08-F-C-MY-1P-0-X-X (541)
OCEM AIRFIELD TECHNOLOGY	L-852J(L)	1	3	1			LITC08-F-J-GG-XP-0-0-X (540); LITC08-F-J-YY-XP-0-0-X (541); LITC08-F-J-GM-1P-0-0-X (540); LITC08-F-J-YM-1P-0-0-X (541) LITC08-F-J-MG-1P-0-0-X (540); LITC08-F-J-MY-1P-0-0-X (541)
OCEM AIRFIELD TECHNOLOGY	L-852K(L)	1	3	1			LITC08-F-K-GG-XP-0-0-X (540); LITC08-F-K-YY-XP-0-0-X (541); LITC08-F-K-GM-1P-0-0-X (540); LITC08-F-K-YM-1P-0-0-X (541) LITC08-F-K-MG-1P-0-0-X (540); LITC08-F-K-MY-1P-0-0-X (541)
OCEM AIRFIELD TECHNOLOGY	L-852A(L)	1, 2	3	1			LITC12-F-A-GG-XP-0-0-X (540); LITC12-F-A-GY-XP-0-0-X(540)(541); LITC12-F-A-YY-XP-0-0-X (541); LITC12-F-A-GM-1P-0-0-X (540); LITC12-F-A-YM-1P-0-0-X (541)
OCEM AIRFIELD TECHNOLOGY	L-852B(L)	1, 2	3	1			LITC12-F-B-GG-XP-0-0-X (540); LITC12-F-B-YY-XP-0-0-X (541); LITC12-F-B-GM-1P-0-0-X (540); LITC12-F-B-YM-1P-0-0-X (541)
OCEM AIRFIELD TECHNOLOGY	L-852C(L)	1, 2	3	1			LITC12-F-C-GG-XX-0-X-X (540); LITC12-F-C-GY-XX-0-X-X (540)(541) LITC12-F-C-YG-XP-0-X-X (541)(540); LITC12-F-C-YY-XP-0-X-X (541) LITC12-F-C-GS-1P-0-X-X (540); LITC12-F-C-GM-1P-0-X-X (540) LITC12-F-C-YS-1P-0-X-X (541); LITC12-F-C-YM-1P-0-X-X (541) LITC12-F-C-SG-1P-0-X-X (540); LITC12-F-C-MG-1P-0-X-X (540) LITC12-F-C-SY-1P-0-X-X (541); LITC12-F-C-MY-1P-0-X-X (541)
OCEM AIRFIELD TECHNOLOGY	L-852J(L)	1, 2	3	1			LITC12-F-J-GG-XP-0-0-X (540); LITC12-F-J-YY-XP-0-0-X (541); LITC12-F-J-GM-1P-0-0-X (540); LITC12-F-J-YM-1P-0-0-X (541) LITC12-F-J-MG-1P-0-0-X (540); LITC12-F-J-MY-1P-0-0-X (541)
OCEM AIRFIELD TECHNOLOGY	L-852K(L)	1, 2	3	1			LITC12-F-K-GG-XP-0-0-X (540); LITC12-F-K-YY-XP-0-0-X (541); LITC12-F-K-GM-1P-0-0-X (540); LITC12-F-K-YM-1P-0-0-X (541) LITC12-F-K-MG-1P-0-0-X (540); LITC12-F-K-MY-1P-0-0-X (541)
OCEM AIRFIELD TECHNOLOGY	L-852D(L)	1	3	1			LITC08-F-C-GG-XP-0-0-X (540); LITC08-F-C-GY-XP-0-0-X(540)(541); LITC08-F-C-YY-XP-0-0-X (541); LITC08-F-C-GM-1P-0-0-X (540); LITC08-F-C-YM-1P-0-0-X (541)
OCEM AIRFIELD TECHNOLOGY	L-852D(L)	1, 2	3	1			LITC12-F-C-GG-XP-0-0-X (540); LITC12-F-C-GY-XP-0-0-X(540)(541); LITC12-F-C-YY-XP-0-0-X (541); LITC12-F-C-GM-1P-0-0-X (540); LITC12-F-C-YM-1P-0-0-X (541)
OCEM AIRFIELD TECHNOLOGY	L-852T(L)	1, 2	3	1			LITE18-F-R-0-X (1033) LITE18-F-0-0-X (1033)
OCEM AIRFIELD TECHNOLOGY	L-852K(L)	1, 2	3	1			LITC08-F-K-GG-XX-R-0-X (540); LITC08-F-K-YY-XX-R-0-X (541); LITC08-F-K-GM-1X-R-0-X (540); LITC08-F-K-YM-1X-R-0-X (541) LITC08-F-K-MG-1X-R-0-X (540); LITC08-F-K-MY-1X-R-0-X (541)
OCEM AIRFIELD TECHNOLOGY	L-852J(L)	1,2	3	1			LITC08-F-J-GG-XX-R-0-X (540); LITC08-F-J-YY-XX-R-0-X (541); LITC08-F-J-GM-1X-R-0-X (540); LITC08-F-J-YM-1X-R-0-X (541) LITC08-F-J-MG-1X-R-0-X (540); LITC08-F-J-MY-1X-R-0-X (541)
OCEM AIRFIELD TECHNOLOGY	L-852D(L)	1, 2	3	1			LITC08-F-C-GG-XX-R-0-X (540); LITC08-F-C-GY-XX-R-0-X(540)(541); LITC08-F-C-YY-XX-R-0-X (541); LITC08-F-C-GM-1X-R-0-X (540); LITC08-F-C-YM-1X-R-0-X (541)
OCEM AIRFIELD TECHNOLOGY	L-852C(L)	1, 2	3	1			LITC08-F-C-GG-XX-R-X-X (540); LITC08-F-C-GY-XX-R-X-X (540)(541) LITC08-F-C-YG-XX-R-X-X (541)(540);LITC08-F-C-YY-XX-R-X-X (541) LITC08-F-C-GS-1P-R-X-X (540); LITC08-F-C-GM-1P-R-X-X (540) LITC08-F-C-YS-1P-R-X-X (541);LITC08-F-C-YM-1P-R-X-X (541) LITC08-F-C-SG-1P-R-X-X (540); LITC08-F-C-MG-1P-R-X-X (540) LITC08-F-C-SY-1P-R-X-X (541); LITC08-F-C-MY-1P-R-X-X (541)
OCEM AIRFIELD TECHNOLOGY	L-852B(L)	1, 2	3	1			LITC08-F-B-GG-XX-R-0-X (540); LITC08-F-B-YY-XX-R-0-X (541); LITC08-F-B-GM-1X-R-0-X (540); LITC08-F-B-YM-1X-R-0-X (541)
OCEM AIRFIELD TECHNOLOGY	L-852A(L)	1, 2	3	1			LITC08-F-A-GG-XX-R-0-X (540); LITC08-F-A-GY-XX-R-0-X(540)(541); LITC08-F-A-YY-XX-R-0-X (541); LITC08-F-A-GM-1X-R-0-X (540); LITC08-F-A-YM-1X-R-0-X (541)
OCEM AIRFIELD TECHNOLOGY	L-852G(L)	1, 2	3	1			LITG-F-0-X-X (538)
OCEM AIRFIELD TECHNOLOGY	L-852S(L)	1, 2	3	1			LITS-0-X (532)
TKH AIRPORT SOLUTIONS	L-852T(L)	1	3	1			TXE-O-F-x1-B00000-1-xx-1000 (862)

MFG	FAA type	CLASS	STYLE	MODE	SIZE	RATING	CAT NO.
TKH AIRPORT SOLUTIONS	L-852C(L)	1	3	1			TCL-S-F-x1-G00Y00-1-xx-1000(865)(866)
TKH AIRPORT SOLUTIONS	L-852C(L)	1	3	1			TCL-S-F-x1-G00000-1-xx-1000(865)
TKH AIRPORT SOLUTIONS	L-852C(L)	1	3	1			TCL-S-F-x1-Y00000-1-xx-1000(866)
TKH AIRPORT SOLUTIONS	L-852C(L)	1	3	1			TCL-S-F-x1-G00G00-1-xx-1000(865)
TKH AIRPORT SOLUTIONS	L-852C(L)	1	3	1			TCL-S-F-x1-Y00Y00-1-xx-1000(866)
TKH AIRPORT SOLUTIONS	L-852K(L)	1	3	1			TCC-L-F-x1-GNBGNB-1-xx-1000(865)
TKH AIRPORT SOLUTIONS	L-852K(L)	1	3	1			TCC-R-F-x1-GNBGNB-1-xx-1000(865)
TKH AIRPORT SOLUTIONS	L-852K(L)	1	3	1			TCC-R-F-x1-YNBYNB-1-xx-1000(866)
TKH AIRPORT SOLUTIONS	L-852K(L)	1	3	1			TCC-L-F-x1-YNBYNB-1-xx-1000(866)
TKH AIRPORT SOLUTIONS	L-852K(L)	1	3	1			TCC-R-F-x1-GNB000-1-xx-1000(865)
TKH AIRPORT SOLUTIONS	L-852K(L)	1	3	1			TCC-L-F-x1-GNB000-1-xx-1000(865)
TKH AIRPORT SOLUTIONS	L-852K(L)	1	3	1			TCC-L-F-x1-YNB000-1-xx-1000(866)
TKH AIRPORT SOLUTIONS	L-852K(L)	1	3	1			TCC-R-F-x1-YNB000-1-xx-1000(866)
TKH AIRPORT SOLUTIONS	L-852G(L)	1	3	1			RWGs-S-F-x1-Y00000-1-xO-1000(902)
TKH AIRPORT SOLUTIONS	L-852G(L)	1	3	1			RWG0-S-F-x1-Y00000-1-xO-1000(902)
TKH AIRPORT SOLUTIONS	L-852G(L)	1	3	1			RWG1-S-F-x1-Y00000-1-x0-1000(902)
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-852S(L)	1, 2	3	1			IHH(L)-STBL-R-11 (1004)
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-852A(L)	1, 2	3	1			IMB(L)-TCLL-G/G-SA11(960); IMB(L)-TCLL-G/Y-SA11(960) (1008)
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-852C(L)	1, 2	3	1			IMB(L)-TCLL-G/G-SC11(960); IMB(L)-TCLL-G/Y-SC11(960) (1008)
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-852B(L)	1,2	3	1			IMB(L)-TCLL-G/G-SB11(1009) IMB(L)-TCLL-Y/Y-SB11(1010)
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-852D(L)	1,2	3	1			IMB(L)-TCLL-G/G-SD11(1009); IMB(L)-TCLL-Y/Y-SD11(1010)
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-852J(L)	1, 2	3	1			IMB(L)-TCLL-G/G-CJ21(960); IMB(L)-TCLL-G/G-CJ31(960)
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-852K(L)	1, 2	3	1			IMB(L)-TCLL-G/G-CK21(960); IMB(L)-TCLL-G/G-CK31(960)
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-852T(L)	1,2	3				ILD(L)-TEDL-B-11 (926)
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-852C	1, 2	3	1			IMB-TCLL(S)-X-040-X-0X-X-C (759)
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-852K	1, 2	3	1			IMB-TCLL(C)-X-040-2-01-X-L (759);IMB-TCLL(C)-X-040-2-01-X-R (759);
L-853 Retroreflective Markers (FAA AC 150/5345-39D)							
BrightPortal Resources, LLC	I		I				BPBSL-101 CL Green
BrightPortal Resources, LLC	I		I				BPBSL-101 RW White
VALLEY ILLUMINATORS	II		N/A				AR-100 (14”)
VALLEY ILLUMINATORS	II		N/A				AR-100 (14”)
VALLEY ILLUMINATORS	II		N/A				AR-100 (14” through 30”)
VALLEY ILLUMINATORS	II		N/A				AR-100 (14” through 30”)
FLEXSTAKE, INC.	II		N/A				A650.5; A750.5
FLEXSTAKE, INC.	II		N/A				A650.5; A750.5
FLEXSTAKE, INC.	II		N/A				A650.5, A750.5 (14”)
FLEXSTAKE, INC.	II		N/A				A651, A751 (19”)
FLEXSTAKE, INC.	II		N/A				A652, A752 (24”)
FLEXSTAKE, INC.	II		N/A				A652.5, A752.5 (30”)
FLEXSTAKE, INC.	II		N/A				A650.5, A750.5 (14”)
FLEXSTAKE, INC.	II		N/A				A651, A751 (19”)
FLEXSTAKE, INC.	II		N/A				A652, A752 (24”)
FLEXSTAKE, INC.	II		N/A				A652.5, A752.5 (30”)
VALTIR, LLC	II		N/A				SH6XXSMA-XG-XXX; SH6XXSMT-XG-XXX; SH6XXSST-XG-XXX; SH6XXSLT-XG-XXX;SH6XXGP5-XG-XXX; SH6XXGP3-XG-XXX; SH6XXGP9-XG-XXX
VALTIR, LLC	II		N/A				SH6XXSMA-XS-XXX; SH6XXSMT-XS-XXX; SH6XXSST-XS-XXX; SH6XXSLT-XS-XXX; SH6XXGP5-XS-XXX; SH6XXGP3-XS-XXX; SH6XXGP9-XS-XXX
VALTIR, LLC	II		N/A				SH6XXSMA-XR-XXX; SH6XXSMT-XR-XXX; SH6XXSST-XR-XXX; SH6XXSLT-XR-XXX; SH6XXGP5-XR-XXX; SH6XXGP3-XR-XXX; SH6XXGP9-XR-XXX
VALTIR, LLC	II		N/A				SH6XXSMA-XB-XXX; SH6XXSMT-XB-XXX; SH6XXSST-XB-XXX; SH6XXSLT-XB-XXX; SH6XXGP5-XB-XXX; SH6XXGP3-XB-XXX; SH6XXGP9-XB-XXX
VALTIR, LLC	II		N/A				SH6XXSMA-XA-XXX; SH6XXSMT-XA-XXX; SH6XXSST-XA-XXX; SH6XXSLT-XA-XXX; SH6XXGP5-XA-XXX; SH6XXGP3-XA-XXX; SH6XXGP9-XA-XXX
L-854 Radio Controls (FAA AC 150/5345-49D)							
ADB SAFEGATE AMERICAS, LLC	I						RCE-1X1X
Control Industries Inc.	I						RC-1T5A
RURAL ELECTRIC INC.	I						RDL854-1A
L-856 High Intensity Obstruction Lights, 40FPM (FAA AC 150/5345-43J)							
DIALIGHT CORPORATION	L-856(L)						D366-A57-SYS(882)
Flash (a brand of SPX Aids to Navigation, LLC)	L-856(L)						FTS 270 (855)
POINT LIGHTING CORPORATION	L-856(L)						PFB-38111-W-1-F6 (803)
TECHNOSTROBE	L-856(L)						HIGH-LED-W120 (779)
TECHNOSTROBE	L-856(L)						HIGH-LED-WRV2(971)
L-858 Runway and Taxiway Signs (FAA AC 150/5345-44K)							
ADB SAFEGATE AMERICAS, LLC	L-858(L) Y, R, L	2	2, 3, 5	2	1		SR1X-7XX3XX1 (496)
ADB SAFEGATE AMERICAS, LLC	L-858(L) Y, R, L	2	2, 3, 5	3	1		SS1X-7XX3XX1 (496)
ADB SAFEGATE AMERICAS, LLC	L-858(L) Y, R, L	2	2, 3, 5	2	2		SR2X-7XX3XX1 (497)
ADB SAFEGATE AMERICAS, LLC	L-858(L) Y, R, L	2	2, 3, 5	3	2		SS2X-7XX3XX1 (497)
ADB SAFEGATE AMERICAS, LLC	L-858(L) Y, R, L	2	2, 3, 5	2	3		SR3X-7XX3XX1 (498)
ADB SAFEGATE AMERICAS, LLC	L-858(L) Y, R, L	2	2, 3, 5	3	3		SS3X-7XX3XX1 (498)
ADB SAFEGATE AMERICAS, LLC	L-858(L) B	2	2, 3, 5	2	4		SR4X-7XX3XX1 (496)
ADB SAFEGATE AMERICAS, LLC	L-858(L) B	2	2, 3, 5	3	4		SS4X-7XX3XX1 (496)
ADB SAFEGATE AMERICAS, LLC	L-858(L) B	2	2, 3, 5	2	5		SR5X-7XX3XX1 (498)
ADB SAFEGATE AMERICAS, LLC	L-858(L) B	2	2, 3, 5	3	5		SS5X-7XX3XX1 (498)
ADB SAFEGATE AMERICAS, LLC	L-858(L) H	2	2, 3, 5	2	5		SR51-7XX3XX1 (498)
ADB SAFEGATE AMERICAS, LLC	L-858(L) H	2	2, 3, 5	3	5		SS51-7XX3XX1 (498)
Airport Lighting Company	L-858Y, R, L(L)	2	2,3,5	2	1		I1XHX.XXF(900)
Airport Lighting Company	L-858Y, R, L(L)	2	2,3,5	2	2		I2XHX.XXF (900)
Airport Lighting Company	L-858Y, R, L(L)	2	2,3,5	2	3		I3XHX.XXF (900)
Airport Lighting Company	L-858Y, R, L(L)	2	2,3,5	3	3		I3XHX.XXF3(900)
Airport Lighting Company	L-858(L) B	2	2,3,5	2	4, 5		I4XH1.0XF (900); I5XH1.0XF (900)
Airport Lighting Company	L-858Y,R,L	NA	4	2	1, 2, 3		I14NX.XXF; I24NX.XXF; I34NX.XXF
Airport Lighting Company	L-858Y,R,L	NA	4	3	3		I34NX.XXF3
Airport Lighting Company	L-858(L) B	2	2,3,5	3	4,5		I4XH1.0XF3 (900); I5XH1.0XF3 (900)
Airport Lighting Company	L-858Y, R, L(L)	2	2	2	1, 2, 3		D12HXXF (462); D22HXXF (462); D32HXXF (462)
Airport Lighting Company	L-858Y, R, L(L)	2	3	2	1, 2, 3		D13HXXF (462); D23HXXF (462); D33HXXF (462)
Airport Lighting Company	L-858Y,R,L		4	2	1,2,3		D14NXXF;D24NXXF;D34NXXF
Airport Lighting Company	L-858Y, R, L(L)	2	5	2	1, 2, 3		D15HXXF (462); D25HXXF (462); D35HXXF (462)
Airport Lighting Company	L-858B(L)	2	2, 3, 5	2	5		D5XH1XF (462)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-858(L)	2	2, 3, 5	2, 3	1		858S-AP11X-XX-B-C-X-X-D-L-X (761)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-858(L)	2	2, 3, 5	2, 3	2		858S-AP12X-XX-B-C-XX-D-L-X (761)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-858(L)	2	2, 3, 5	2, 3	3		858S-AP13X-XX-B-C-XX-D-L-X (761)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-858(L)	2	2, 3, 5	2, 3	4		858S-AP14X-XX-B-C-XX-D-L-X (761)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-858(L)	2	2, 3, 5	2, 3	5		858S-AP15X-XX-B-C-XX-D-L-X (761)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-858Y, R, L(L)	1, 2	2, 3, 5	2	3		858S5-F-XX-X-X-XX (448)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-858B(L)	1, 2	2, 3, 5	2	4		858S5-F-BF-X-X-XX (448)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-858B(L)	1, 2	2, 3, 5	2	5		858S5-F-DM-X-X-XX (448)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-858	2	4	2	1, 2, 3		858F4-X-X-X
Hughey & Phillips, LLC	L-858(L) Y,R,L	2	2, 3, 5	2	1		L858-MX-1-2-X; L858-MX-1-2-X-B (E106)

MFG	FAA type	CLASS	STYLE	MODE	SIZE	RATING	CAT NO.
Hughey & Phillips, LLC	L-858(L) Y,R,L	2	2, 3, 5	2	2		L858-MX-2-2-X; L858-MX-2-2-X-B (E106)
Hughey & Phillips, LLC	L-858(L) B	2	2, 3, 5	2	4		L858-MX-4-2-X; L858-MX-4-2-X-B (E106)
Hughey & Phillips, LLC	L-858(L) Y,R,L	2	2, 3, 5	3	1		L858-MX-1-3-X; L858-MX-1-3-X-B (E106)
Hughey & Phillips, LLC	L-858(L) Y,R,L	2	2, 3, 5	3	2		L858-MX-2-3-X; L858-MX-2-3-X-B (E106)
Hughey & Phillips, LLC	L-858(L) Y,R,L	2	2, 3, 5	3	3		L858-MX-3-3-X; L858-MX-3-3-X-B (E106)
Hughey & Phillips, LLC	L-858(L) B	2	2, 3, 5	3	5		L858-MX-5-3-X; L858-MX-5-3-X-B (E106)
Hughey & Phillips, LLC	L-858(L) B	2	2, 3, 5	2	5		L858-MX-5-2-X; L858-MX-5-2-X-B (E106)
Hughey & Phillips, LLC	L-858(L) Y,R,L	2	2, 3, 5	2	3		L858-MX-3-2-X; L858-MX-3-2-X-B (E106)
STANDARD SIGNS, INC.	L-858B(L)	1,2	2, 3, 5	2, 3	4		D1L (442)
STANDARD SIGNS, INC.	L-858B(L)	1,2	2, 3, 5	2, 3	5		DL1L (442)
STANDARD SIGNS, INC.	L-858B	1, 2	2, 3	2, 3	4		D1x (373)
STANDARD SIGNS, INC.	L-858B	1, 2	2, 3	2, 3	5		DL1x (373)
STANDARD SIGNS, INC.	L-858Y, R, L	1, 2	2, 3	2	1		SXx (373)
STANDARD SIGNS, INC.	L-858Y, R, L	1, 2	2, 3	2, 3	2		MXx (373)
STANDARD SIGNS, INC.	L-858Y, R, L	1, 2	2, 3	2, 3	3		LXx (373)
STANDARD SIGNS, INC.	L-858Y, R, L, C	NA	4	2	1, 2, 3		SUL-4; MUL-4; LUL-4 SUL-6; MUL-6; LUL-6
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-858Y(L)	2	3	2	3		TGS(L)-858Y-13223-XXXX (877)
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-858R(L)	2	3	2	3		TGS(L)-858R-13223-XXXX (877)
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-858L(L)	2	3	2	3		TGS(L)-858L-13223-XXXX (877)
L-859 Lights, Flashing, Omnidirectional (FAA AC 150/5345-51B)							
STROBE APPROACH LIGHTING TECHNOLOGY	L-859V		F				L859-V2-F (287)
STROBE APPROACH LIGHTING TECHNOLOGY	L-859I		F				L859-I-F (287)
L-861 Runway and Taxiway Elevated Lights, Medium Intensity (FAA AC 150/5345-46E)							
ADB SAFEGATE AMERICAS, LLC	L-861(L)			1			EMIS2XX0XS00X00 (1027);EMIS2YG0XS00X00 (1028)
ADB SAFEGATE AMERICAS, LLC	L-861E(L)			1			EMIS2RR0XS00X00 (1030); EMIS2RG0XS00X00 (1029) EMIS2NG0XS00X00 (1031)
ADB SAFEGATE AMERICAS, LLC	L-861SE(L)			1			EMIS2RG0XSF0X00 (1026); EMIS2NG0XSF0X00 (1025)
ADB SAFEGATE AMERICAS, LLC	L-861			1			44C1081-21XX(747); 44C1081-61XX(290);44C1081-22XX(747); 44C1081-62XX(290); 44C1081-29XX(747); 44C1081-69XX(290); 44C1081-63XX(290); 44C1081-6CXX(290);44C1081-6DXX(290);
ADB SAFEGATE AMERICAS, LLC	L-861E			1			44C1081-66XX(290); 44C1081-67XX(290); 44C1081-6BXX(290); 44C1081-
ADB SAFEGATE AMERICAS, LLC	L-861T			1			44C1081-55XX(291); 44C1081-65XX(290)
ADB SAFEGATE AMERICAS, LLC	L-861SE			1			44A2090-16X1 (819)(820); 44A2090-18X2 (819)(820)
ADB SAFEGATE AMERICAS, LLC	L-861T(L)			1			ETES-1X1X (445); ETES-6X1X (445);EHP-B2XX0 (445)
AIRPORT LIGHTING COMPANY	L-861			1			216-45-Q-CC-XX (725); 216-45-Q-CY-XX (725); 216-45-Q-YY-XX (725); 216-45-Q-YR-XX (725); 216-45-Q-GY-XX (725); 216-45-Q-CR-XX (725)
AIRPORT LIGHTING COMPANY	L-861E			1			216-45-Q-RR-XX (725); 216-45-Q-RO-XX (725); 216-45-Q-GR-XX (725); 216-45-Q-GO-XX (725)
AIRPORT LIGHTING COMPANY	L-861T			1			216-45-Q-BB-XX (725); 216-30-Q-BB-XX (661)
AIRPORT LIGHTING COMPANY	L-861SE(L)			1			ESEL-RG-XX-X (945)(946); ESEL-GR-XX-X (946)(945); ESEL-OG-XX-X (946); ESEL-GO-XX-X (946)
AIRPORT LIGHTING COMPANY	L-861(L)			1			ALC-861L-CC-XX-X (553); ALC-861L-CY-XX-X (553); ALC-861L-GY-XX-X(555) ALC-861L-RC-XX-X (553); ALC-861L-RY-XX-X (553); ALC-861L-YY-XX-X (553)
AIRPORT LIGHTING COMPANY	L-861E(L)			1			ALC-861L-GO-XX-X (554); ALC-861L-RR-XX-X (553); ALC-861L-RG-XX-X(556)
AIRPORT LIGHTING COMPANY	L-861T(L)			1			ALC-861L-BB-XX-X (552)
AIRPORT LIGHTING COMPANY	L-861(L)						ALC-861L-CC-XX (553); ALC-861L-CY-XX (553) ALC-861L-RC-XX (553); ALC-861L-RY-XX (553) ALC-861L-YY-XX (553); ALC-861L-YY-XX (553
AIRPORT LIGHTING COMPANY	L-861E(L)						ALC-861L-GO-XX (554); ALC-861L-RG-XX (556)
AIRPORT LIGHTING COMPANY	L-861T(L)						ALC-861L-BB-XX (552)
AIRPORT LIGHTING COMPANY	L-861(L)						ALC-861L-CC-XX (553); ALC-861L-CY-XX (553) ALC-861L-RC-XX (553); ALC-861L-RY-XX (553) ALC-861L-YY-XX (553); ALC-861L-YY-XX (553
AIRPORT LIGHTING COMPANY	L-861E(L)						ALC-861L-GO-XX (554); ALC-861L-RG-XX (556)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-861(L)			1			861M-AP1-WM-1-XX-0-0 (653); 861M-AP1-WM-2-XX-0-0 (653); 861M-AP1-WM-1-XX-1-0 (653); 861M-AP1-WM-2-XX-1-0 (653); 861M-AP1-YM-1-XX-0-0 (653); 861M-AP1-YM-2-XX-0-0 (653); 861M-AP1-YM-1-XX-1-0 (653); 861M-AP1-YM-2-XX-1-0 (653)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-861T(L)			1			861T-AP1-BA-1-XX-0-0 (655); 861T-AP1-BA-2-XX-0-0 (655); 861T-AP1-BA-1-XX-1-0 (655); 861T-AP1-BA-2-XX-1-0 (655);
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-861E(L)			1			861E-AP1-RG-1-XX-0-0 (651)(657); 861E-AP1-RG-2-XX-0-0 (651)(657); 861E-AP1-RG-1-XX-1-0 (651)(657); 861E-AP1-RG-2-XX-1-0 (651)(657); 861E-AP1-RR-1-XX-0-0 (651); 861E-AP1-RR-2-XX-0-0 (651); 861E-AP1-RR-1-XX-1-0 (651); 861E-AP1-RR-2-XX-1-0 (651); 861E-AP1-GN-1-XX-0-0 (657); 861E-AP1-GN-2-XX-0-0 (657); 861E-AP1-GN-1-XX-1-0 (657); 861E-AP1-GN-2-XX-1-0 (657)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-861SE(L)			1			861S-AP1-RG-1-XX-0-0 (652)(657); 861S-AP1-RG-2-XX-0-0 (652)(657); 861S-AP1-RG-1-XX-1-0 (652)(657); 861S-AP1-RG-2-XX-1-0 (652)(657); 861S-AP1-GN-1-XX-0-0 (657); 861S-AP1-GN-2-XX-0-0 (657); 861S-AP1-GN-1-XX-1-0 (657); 861S-AP1-GN-2-XX-1-0 (657)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-861(L)			1			861B-AP1-WY-1-XX-0-0 (653); 861B-AP1-WY-2-XX-0-0 (653); 861B-AP1-WY-1-XX-1-0 (653); 861B-AP1-WY-2-XX-1-0 (653); 861B-AP1-WR-1-XX-0-0 (653); 861B-AP1-WR-2-XX-0-0 (653); 861B-AP1-WR-1-XX-1-0 (653); 861B-AP1-WR-2-XX-1-0 (653); 861B-AP1-YR-1-XX-0-0 (653); 861B-AP1-YR-2-XX-0-0 (653); 861B-AP1-YR-1-XX-1-0 (653); 861B-AP1-YR-2-XX-1-0 (653); 861B-AP1-GY-1-XX-0-0 (656)(654); 861B-AP1-GY-2-XX-0-0 (656)(654); 861B-AP1-GY-1-XX-1-0 (656)(654); 861B-AP1-GY-2-XX-1-0 (656)(654)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-861T(L)						861T-1-XX (844)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-861T(L)						861T-2-XX (844)
FLIGHT LIGHT INC.	L-861			1			FL-861-C-45Q-XX-X (33) (818); FL-861-CY-45Q-XX-X (33) (818) FL-861-C-45-XX-X (634); FL-861-CY-45-XX-X (634)
FLIGHT LIGHT INC.	L-861E			1			FL-861-GR-45Q-XX-X (33) (818); FL-861-GR-45-XX-X (634)

MFG	FAA type	CLASS	STYLE	MODE	SIZE	RATING	CAT NO.
FLIGHT LIGHT INC.	L-861T			1			FL-861-B-30Q-XX-X (31) (817); FL-861-B-45Q-XX-X (33) (818) FL-861-B-45-XX-X (634)
HUGHEY & PHILLIPS, LLC	L-861(L)						861-L-W-XX (1037); 861-L-Y-XX (1037);861-L-WY-XX (1037); 861-L-WR-XX (1037);861-L-YR-XX (1037); 861-L-GY-XX (1038)
HUGHEY & PHILLIPS, LLC	L-861SE(L)						861SE-L-GB-XX-X (495);861SE-L-RG-XX-X (494)(495)
HUGHEY & PHILLIPS, LLC	L-861E(L)						861E-L-GB-XX-X (1034);861E-L-RG-XX-X (1035);861E-L-RR-XX-X (1036)
HUGHEY & PHILLIPS, LLC	L-861T(L)						861T-L-B-XX-X (682)
MULTI-ELECTRIC MANUFACTURING, INC.	L-861T(L)			1			LTE-F-XX-A-X-X (544)
MULTI-ELECTRIC MANUFACTURING, INC.	L-861(L)						LEMIRL-F-0-YG-XX-X-X (948); LEMIRL-F-0-W-XX-X-X (949) LEMIRL-F-0-Y-XX-X-X (949); LEMIRL-F-0-YW-XX-X-X (949)
MULTI-ELECTRIC MANUFACTURING, INC.	L-861E(L)						LEMIRL-F-E-RG-XX-X-X(951)(952); LEMIRL-F-E-GM-XX-X-X(951) LEMIRL-F-E-RR-XX-X-X(952)
MULTI-ELECTRIC MANUFACTURING, INC.	L-861SE(L)						LEMIRL-F-S-RG-XX-X-X(950)(952);LEMIRL-F-S-GM-XX-X-X(950)
OCEM AIRFIELD TECHNOLOGY	L-861T(L)			1			LETE-F-35-A-O-X (544); LETE-F-35-B-O-X (544) LETE-F-50-A-O-X (544); LETE-F-50-B-O-X (544) LETE-F-61-A-O-X (544); LETE-F-61-B-O-X (544) LETE-F-76-A-O-X (544); LETE-F-76-B-O-X (544)
OCEM AIRFIELD TECHNOLOGY	L-861(L)						LEMIRL-F-0-YG-XX-X-X (948); LEMIRL-F-0-W-XX-X-X (949) LEMIRL-F-0-Y-XX-X-X (949); LEMIRL-F-0-YW-XX-X-X (949) LEMIRL-F-0-WR-XX-X-X (949);LEMIRL-F-0-YR-XX-X-X (949)
OCEM AIRFIELD TECHNOLOGY	L-861E(L)						LEMIRL-F-E-RG-XX-X-X(951)(952);LEMIRL-F-E-GM-XX-X-X(951) LEMIRL-F-E-RR-XX-X-X(952)
OCEM AIRFIELD TECHNOLOGY	L-861SE(L)						LEMIRL-F-S-RG-XX-X-X(950)(952); LEMIRL-F-S-GM-XX-X-X(950)
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-861T(L)			1			ELE(L)-TEDL-B-FX(926)
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-861T						ELD-TEDL-045-01 (857)
L-862 Runway Edge, Threshold, End, Stop Bar, High Intensity (FAA AC 150/5345-46E)							
ADB SAFEGATE AMERICAS, LLC	L862(L)			1			EREX-2XX31SXXX02 (671)(672)(673)(674); EREX-2XX32SXXX02 (671)(672)(673)(674); EREX-2XX33SXXX02 (671)(672)(673)(674); EREX-2XX34SXXX02 (671)(672)(673)(674) EREX-2XX35SXXX02 (671)(672)(673)(674); EREX-2XX36SXXX02 (671)(672)(673)(674); EREX-2XX37SXXX02 (671)(672)(673)(674); EREX-2XX38SXXX02 (671)(672)(673)(674)
ADB SAFEGATE AMERICAS, LLC	L862E(L)			1			EREX-2XXX1SXXX02 (673)(674); EREX-2XXX2SXXX02 (673)(674); EREX-2XXX3SXXX02 (673)(674); EREX-2XXX4SXXX02 (673)(674); EREX-2XXX5SXXX02 (673)(674); EREX-2XXX6SXXX02 (673)(674); EREX-2XXX7SXXX02 (673)(674); EREX-2XXX8SXXX02 (673)(674)
ADB SAFEGATE AMERICAS, LLC	L-862E			1			44A2071-411X (801); 44A2071-412X (801); 44A2071-413X (801) 44A2071-417X (801)
ADB SAFEGATE AMERICAS, LLC	L-862			1			44A2071-2111 (800); 44A2071-2121 (800); 44A2071-2131 (800); 44A2071-2171 (800);44A2071-2211 (800); 44A2071-2221 (800); 44A2071-2231 (800); 44A2071-2271 (800);44A2071-411X (801); 44A2071-4211 (801);44A2071-412X (801); 44A2071-4221 (801); 44A2071-413X (801); 44A2071-4231 (801);44A2071-417X (801); 44A2071-4271 (801)
ADB SAFEGATE BV	L-862S(L)			1			ETSS2RN00SF0000 (735); ETSS2RN00MF0000 (735)
ADB SAFEGATE BV	L-862(L)			1			EREX-2XX31SXXX02 (671)(672)(673)(674); EREX-2XX32SXXX02 (671)(672)(673)(674); EREX-2XX33SXXX02 (671)(672)(673)(674) EREX-2XX35SXXX02 (671)(672)(673)(674); EREX-2XX36SXXX02 (671)(672)(673)(674); EREX-2XX37SXXX02 (671)(672)(673)(674)
ADB SAFEGATE BV	L-862E(L)			1			EREX-2XXX1SXXX02 (673)(674); EREX-2XXX2SXXX02 (673)(674); EREX-2XXX3SXXX02 (673)(674); EREX-2XXX5SXXX02 (673)(674); EREX-2XXX6SXXX02 (673)(674); EREX-2XXX7SXXX02 (673)(674)
AIRPORT LIGHTING COMPANY	L-862(L)			1			ALC-861L-CC-XX (553); ALC-861L-CY-XX (553) ALC-861L-RC-XX (553); ALC-861L-RY-XX (553) ALC-861L-YY-XX (553); ALC-861L-YY-XX (553) ALC-861L-CC-XX-5 (553); ALC-861L-CY-XX-5 (553) ALC-861L-RC-XX-5 (553); ALC-861L-RY-XX-5 (553) ALC-861L-YY-XX-5 (553); ALC-861L-YY-XX-5 (553)
AIRPORT LIGHTING COMPANY	L-862E(L)			1			ALC-861L-GO-XX (554) ALC-861L-RG-XX (556) ALC-861L-GO-XX-5 (554) ALC-861L-RG-XX-5 (556)
AIRSAFE AIRPORT EQUIPMENT CO LTD	L-862(L)			1			EBL-RE-LED-XX-X (793)(794)(795)(796)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-862(L)			1			862E-AP1-WW-X-XX-X (808); 862E-AP1-WY-X-XX-X (808)(806); 862E-AP1-YW-X-XX-X (806)(808);862E-AP1-WR-X-XX-X (808)(805); 862E-AP1-RW-X-XX-X (805)(808); 862E-AP1-GY-X-XX-X (807)(806); 862E-AP1-YG-X-XX-X (806)(807); 862E-AP1-RY-X-XX-X (805)(806); 862E-AP1-YR-X-XX-X (806)(805);
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-862E(L)			1			862T-AP1-RG-X-XX-X (809)(810); 862T-AP1-GR-X-XX-X (810)(809); 862T-AP1-GN-X-XX-X (810); 862T-AP1-NG-X-XX-X (810); 862T-AP1-RN-X-XX-X (809); 862T-AP1-RR-X-XX-X (809)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-862S(L)			1			862S-AP1-RN-X-XX-X(881); 862ESB-AP1-RN-X-XX-X(908)
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-862			1			86242-E-CC-150-XX (959)(798); 86242-E-CY-150-XX (959)(798); 86242-E-YC-150-XX (959)(798); 86242-E-CR-150-XX (959)(798); 86242-E-RY-150-XX (959)(798); 86242-E-YR-150-XX (959)(798); 86242-E-RC-150-XX (959)(798)
HUGHEY & PHILLIPS, LLC	L-862			1			L-862-150-XX-14 (21)
HUGHEY & PHILLIPS, LLC	L-862E			1			L-862E-200-XXX-14 (90)
HUGHEY & PHILLIPS, LLC	L-862(L)			1			L-862-L-XX-XX-0 (822)(823)(824)(825); L-862-L-XX-XX-1 (826)(827)(828)(829)
HUGHEY & PHILLIPS, LLC	L-862E(L)			1			L-862E-L-XXX-XX-0 (823)(824); L-862E-L-XXX-XX-1 (827)(828)
HUGHEY & PHILLIPS, LLC	L-862S(L)			1			L-862S-L-RB-XX-0 (823); L-862S-L-RB-XX-1 (827)
MULTI-ELECTRIC MANUFACTURING, INC.	L-862E(L)			1			LERE-F-T-RG-XX-A-X-0 (546)(549); LERE-F-T-GR-XX-A-X-0 (549)(546); LERE-F-T-RR-XX-A-X-0 (546) LERE-F-T-MG-XX-A-X-0 (549); LERE-F-T-GM-XX-A-X-0 (549)
MULTI-ELECTRIC MANUFACTURING, INC.	L-862(L)			1			LERE-F-E-WW-XX-A-X-0 (548); LERE-F-E-WY-XX-A-X-0 (548)(545); LERE-F-E-YW-XX-A-X-0 (545)(548); LERE-F-E-WR-XX-A-X-0 (548)(546); LERE-F-E-RW-XX-A-X-0 (546)(548); LERE-F-E-YR-XX-A-X-0 (545)(546); LERE-F-E-RY-XX-A-X-0 (546)(545); LERE-F-E-GY-XX-A-X-0 (549)(545); LERE-F-E-YG-XX-A-X-0 (545)(549);
MULTI-ELECTRIC MANUFACTURING, INC.	L-862			1			6370-R-WW-XX-A-3 (853); 6370-R-WA-XX-A-3 (853) 6370-R-WR-XX-A-3 (853); 6370-R-GA-XX-A-3 (853) 6370-R-RA-XX-A-3 (853)
MULTI-ELECTRIC MANUFACTURING, INC.	L-862E			1			6370-T-RG-XX-A-3 (854); 6370-T-GR-XX-A-3 (854); 6370-T-RR-XX-A-3 (854); 6370-T-OG-XX-A-3 (854); 6370-T-GO-XX-A-3 (854); 6370-T-OR-XX-A-3 (854); 6370-T-RO-XX-A-3 (854)
OCEM AIRFIELD TECHNOLOGY	L-862			1			FP150-F-CC-150 (153); FP150-F-CR-150 (153); FP150-F-CY-150 (153); FP150-F-GY-150 (153); FP150-F-RC-150 (153); FP150-F-RY-150 (153); FP150-F-YC-150 (153); FP150-F-YG-150 (153); FP150-F-YR-150 (153)
OCEM AIRFIELD TECHNOLOGY	L-862S(L)			1			LERA SB-P-001-0-0 (1032)

MFG	FAA type	CLASS	STYLE	MODE	SIZE	RATING	CAT NO.
OCEM AIRFIELD TECHNOLOGY	L-862(L)			1			LERE-F-E-WW-XX-A-0-X (548); LERE-F-E-WW-XX-B-0-X (548) LERE-F-E-WY-XX-A-0-X (548)(545); LERE-F-E-WY-XX-B-0-X (548)(545) LERE-F-E-YW-XX-A-0-X (545)(548); LERE-F-E-YW-XX-B-0-X (545)(548) LERE-F-E-WR-XX-A-0-X (548)(546); LERE-F-E-WR-XX-B-0-X (548)(546) LERE-F-E-RW-XX-A-0-X (546)(548); LERE-F-E-RW-XX-B-0-X (546)(548) LERE-F-E-YR-XX-A-0-X (545)(546); LERE-F-E-YR-XX-B-0-X (545)(546) LERE-F-E-RY-XX-A-0-X (546)(545); LERE-F-E-RY-XX-B-0-X (546)(545 LERE-F-E-GY-XX-A-0-X (549)(545); LERE-F-E-GY-XX-B-0-X (549)(545) LERE-F-E-YG-XX-A-0-X (545)(549); LERE-F-E-YG-XX-B-0-X (545)(549)
OCEM AIRFIELD TECHNOLOGY	L-862E(L)			1			LERE-F-T-RG-XX-A-0-X (546)(549); LERE-F-T-RG-XX-B-0-X (546)(549); LERE-F-T-GR-XX-A-0-X (549)(546); LERE-F-T-GR-XX-B-0-X (546)(549); LERE-F-T-RR-XX-A-0-X (546); LERE-F-T-RR-XX-B-0-X (546); LERE-F-T-RM-XX-A-0-X (546); LERE-F-T-RM-XX-B-0-X (546); LERE-F-T-MR-XX-A-0-X (546); LERE-F-T-MR-XX-B-0-X (546); LERE-F-T-MG-XX-A-0-X (549); LERE-F-T-MG-XX-B-0-X (549); LERE-F-T-GM-XX-A-0-X (549); LERE-F-T-GM-XX-B-0-X (549)
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-862E			1			EHA-RTHL-200-03-1 (66)
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-862S			1			EHA-STBL-100-02-01 (152)
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-862			1			EHC-REDL-150-01(21); EHC-REDL-150-02(21)
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-862E(L)			1			EHA(L)-RTHL-G-F (859); EHA(L)-RENL-R-F (860)
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-862S(L)			1			EHA(L)-STBL-R-F (860)
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-862(L)			1			EHB(L)-REDL-W/W-11(1005); EHB(L)-REDL-W/Y-11(1005)(1006) EHB(L)-REDL-W/R-11(1005)(1007); EHB(L)-REDL-R/Y-11(1007)(1006)
L-863 Portable Runway and Taxiway Lights (FAA AC 150/5345-50B)							
AVLITE SYSTEMS	L-863B(L)						AV-70-863-B-RF-XX (821)
L-864 Lights, Obstruction, Red 30 FPM (FAA AC 150/5345-43J)							
DIALIGHT CORPORATION	L-864(L)						D366-A57-SYS(882)
DIALIGHT CORPORATION	L-864(L)						D6CB55-SYS (895);D6CB77-SYS (896);D6CE77-SYS(896);D6CG77-SYS (896)
DIALIGHT CORPORATION	L-864(L)						D1CWC13409SYS (676); D1CWC14409SYS (676)
Flash (a brand of SPX Aids to Navigation, LLC)	L-864(L)						FTS 371 AC (892); FTS 371 SMART AC (892);FTS 371 48VDC (892); FTS 371 SMART 48VDC (892); FTS 371 SMART DC (-)48V (892); FTS 371 24VDC (892); FTS 371 SMART 24VDC (892); FTS 371 SMART DC (-)24V (892)
Flash (a brand of SPX Aids to Navigation, LLC)	L-864(L)						FTS 270 (855)
Flash (a brand of SPX Aids to Navigation, LLC)	L-864(L)						FTS 270 (855)
FLASH TECHNOLOGY LLC	L-864(L)						FTS 370d AC (893);FTS 370d 48VDC(893)
FLASH TECHNOLOGY LLC	L-864(L)						FTS 372 (861); FTS 372s (947)
FLASH TECHNOLOGY LLC	L-864(L)						FTS 350i(904)
FLASH TECHNOLOGY LLC	L-864(L)						FTS 370i-2 IR (852)
HUGHEY & PHILLIPS, LLC	L-864						FG-2009B (144); FG-3000B (144)
Hughey & Phillips, LLC	L-864						FG-2009B (144); FG-3000B (144)
HUGHEY & PHILLIPS, LLC	L-864(L)						50-2002-001(924); 50-2002-001-A (924); 50-2002-001-B (924) 50-2005-001(997); 50-2005-001-A (997); 50-2005-001-B (997) 50-2002-010(924); 50-2002-010-A (924); 50-2002-010-B (924) 50-2005-010(997); 50-2005-010-A (997); 50-2005-010-B (997)
INTERNATIONAL TOWER LIGHTING, LLC	L-864						ILS-3400 (334)
INTERNATIONAL TOWER LIGHTING, LLC	L-864(L)						IFH-1910-0IR (874)
INTERNATIONAL TOWER LIGHTING, LLC	L-864(L)						ILS-1900-0IR (925)
ITL (a brand of SPX Aids to Navigation, LLC)	L-864(L)						ILS-3600-0IR (636)
OBSTA	L-864(L)						113724 (913); 113724I (913); 113710U (913); 113756U (913); 113714U (913); 113790U (913); 113725U (914); 113725UI (914); 113712U (914); 113715U (914); 113758U (914); 113792U (914)
OBSTA	L-864(L)						113790RI-240 (845); 113790RI-048 (845)
ORGA B.V.	L-864(L)						L550-864-30-IR-D4-G(880); L550-864-30-IR-G(880)
POINT LIGHTING CORPORATION	L-864(L)						PFB-37002-R-x-F4-NC (942); PFB-37002-RW-1-F4F5-NC (942) (785); PFB-37002-RW-1-F4F5.2-NC (942) (785)
POINT LIGHTING CORPORATION	L-864(L)						PFB-37003-R-1(942); PFB-37003-R-5(942)
POINT LIGHTING CORPORATION	L-864(L)						PFB-37004-R-1 (1006); PFB-37004-RW-1 (1006)
QUANTEC NETWORKS GMBH	L-864(L)						15994 (856); 15995 (856); 15996 (856); 15997 (856) 15998 (856); 15999 (856); 15731 (856); 16000 (856)
QUANTEC NETWORKS GMBH	L-864(L)						15417 (856); 16007 (856); 15407 (856); 16008 (856) 16009 (856); 16010 (856); 15589 (856); 16011 (856)
TECHNOSTROBE	L-864(L)						LED-RED-Standard-SEC G3 (972)
TECHNOSTROBE	L-864(L)						LED-RED-STANDARD-G3 (907)
TECHNOSTROBE	L-864(L)						LED-B-HYBRID-G5-Vac(905); LED-B-HYBRID-G5(905)
TECHNOSTROBE	L-864(L)						HIGH-LED-WRV2(971)
TWR Lighting Inc.	L-864(L)						REDSTAR (978)
TWR Lighting Inc.	L-864(L)						STAR(1001)
UNIMAR INC	L-864(L)						U429C-x (676)
L-865 Lights, Obstruction, White 40 FPM (FAA AC 150/5345-43J)							
DIALIGHT CORPORATION	L-865(L)						D1CWC13409SYS (676); D1CWC14409SYS (676)
FLASH TECHNOLOGY LLC	L-865(L)						FTS 372 (861); FTS 372s (947)
FLASH TECHNOLOGY LLC	L-865(L)						FTS 370dAC (893); FTS 370w AC (893);FTS 370d 48VDC (893); FTS 370w 48VDC (893)
Hughey & Phillips, LLC	L-865						FG-2000B (144); FG-3000B (144)
HUGHEY & PHILLIPS, LLC	L-865(L)						50-2003-001(998); 50-2003-001-A (998); 50-2003-001-B (998) 50-2005-001(997); 50-2005-001-A (997); 50-2005-001-B (997) 50-2003-010(998); 50-2003-010-A (998); 50-2003-010-B (998) 50-2005-010(997); 50-2005-010-A (997); 50-2005-010-B (997)
INTERNATIONAL TOWER LIGHTING, LLC	L-865						ILS-3400 (334); ILS-2400 (334)
ITL (a brand of SPX Aids to Navigation, LLC)	L-865(L)						ILS-3600-0IR (636); ILS-2600-0IR (638)
OBSTA	L-865(L)						113723U (914); 113723UI (914); 113711U (914) 113757U (914); 113713U (914); 113791U (914); 113725U (914); 113725UI (914); 113715U (914); 113758U (914); 113712U(914); 113792U (914)
ORGA B.V.	L-865(L)						L-550-865-(G) (645)
POINT LIGHTING CORPORATION	L-865(L)						PFB-37002-W-1-F5 (785); PFB-37002-W-1-F5.2 (785); PFB-37002-RW-1-F4F5-NC (942)(785); PFB-37002-RW-1-F4F5.2-NC (942)(785)
POINT LIGHTING CORPORATION	L-865(L)						PFB-37004-W-1 (1006); PFB-37004-RW-1 (1006)
TECHNOSTROBE	L-865(L)						LED-B-HYBRID-G5-Vac(905); LED-B-HYBRID-G5(905)
TWR Lighting Inc.	L-865(L)						STAR(1001)
UNIMAR INC	L-865(L)						U429C-x (676)
L-866 Lights, Obstruction, White 60 FPM (FAA AC 150/5345-43J)							
FLASH TECHNOLOGY LLC	L-866(L)						FTS 372 (861); FTS 372s (947)
ITL (a brand of SPX Aids to Navigation, LLC)	L-866(L)						ILS-3600-CAT-IR (636); ILS-2600-CAT-IR (638)
L-867 Light Bases, Non-load Bearing (FAA AC 150/5345-42J)							
AIRPORT LIGHTING EQUIPMENT INC.	L-867 BASE	IA			B		12XX
AIRPORT LIGHTING EQUIPMENT INC.	L-867 EXT	IA			B		12S-EXT
AIRPORT LIGHTING EQUIPMENT INC.	L-867 COVER PLATE	IA			B		L867B-CP-B-S
AIRPORT LIGHTING EQUIPMENT INC.	L-867 SPACER RINGS	IA			B		L867-ER-B-S
AIRPORT LIGHTING EQUIPMENT INC.	L-867 BASE	IA			B		12XX-AD-J-S
AIRPORT LIGHTING EQUIPMENT INC.	L-867 COVER PLATE	IA			B		L867B-CP-B-S
AIRPORT LIGHTING EQUIPMENT INC.	L-867 BASE	IA			D		16242X-X
AIRPORT LIGHTING EQUIPMENT INC.	L-867 EXT	IA			D		16-S-EXT

MFG	FAA type	CLASS	STYLE	MODE	SIZE	RATING	CAT NO.
AIRPORT LIGHTING EQUIPMENT INC.	L-867 COVER PLATE	IA			D		L867-CP-D-S
AIRPORT LIGHTING EQUIPMENT INC.	L-867 SPACER RINGS	IA			D		L867D-ER-D-S
JAQUITH INDUSTRIES, INC.	L-867 EXT	1B			B		AES2XXXX
JAQUITH INDUSTRIES, INC.	L-867 COVER PLATE	1B			B		AKS10XXXX
JAQUITH INDUSTRIES, INC.	L-867 SPACER RINGS	1B			B		ATS2006XX
JAQUITH INDUSTRIES, INC.	L-867 BASE	1B			D		ACS63XXXXXXXXX; ACS60XXXXXXXXXPCC
JAQUITH INDUSTRIES, INC.	L-867 EXT	1B			D		AES6XXXX
JAQUITH INDUSTRIES, INC.	L-867 COVER PLATE	1B			D		AKS20XXXX
JAQUITH INDUSTRIES, INC.	L-867 SPACER RINGS	1B			D		ATS6003XX
JAQUITH INDUSTRIES, INC.	L-867 COVER PLATE	1B			E		AKS70XXXX
JAQUITH INDUSTRIES, INC.	L-867 SPACER RINGS	1B			E		ATS7003XX
JAQUITH INDUSTRIES, INC.	L-867 BASE	1B			B		ACS20XXXXXXXXXPCC; ACS21XXXXXXXXX
MILLERBERND MANUFACTURING COMPANY	L-867 BASE	IA			B		127CC(X); 127CG(X); 127CN(X); 127ACC(X)PCC; 127ACG(X)PCC
MILLERBERND MANUFACTURING COMPANY	L-867 EXT	IA			B		127E(X)
MILLERBERND MANUFACTURING COMPANY	L-867 COVER PLATE	IA			B		127L(X)
MILLERBERND MANUFACTURING COMPANY	L-867 SPACER RINGS	IA			B		127S(X)
MILLERBERND MANUFACTURING COMPANY	L-867 BASE	IA			D		167CC(X); 167CG(X); 167ACC(X)PCC; 167ACG(X)PCC
MILLERBERND MANUFACTURING COMPANY	L-867 EXT	IA			D		167E(X)
MILLERBERND MANUFACTURING COMPANY	L-867 COVER PLATE	IA			D		167L(X)
MILLERBERND MANUFACTURING COMPANY	L-867 SPACER RINGS	IA			D		167S(X)
MILLERBERND MANUFACTURING COMPANY	L-867 BASE	IA			E		247CC(X); 247CG(X); 247ACC(X)PCC; 247ACG(X)PCC
MILLERBERND MANUFACTURING COMPANY	L-867 EXT	IA			E		247E(X)
MILLERBERND MANUFACTURING COMPANY	L-867 COVER PLATE	IA			E		247L(X)
MILLERBERND MANUFACTURING COMPANY	L-867 SPACER RINGS	IA			E		247S(X)
MILLERBERND MANUFACTURING COMPANY	L-867 MUD PLATE	IA			E		247M215
MILLERBERND MANUFACTURING COMPANY	L-867 BASE	IB			B		127CC(X)SS; 127CG(X)SS
MILLERBERND MANUFACTURING COMPANY	L-867 COVER PLATE	IB			B		127L(X)SS
MILLERBERND MANUFACTURING COMPANY	L-867 SPACER RINGS	IB			B		127S(X)SS
MILLERBERND MANUFACTURING COMPANY	L-867 BASE	IB			D		167CC(X)SS; 167CG(X)SS
MILLERBERND MANUFACTURING COMPANY	L-867 COVER PLATE	IB			D		167L(X)SS
MILLERBERND MANUFACTURING COMPANY	L-867 SPACER RINGS	IB			D		167S(X)SS
Saudi International Co. (SAINTCO)	L-867	IA			B		SI-DB-67IB
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-867 EXT	IA			B		ALB-E867-12-08-1A
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-867 SPACER	IA			B		BSR-E867-12-42-1A-F
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-867 BASE	IA			B		ALB-L867-12-24-1A-C4-XX
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-867 COVER PLATE	IA			B		BCP-L867-12-09-S
JAQUITH INDUSTRIES, INC.	L-867 BASE	1A			B		AC20XXXXXXXXXPCC; AC21XXXXXXXXX
JAQUITH INDUSTRIES, INC.	L-867 EXT	1A			B		AE2XXXX
JAQUITH INDUSTRIES, INC.	L-867 COVER PLATE	1A			B		AK10XXXX
JAQUITH INDUSTRIES, INC.	L-867 SPACER	1A			B		AT2006XX
JAQUITH INDUSTRIES, INC.	L-867 BASE	1A			D		AC63XXXXXXXXX; AC60XXXXXXXXXPCC
JAQUITH INDUSTRIES, INC.	L-867 EXT	1A			D		AE6XXXX
JAQUITH INDUSTRIES, INC.	L-867 COVER	1A			D		AK20XXXX
JAQUITH INDUSTRIES, INC.	L-867 SPACER	1A			D		AT6003XX
JAQUITH INDUSTRIES, INC.	L-867 MUD PLATE	1A			D		AM5527
JAQUITH INDUSTRIES, INC.	L-867 BASE	1A			E		AC67XXXXXXXXX
JAQUITH INDUSTRIES, INC.	L-867 EXT	1A			E		AE7XXXX
JAQUITH INDUSTRIES, INC.	L-867 COVER	1A			E		AK70XXXX
JAQUITH INDUSTRIES, INC.	L-867 SPACER RINGS	1A			E		AT7003XX
JAQUITH INDUSTRIES, INC.	L-867 MUD	1A			E		AM5727
JAQUITH INDUSTRIES, INC.	L-867 EXT	1B			D		AE6SXXXX
L-868 Light Bases, Load Bearing (FAA AC 150/5345-42J)							
AIRPORT LIGHTING EQUIPMENT INC.	L-868 BASE	IA			B		12XX
AIRPORT LIGHTING EQUIPMENT INC.	L-868 BOTTOM	IA			B		L868-BS-B-X
AIRPORT LIGHTING EQUIPMENT INC.	L-868 MIDDLE	IA			B		L868-MS-B-X
AIRPORT LIGHTING EQUIPMENT INC.	L-868 TOP	IA			B		L868-TS-B-X
AIRPORT LIGHTING EQUIPMENT INC.	L-868 EXT	IA			B		12XX-2-EXT
AIRPORT LIGHTING EQUIPMENT INC.	L-868 COVER PLATE	IA			B		L868-CP-B-S
AIRPORT LIGHTING EQUIPMENT INC.	L-868 SPACER	IA			B		L868-FR-B-S
JAQUITH INDUSTRIES, INC.	L-868 SPACER RINGS	1B			B		AFS5402XX; AFS5402XXY; AFS5434XX
JAQUITH INDUSTRIES, INC.	L-868 BASE	1A			A		AC08XXXXXXXXX
JAQUITH INDUSTRIES, INC.	L-868 BASE MULTI-SECTION	1A			A		AC40XXXXXXXXX (bottom); AE4703M (middle); AF0XXXX (top)
JAQUITH INDUSTRIES, INC.	L-868 EXT	1A			A		AX0XXXX
JAQUITH INDUSTRIES, INC.	L-868 COVER PLATE	1A			A		AK80XXXX
JAQUITH INDUSTRIES, INC.	L-868 MUD PLATE	1A			A		AM5017; AM5027
JAQUITH INDUSTRIES, INC.	L-868 BASE	1A			B		AC24XXXXXXXXX
JAQUITH INDUSTRIES, INC.	L-868 BASE MULTI-SECTION	1A			B		AC44XXXXXXXXX (bottom); AE4704M (middle); AF2XXXX (top)
JAQUITH INDUSTRIES, INC.	L-868 EXT	1A			B		AX2XXXX
JAQUITH INDUSTRIES, INC.	L-868 CONV RING	1A			B		AA5423; AA5413

MFG	FAA type	CLASS	STYLE	MODE	SIZE	RATING	CAT NO.
JAQUITH INDUSTRIES, INC.	L-868 COVER PLATE	1A			B		AK40XXXX
JAQUITH INDUSTRIES, INC.	L-868 BASE	1A			C		AC35XXXXXXXXX
JAQUITH INDUSTRIES, INC.	L-868 BASE MULTI-SECTION	1A			C		AC45XXXXXXXXX (bottom); AE4705M (middle); AF3XXXX (top)
JAQUITH INDUSTRIES, INC.	L-868 EXT	1A			C		AX3XXXX
JAQUITH INDUSTRIES, INC.	L-868 CONV RING	1A			C		AA5523; AA5513
JAQUITH INDUSTRIES, INC.	L-868 COVER PLATE	1A			C		AK50XXXX
JAQUITH INDUSTRIES, INC.	L-868 MUD PLATE	1A			C		AM5527; AM5517
JAQUITH INDUSTRIES, INC.	L-868 BASE	1B			A		ACS08XXXXXXXXX
JAQUITH INDUSTRIES, INC.	L-868 BASE MULTI-SECTION	1B			A		ACS40XXXXXXXXX (bottom); AES4703M (middle); AFS0XXXX (top)
JAQUITH INDUSTRIES, INC.	L-868 EXT	1B			A		AXS0XXXX
JAQUITH INDUSTRIES, INC.	L-868 COVER PLATE	1B			A		AKS80XXXX
JAQUITH INDUSTRIES, INC.	L-868 SPACER RINGS	1B			A		AFS0802XX; AFS0802XXY
JAQUITH INDUSTRIES, INC.	L-868 BASE	1B			B		ACS24XXXXXXXXX
JAQUITH INDUSTRIES, INC.	L-868 BASE MULTI-SECTION	1B			B		ACS44XXXXXXXXX (bottom); AES4704M (middle); AFS2XXXX (top)
JAQUITH INDUSTRIES, INC.	L-868 EXT	1B			B		AXS2XXXX
JAQUITH INDUSTRIES, INC.	L-868 COVER PLATE	1B			B		AKS40XXXX
JAQUITH INDUSTRIES, INC.	L-868 BASE	1B			C		ACS35XXXXXXXXX
JAQUITH INDUSTRIES, INC.	L-868 BASE MULTI-SECTION	IB			C		ACS45XXXXXXXXX (bottom); AES4705M (middle); AFS3XXXX (top)
JAQUITH INDUSTRIES, INC.	L-868 EXT	1B			C		AXS3XXXX
JAQUITH INDUSTRIES, INC.	L-868 COVER PLATE	1B			C		AKS50XXXX
JAQUITH INDUSTRIES, INC.	L-868 SPACER RINGS	1B			C		AFS5502XX; AFS5502XXY; AFS5702XXY
JAQUITH INDUSTRIES, INC.	L-868 SPACER RINGS	1A			A		AR0824; AR0821XX; AR0821XXY
JAQUITH INDUSTRIES, INC.	L-868 SPACER RINGS	1A			B		AR5411XX; AR5424; AR5421XX; AR5422XX; AR5421XXY; AR5424AL
JAQUITH INDUSTRIES, INC.	L-868 ADAPT PLATE	1A			B		AF543412; AA122820
JAQUITH INDUSTRIES, INC.	L-868 SPACER RINGS	IA			C		AR5511XX; AR5524; AR5521XX; AR5521XXY; AR5721XX; AR5721XXY
JAQUITH INDUSTRIES, INC.	L-868 ADAPT PLATE	1A			C		AA251520MKE; AA251520; AA251220; AA251220CDE
JAQUITH INDUSTRIES, INC.	L-868 Spacer Ring	1A			A		AF0802XX; AF0802XXY
JAQUITH INDUSTRIES, INC.	L-868 SPACER RINGS	1B			A		ARS0821XX; ARS0821XXY; ARS0824
JAQUITH INDUSTRIES, INC.	L-868 SPACER RINGS	1B			B		ARS5411XX; ARS5421XX; ARS5422XX; ARS5424; ARS5421XXY
JAQUITH INDUSTRIES, INC.	L-868 SPACER RINGS	1B			C		ARS5511XX; ARS5521XX; ARS5521XXY; ARS5721XX; ARS5524; ARS5721XXY
JAQUITH INDUSTRIES, INC.	L-867 EXT	1B			D		AES2XXXX
JAQUITH INDUSTRIES, INC.	L-868 Spacer Ring	1A			B		AF5402XX; AF5402XXY
JAQUITH INDUSTRIES, INC.	L-868 Spacer Ring	1A			C		AF5502XX; AF5502XXY; AF5702XXY
MILLERBERND MANUFACTURING COMPANY	L-868 BASE MULTI-SECTION	IA			A		88BSC(X) (bottom); 88BSG(X) (bottom); 88MS(X) (middle); 88TS(X) (top)
MILLERBERND MANUFACTURING COMPANY	L-868 EXT	IA			A		88E(X)
MILLERBERND MANUFACTURING COMPANY	L-868 CONV RING	IA			A		88CR
MILLERBERND MANUFACTURING COMPANY	L-868 COVER	IA			A		88L(X)
MILLERBERND MANUFACTURING COMPANY	L-868 SPACER RINGS	IA			A		88SY(X); 88F(X); 88FY(X); 88S(X); 88SMB(X)
MILLERBERND MANUFACTURING COMPANY	L-868 EXT	IA			B		128E(X)
MILLERBERND MANUFACTURING COMPANY	L-868 CONV RING	IA			B		128CR; 128A0125-8; 128TRD
MILLERBERND MANUFACTURING COMPANY	L-868 COVER PLATE	IA			B		128L(X)
MILLERBERND MANUFACTURING COMPANY	L-868 SPACER RINGS	IA			B		128S(X); 128SY(X); 128F(X); 128FY(X); 128SMB(X)
MILLERBERND MANUFACTURING COMPANY	L-868 MUD PLATE	IA			B		128M1125; 128M1025
MILLERBERND MANUFACTURING COMPANY	L-868 EXT	IA			C		158E(X)
MILLERBERND MANUFACTURING COMPANY	L-868 CONV RING	IA			C		158CR; 158A0125; 178A0125
MILLERBERND MANUFACTURING COMPANY	L-868 COVER PLATE	IA			C		158L(X)
MILLERBERND MANUFACTURING COMPANY	L-868 SPACER RINGS	IA			C		158S(X); 158SY(X); 158F(X); 158SMB(X); 158FY(X)
MILLERBERND MANUFACTURING COMPANY	L-868 MUD PLATE	IA			C		158M1425; 158M1325
MILLERBERND MANUFACTURING COMPANY	L-868 BASE	IA			A		88CC(X); 88CG(X); 88ICGY(X); 88ICCY(X); 88ICC(X); 88ICG(X)
MILLERBERND MANUFACTURING COMPANY	L-868 BASE	IA			B		128CC(X); 128CG(X); 128ICCY(X); 128ICGY(X); 128ICC(X); 128ICG(X);128CCT(X);128CGT(X)
MILLERBERND MANUFACTURING COMPANY	L-868 BASE	IA			C		158CC(X); 158CG(X); 158CGY(X); 158CCY(X); 158ICG(X); 158ICC(X);158CCT(X);158CGT(X)
MILLERBERND MANUFACTURING COMPANY	L-868 BASE MULTI-SECTION	IA			C		158BSC(X) (bottom); 158BSG(X) (bottom); 158MS(X) (middle); 158TS(X) (top)
MILLERBERND MANUFACTURING COMPANY	L-868 Multi section	IA			B		128BS(X) 128BSG(X) Bottom
MILLERBERND MANUFACTURING COMPANY	L-868 Multi section	IA			B		128MS(X) Middle

MFG	FAA type	CLASS	STYLE	MODE	SIZE	RATING	CAT NO.
MILLERBERND MANUFACTURING COMPANY	L-868 Multi	IA			B		128TS(X) Top
MILLERBERND MANUFACTURING COMPANY	L-868 BASE	IB			B		128CC(X)SS; 128CG(X)SS
MILLERBERND MANUFACTURING COMPANY	L-868 COVER	IB			B		128L(X)SS
MILLERBERND MANUFACTURING COMPANY	L-868 SPACER	IB			B		128S(X)SS
MILLERBERND MANUFACTURING COMPANY	L-868 BASE	IB			C		158CC(X)SS; 158CG(X)SS
MILLERBERND MANUFACTURING COMPANY	L-868 COVER	IB			C		158L(X)SS
MILLERBERND MANUFACTURING COMPANY	L-868 SPACER	IB			C		158S(X)SS
NOVA GROUP INC.	L-868 Cover	IA			C		NGI-868.4
NOVA GROUP INC.	L-868 Multi	IA			C		NGI-868.3 TOP
NOVA GROUP INC.	L-868 Multi Section	IA			C		NGI-868.2 Middle
NOVA GROUP INC.	L-868 Multi Section	IA			C		NGI-868.1 Bottom
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-868 BASE	IA			B		ALB-L868-12-24-1A-C4-XX
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-868 COVER PLATE	IA			B		BCP-L868-12-19-S
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-868 BASE MULTI-SECTION	IA			B		ALB-T868-12-08-1A-NN-NN
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-868 BASE MULTI-SECTION	IA			B		ALB-M868-12-08-1A-NN-NN
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-868 BASE MULTI-SECTION	IA			B		ALB-B868-12-12-1A-C4-NN
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-868 EXT	IA			B		ALB-E868-12-08-1A
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-868 SPACER	IA			B		BSR-L868-12-54-1A-F
L-880 / L-881 Precision Approach Path Indicator (PAPI) (FAA AC 150/5345-28H)							
ADB SAFEGATE AMERICAS, LLC	L-880(L)	1, 2	A				RPA421AXXX0XXX01(953)
ADB SAFEGATE AMERICAS, LLC	L-880(L)	1, 2	B				RPB421AXXX0XXX01(953)
ADB SAFEGATE AMERICAS, LLC	L-880(L)	1, 2	B				RPR421AXXX0XXX01(953)
AIRPORT LIGHTING COMPANY	L-880	II	A				880-V-2 (385); 880-V-2-3 (385)
AIRPORT LIGHTING COMPANY	L-880	II	B				880-C-2 (385); 880-C-2-3 (385)
AIRPORT LIGHTING COMPANY	L-880(L)	II	A				88-0AX0X0 (958)
AIRPORT LIGHTING COMPANY	L-880(L)	II	B				88-0BX0X0 (958)
Hughey & Phillips, LLC	L-880(L)	I,II	B				L880-L-B-X-X (E107)
Hughey & Phillips, LLC	L-881(L)	I,II	B				L881-L-B-X-X (E107)
HUGHEY & PHILLIPS, LLC	L-880	2	B				L-880-B-3(878)
Sealite USA LLC db/a Avlite Systems	L-880(L)	I	A				AV-PAPI-4-P0-UM-12-0(883)
Sealite USA LLC db/a Avlite Systems	L-880(L)	I	B				AV-PAPI-4-PO-66-12-0(883)
ADB SAFEGATE AMERICAS, LLC	L-880		B				PAPB-4000(164)
ADB SAFEGATE AMERICAS, LLC	L-881(L)	1, 2	A				RPA221AXXX0XXX01(953)
ADB SAFEGATE AMERICAS, LLC	L-881(L)	1, 2	B				RPB221AXXX0XXX01(953)
ADB SAFEGATE AMERICAS, LLC	L-881(L)	1, 2	B				RPR221AXXX0XXX01(953)
ADB SAFEGATE AMERICAS, LLC	L-881	1	B				PAPB-2000(164)
AIRPORT LIGHTING COMPANY	L-881(L)	II	A				88-1AX0X0 (958)
AIRPORT LIGHTING COMPANY	L-881(L)	II	B				88-1BX0X0 (958)
AIRPORT LIGHTING COMPANY	L-881	II	A				881-V-2 (385); 881-V-2-3 (385)
AIRPORT LIGHTING COMPANY	L-881	II	B				881-C-2 (385); 881-C-2-3 (385)
HUGHEY & PHILLIPS, LLC	L-881	2	B				L-881-B-3(878)
Sealite USA LLC db/a Avlite Systems	L-881(L)	I	B				AV-PAPI-2-PO-66-12-0(883)
Sealite USA LLC db/a Avlite Systems	L-881(L)	I	A				AV-PAPI-2-P0-UM-12-0(883)
L-885 Lights, Flashing, Obstruction, Red, 60 FPM (FAA AC 150/5345-43J)							
Flash (a brand of SPX Aids to Navigation, LLC)	L-885(L)						FTS 371 SMART AC (892); FTS 371 SMART 48VDC (892) FTS 371 SMART DC (-)48V (892); FTS 371 SMART 24VDC (892) FTS 371 SMART DC (-)24V (892)
FLASH TECHNOLOGY LLC	L-885(L)						FTS 372 (861); FTS 372s (947)
HUGHEY & PHILLIPS, LLC	L-885(L)						50-2013-X00 (924); 50-2013-X00 (924)
ITL (a brand of SPX Aids to Navigation, LLC)	L-885(L)						ILS-3600-CAT-IR (636)
L-890 Airport Lighting Control and Monitoring Systems (FAA AC 150/5345-56B)							
ADB SAFEGATE AMERICAS, LLC	L-890		A-CONTROL ONLY; B-BASIC MONITORING; C-ADVANCED MONITORING; D-SMGCS READY	A-PRESET FAILSAFE; B-LAST STATE FAILSAFE			MONITORING (A, B, C, D): ALCMS-AY; ALCMS-BY; ALCMS-CY; ALCMS-DY; FAIL SAFE: (A, B): ALCMS-XA; ALCMS-XB
AIRPORT LIGHTING COMPANY	L-890		A-CONTROL ONLY; B-BASIC	A-PRESET FAILSAFE			Monitoring Options: CONTROL ONLY(A):CMS-A-A; BASIC (B)-CMS-B-A; FAIL-SAFE OPTIONS: PRESET(A) CMS-A-A; CMS-B-A
CROUSE HINDS AIRPORT LIGHTING PRODUCTS	L-890		A-CONTROL ONLY; B-BASIC MONITORING; C-ADVANCED MONITORING; D-SMGCS READY	A-PRESET FAILSAFE; B-LAST STATE FAILSAFE			L-890A-X; L-890B-X; L-890C-X; L-890D-X; L-890X-A; L-890X-B
HONEYWELL INTERNATIONAL INC.	L-890		A-CONTROL ONLY; B-BASIC MONITORING; C-ADVANCED MONITORING; D-SMGCS READY	A-PRESET FAILSAFE; B-LAST STATE FAILSAFE			MONITORING (A,B,C,D): LMGR-L-890AX; LMGR-L-890BX; LMGR-L-890DX; FAIL-SAFE (A,B) : LMGR-L-L890XA; LMGR-L-890XB
HONEYWELL INTERNATIONAL INC.	L-890		A-CONTROL ONLY; B-BASIC MONITORING; C-ADVANCED MONITORING; D-SMGCS READY	A-PRESET FAILSAFE; B-LAST STATE FAILSAFE			Monitoring A,B,C,D : LMGR LS-L-890AX; LMGR LS-L-890BX; LMGR LS-L-890CX; LMGR LS-L-890DX FAIL-SAFE (A,B) LMGR LS-L-890XA; LMGR LS-L-890XB
MC SOLUTIONS SRL	L-890		A-CONTROL ONLY; B-BASIC MONITORING; C-ADVANCED MONITORING; D-SMGCS READY	A-PRESET FAILSAFE; B-LAST STATE FAILSAFE			MIA-L1, MIA-L2, MIA-L3, MIA-L4, MIA-L4A, MIA-L4B
YOUYANG AIRPORT LIGHTING EQUIPMENT INC.	L-890		A-CONTROL ONLY; B-BASIC MONITORING; C-ADVANCED MONITORING; D-SMGCS READY	A-PRESET FAILSAFE; B-LAST STATE FAILSAFE			ALCMS-L890-X-X
L-891 / 892 Low Impact Resistant (LIR) Structures (FAA AC 150/5345-45C)							
POLLITE LTD	L-891		1				GFP01/S

MFG	FAA type	CLASS	STYLE	MODE	SIZE	RATING	CAT NO.
POLLITE LTD	L-891		1,2,3				GFP02/S/FAA; GFP02/CA1.2/FAA; GFP02/CA1.5/FAA; GFP02/CA2.7/FAA; GFP02/CA3/FAA; GFP02/CA4.5/FAA; GFP02/CA5.4/FAA; GFP02/CA6/FAA
JAQUITH INDUSTRIES, INC.	L-891		1				MG-20
JAQUITH INDUSTRIES, INC.	L-891		2				MG-30
JAQUITH INDUSTRIES, INC.	L-891		3				MG-40
JAQUITH INDUSTRIES, INC.	L-892		1				MS-20
L-893 Lighted Visual Aid to Indicate Temporary Runway Closure (FAA AC 150/5345-55A)							
HALI-BRITE INC.	L-893(L)						RCM-D (780)
SHERWIN INDUSTRIES, INC.	L-893(L)						RCML893-G (899)
WANCO, INC.	L-893(L)						WTRC (786)
L-894 Elevated Light Covers (FAA AC 150/5345-42J)							
AIRPORT LIGHTING EQUIPMENT INC.	L-894	IA	L-867B				12-B-5-CSG
JAQUITH INDUSTRIES, INC.	L-894	1A	L-867B		2"		AP1832G
JAQUITH INDUSTRIES, INC.	L-894	1A	L-867B		1.5"		AP1835G
JAQUITH INDUSTRIES, INC.	L-894	1A	L-867D		2"		AP2832G
JAQUITH INDUSTRIES, INC.	L-894	1A	L-867D		1.5"		AP2835G
JAQUITH INDUSTRIES, INC.	L-894	1A	L-867B		2"		AP1932G
JAQUITH INDUSTRIES, INC.	L-894	1A	L-867B		1.5"		AP1935G
JAQUITH INDUSTRIES, INC.	L-894	1A	L-867D		2"		AP2932G
JAQUITH INDUSTRIES, INC.	L-894	1A	L-867D		1.5"		AP2935G
MILLERBERND MANUFACTURING COMPANY	L-894	IA	L-867B		1.5"	L-861/862	127B015G
MILLERBERND MANUFACTURING COMPANY	L-894	IA	L-867B		2.0"	L-861/862	127B02G
MILLERBERND MANUFACTURING COMPANY	L-894	IA	L-867B		2.0"	L-804	127B382G
MILLERBERND MANUFACTURING COMPANY	L-894	IA	L-867D		2.0"	L-861/862	167B02G
MILLERBERND MANUFACTURING COMPANY	L-894	IA	L-867D		1.5"	L-861/862	167B015G
L-895 Elevated Light Stake Mounting (FAA AC 150/5345-42J)							
ADB SAFEGATE AMERICAS, LLC	L-895	IA			1.5"		44B0348
JAQUITH INDUSTRIES, INC.	L-895	1A			2"		AW2202
JAQUITH INDUSTRIES, INC.	L-895	1A			1.5"		AW2205

LAMP	DESIGNATION	WATTS	VOLTS	AMPS	Lamp Manufacturer
17	40732	45		6.6	CROUSE HINDS ALP
18	40737	30		6.6	CROUSE HINDS ALP
21	EWR 11427	150		6.6	GE
31	EXL	30		6.6	GE
33	EXM	45		6.6	GE
36	EVV	120		6.6	GE
66	64382	200		6.6	Osram
75	3843	Xenon			FLASH TECHNOLOGY
88	Q1000PAR64/NSP	1000	120		GE
90	EZL	200		6.6	GE
123	2990.40.900	105		6.6	ADB SAFEGATE BVBA
124	2990.40.827	48		6.6	OSRAM
126	SLC 008065	48		6.6	OSRAM
127	64341	100		6.6	OSRAM
133	8384329				FLASH TECHNOLOGY
135	40925	150		6.6	CROUSE HINDS ALP
136	20172	200		6.6	CROUSE HINDS ALP
137	64317	45		6.6	Osram

LAMP	DESIGNATION	WATTS	VOLTS	AMPS	Lamp Manufacturer
144	12S006022	Xenon			HUGHEY & PHILLIPS
152	HLX64342	100		6.6	Osram
153	HLX64361-Z	150		6.6	Osram
157	9017	Xenon			FLASH TECHNOLOGY
160	SLC 008075	105		6.6	ATG
163	64338	48		6.6	Osram
164	64339	105		6.6	Osram
181	21127	32		6.6	GE
208	3400-0400/U/ED28/PS	400	120		VENTURE
216	21496	48		6.6	SYLVANIA
217	XFT 200	Xenon			ORGA
219	21116	48		6.6	OSRAM
220	64337 A45-15	45		6.6	OSRAM
226	59036	75	120		SYLVANIA
231	GE MR-16 EXT	50	12		GE
232	860-1R03	LED	12		Dialight
240	STFLSHTB5	Xenon			ADVANCED STROBE PRODUCTS
254	20058	120		6.6	GE
260	8384309	Xenon			FLASH TECHNOLOGY
282	55-00145	Xenon			STROBE APPROACH LIGHTING TECHNOLOGY
287	55-00360	Xenon			STROBE APPROACH LIGHTING TECHNOLOGY
289	58750	200		6.6	OSRAM
290	64320	45		6.6	OSRAM
291	64322	30		6.6	OSRAM
296	LA-RO-36-1-O1	LED			ORGA
297	STD 05006	LED	120		TWR
316	44A5911	30		6.6	OSRAM
318	48A0386	62		6.6	GE
321	44A6672	LED		6.6	ADB SAFEGATE AMERICAS, LLC
334	FH0-3400-000	Xenon	120		ITL
373	10V/20W Quartz	20	10		WAMCO

LAMP	DESIGNATION	WATTS	VOLTS	AMPS	Lamp Manufacturer
375	D1RWFH04 4 TIER	LED			DIALIGHT
376	D1RWFH06 6 TIER	LED			DIALIGHT
377	RTO1R06 RED	LED			DIALIGHT
378	RTO1R07 RED	LED			DIALIGHT
379	RTO1R08 RED	LED			DIALIGHT
385	64339A	105		6.6	OSRAM
397	21478 Blue	LED			CROUSE HINDS ALP
400	21474	48		6.6	Osram
410	CMH150/TU/830/G12	150	120		GE
411	LXML-PD01-0040 LUXEON REBEL 40LUMEN RED	LED			AUSTIN INSULATORS
412	D1RW1018 RED & WHITE 1 TIER	LED	120-240		DIALIGHT
413	D464-1011 RED 1 TIER	LED	120-240		DIALIGHT
416	64331-FL MR16	30		6.6	OSRAM
418	44A6967/1X0 6 EA WHITE	LED			ADB SAFEGATE AMERICAS, LLC
419	44A6950/1X0 6 EA WHITE	LED			ADB SAFEGATE AMERICAS, LLC
420	48A0415 4 EA RED	LED			ADB SAFEGATE AMERICAS, LLC
421	44A7062/20 1 EA RED	LED			ADB SAFEGATE AMERICAS, LLC
422	44A7062/10 1 EA GREEN	LED			ADB SAFEGATE AMERICAS, LLC
423	0100-3866 RED	LED			HALI-BRITE
426	48A0415-TYLW 4ea	LED			ADB SAFEGATE AMERICAS, LLC
427	9200-0032 8 Red	LED	120		HALI-BRITE
428	9200-0033 8 Red	LED	12VDC		HALI-BRITE
429	9200-0034 8 Red	LED		6.6	HALI-BRITE
430	9200-0035 8 Red	LED	120		HALI-BRITE
431	9200-0036 8 Red	LED	12VDC		HALI-BRITE
432	9200-0037 8 Red	LED		6.6	HALI-BRITE
434	3400-0100		120		Regent
435	D1RW1018CAT Red & White 1 tier CAT	LED			DIALIGHT
438	RTOCR07 IR RED LED VAC	LED	120-240		DIALIGHT
439	RTOCR08 IR RED LED VDC	LED	12-48		DIALIGHT
440	64319Z Pk30d	45		6.6	Osram
441	48A0396-2 Luxeon Red	LED			ADB SAFEGATE AMERICAS, LLC

LAMP	DESIGNATION	WATTS	VOLTS	AMPS	Lamp Manufacturer
442	LED	LED		6.6	Standard Signs
443	9200-0040 Orange	LED	120		HALI-BRITE
444	LXML-PB01-0040 LUXEON	LED		6.6	ASTRONICS DME Corporation
445	48A0427/BLU	LED		6.6	ADB SAFEGATE AMERICAS, LLC
446	ITL-1700-ENG	40W	120-240		ITL
448	62387	LED		6.6	CROUSE HINDS ALP
456	RTO1R18	LED	12-48		DIALIGHT
459	16676	LED	120-240		ORGA
460	D4641017 Red 1 tier IR	LED	120-240		DIALIGHT
462	C7-LEDV2	LED		6.6	AGM
467	100PAR38/IRC/FL25	100	120		PHILLIPS
469	21547-1 GREEN	LED	9	6.6	CROUSE HINDS ALP
470	21547-2 YELLOW	LED	9	6.6	CROUSE HINDS ALP
471	21547-3 GREEN	LED	3	6.6	CROUSE HINDS ALP
472	21547-4 YELLOW	LED	3	6.6	CROUSE HINDS ALP
473	BE-226-234	LED			TECHNOSTROBE
474	1370155 R/W	LED			FLASH TECHNOLOGY
475	1370145 W	LED			FLASH TECHNOLOGY
477	45-0001-001	LED			HUGHEY & PHILLIPS
478	45-0002-001	LED			HUGHEY & PHILLIPS
486	4587703	Xenon			FLASH TECHNOLOGY
488	A1-03-0235-004	LED		6.6	ASTRONICS DME Corporation
489	A1-03-0235-002	LED		6.6	ASTRONICS DME Corporation
490	51-0008-001	LED	48		HUGHEY & PHILLIPS
491	51-0054-001	LED			HUGHEY & PHILLIPS
492	51-0060-001 RED & WHITE	LED			HUGHEY & PHILLIPS
493	4060-0625R	LED			TWR
494	A1-14-0086-001	LED		6.6	ASTRONICS DME Corporation
495	A1-14-0086-002	LED		6.6	ASTRONICS DME Corporation
496	48A0442-16	LED		6.6	ADB SAFEGATE AMERICAS, LLC
497	48A0442-24	LED		6.6	ADB SAFEGATE AMERICAS, LLC
498	48A0442-32	LED		6.6	ADB SAFEGATE AMERICAS, LLC
499	48A0454-GRN	LED		6.6	ADB SAFEGATE AMERICAS, LLC
500	48A0454-RED	LED		6.6	ADB SAFEGATE AMERICAS, LLC
501	48A0454-WHT	LED		6.6	ADB SAFEGATE AMERICAS, LLC
502	48A0454-YLW	LED		6.6	ADB SAFEGATE AMERICAS, LLC
503	48A0419/WHT	LED		6.6	ADB SAFEGATE AMERICAS, LLC
504	48A0419/RED3	LED		6.6	ADB SAFEGATE AMERICAS, LLC
505	48A0419/RED5	LED		6.6	ADB SAFEGATE AMERICAS, LLC
508	LXM2-PH01-0070 PHILIPS	LED			QUANTEC
510	1370135	LED			FLASH TECHNOLOGY

LAMP	DESIGNATION	WATTS	VOLTS	AMPS	Lamp Manufacturer
515	FAR1012RO	LED			FARLIGHT
516	4072.24.920 WHITE	LED		6.6	ADB SAFEGATE AMERICAS, LLC
517	4072.24.920 RED	LED		6.6	ADB SAFEGATE AMERICAS, LLC
518	RGL-18	LED		6.6	AIRPORT LIGHTING CO
519	760.2186	48		6.6	SYLVANIA 21497
520	760.2190	105		6.6	SYLVANIA 21499
521	760.2181	30		6.6	SYLVANIA MR16
522	D2661019FH	LED			DIALIGHT
523	D5641011 RED 1 Tier	LED			DIALIGHT
524	D1651019 WHITE	LED			DIALIGHT
525	1030LED	LED			STROBE APPROACH LIGHTING TECHNOLOGY
526	D1RW-1019 DUAL	LED			DIALIGHT
527	D1RW-1020 DUAL	LED			DIALIGHT
528	SafeLED-TE-E-O-B-NPS-6.6A-1C	LED		6.6	ADB SAFEGATE BVBA
529	10047-1493	30		6.6	GE
530	10047-1497	45		6.6	NARVA
531	150.4075 RED	LED		6.6	OCEM
532	150.4044 RED	LED		6.6	OCEM
533	150.3980 WHITE	LED		6.6	OCEM
534	150.3398 WHITE	LED		6.6	OCEM
535	150.3399 RED	LED		6.6	OCEM
536	150.4076 RED	LED		6.6	OCEM
537	150.4164 GREEN	LED		6.6	OCEM
538	150.3979 YELLOW	LED		6.6	OCEM
539	150.3928 GREEN	LED		6.6	OCEM
540	150.3957 GREEN	LED		6.6	OCEM

LAMP	DESIGNATION	WATTS	VOLTS	AMPS	Lamp Manufacturer
541	150.4048 YELLOW	LED		6.6	OCEM
542	150.4166 WHITE	LED		6.6	OCEM
543	150.3525 BLUE	LED		6.6	OCEM
544	150.4089 BLUE	LED		6.6	OCEM
545	150.4061 YELLOW	LED		6.6	OCEM
546	150.4062 RED	LED		6.6	OCEM
548	150.4060 WHITE	LED		6.6	OCEM
549	150.4063 GREEN	LED		6.6	OCEM
551	137210 Red LED	LED	24Vdc		FLASH TECHNOLOGY
552	861LEDMOD-BB	LED		6.6	AIRPORT LIGHTING CO
553	861LEDMOD-CC	LED		6.6	AIRPORT LIGHTING CO
554	861LEDMOD-GO	LED		6.6	AIRPORT LIGHTING CO
555	861LEDMOD-GY	LED		6.6	AIRPORT LIGHTING CO
556	861LEDMOD-RG	LED		6.6	AIRPORT LIGHTING CO
560	A1-03-0235-001	LED		6.6	ASTRONICS DME Corporation
563	F1370215	LED		6.6	FLASH TECHNOLOGY
564	SG9625B2	LED		6.6	ADB SAFEGATE BVBA
565	AV-OL-F810-12-R RED	LED			AVLITE
566	AV-OL-F810-12-RIR	LED			AVLITE
567	AV-OL-F810-UM-R RED	LED			AVLITE
568	AV-OL-F810-UM-RIR	LED			AVLITE
570	48A0444-YLW-495	LED		6.6	ADB SAFEGATE AMERICAS, LLC
571	44A0772 BLUE	LED		6.6	ADB SAFEGATE AMERICAS, LLC
573	BE-226-235/236 W/R	LED			TECHNOSTROBE
574	21671-R Red	LED		6.6	CROUSE HINDS ALP
575	21671-W WHITE	LED		6.6	CROUSE HINDS ALP
579	M550-1C	LED		6.6	HUGHEY & PHILLIPS
580	M550-1R	LED		6.6	HUGHEY & PHILLIPS
581	PL10569-1	Xenon			ADVANCED STROBE PRODUCTS
582	1370216	LED			FLASH TECHNOLOGY
583	1370211	LED			FLASH TECHNOLOGY
584	21683-1 Green	LED	9	6.6	CROUSE HINDS ALP

LAMP	DESIGNATION	WATTS	VOLTS	AMPS	Lamp Manufacturer
585	21683-2 Yellow	LED	9	6.6	CROUSE HINDS ALP
586	21683-3 Green	LED	3	6.6	CROUSE HINDS ALP
587	21683-4 Yellow	LED	3	6.6	CROUSE HINDS ALP
589	21671-R-12 Red	LED		6.6	CROUSE HINDS ALP
590	21671-W WHITE	LED		6.6	CROUSE HINDS ALP
591	216LED1-LED	LED		6.6	AIRPORT LIGHTING CO
592	LMP-0LTE-300	LED			ITL
593	44521-04	LED		6.6	AIRSAFE
594	2990.40.827	48		6.6	ADB SAFEGATE AMERICAS, LLC
597	48A0443-WHT-640	LED		6.6	ADB SAFEGATE AMERICAS, LLC
598	48A0443-YLW-640	LED		6.6	ADB SAFEGATE AMERICAS, LLC
599	44A7234/Y1	LED		6.6	ADB SAFEGATE AMERICAS, LLC
601	9200-0038	LED			HALI-BRITE
602	9200-0039	LED			HALI-BRITE
603	44A7062/31 RED	LED		6.6	ADB SAFEGATE AMERICAS, LLC
605	D1RWFH180	LED			DIALIGHT
606	44A7274-20	LED			ADB SAFEGATE AMERICAS, LLC
607	IRIS200-LED31 GREEN	LED		6.6	atg
608	IRIS200-LED33 YELLOW	LED		6.6	atg
609	IRIS200-LED39 GREEN	LED		6.6	atg
610	IRIS200-LED41 YELLOW	LED		6.6	atg
611	IRIS200-LED51 WHITE	LED		6.6	atg
612	IRIS200-LED52 RED	LED		6.6	atg
613	IRIS200-LED54 WHITE LED LEFT	LED		6.6	atg
614	IRIS200-LED55 WHITE LED RIGHT	LED		6.6	atg
615	48A0444-YLW-300	LED		6.6	ADB SAFEGATE AMERICAS, LLC
616	1370169	LED			FLASH TECHNOLOGY
618	48A0443-YLW-500	LED		6.6	ADB SAFEGATE AMERICAS, LLC
619	A3-06-3116-001	LED			ASTRONICS DME Corporation
620	NSL.8L.RC.S.W	LED		6.6	ADB SAFEGATE BVBA ADB SAFEGATE AMERICAS, LLC
621	NSL.8L.RC.S.R	LED		6.6	ADB SAFEGATE BVBA ADB SAFEGATE AMERICAS, LLC
622	LMP-0LTE-300-IR	LED			ITL

LAMP	DESIGNATION	WATTS	VOLTS	AMPS	Lamp Manufacturer
623	44A7479 1100-3 White & 44A7479 700-3 Red	LED		6.6	ADB SAFEGATE AMERICAS, LLC
624	44A74791100-3 White	LED		6.6	ADB SAFEGATE AMERICAS, LLC
626	1370158	LED			FLASH TECHNOLOGY
627	1593.17.000 YELLOW	LED		6.6	ADB SAFEGATE AMERICAS, LLC
628	1593.17.010 GREEN	LED		6.6	ADB SAFEGATE AMERICAS, LLC
629	45666	320			Hali-Brite Inc
630	PL11102-R-F RED	LED			POINT LIGHTING
631	PL11110-R-F RED	LED			POINT LIGHTING
632	PL10993	LED			POINT LIGHTING
634	7654H	45		6.6	FLIGHT LIGHT
635	ITL-3600-ENG	LED	100-240		ITL
636	ITL-3600-ENG-IR	LED	100-240		ITL
637	ITL-2600-ENG	LED	100-240		ITL
638	ITL-2600-EBG-IR	LED	100-240		ITL
639	50637 804E-AP1 LED MODULE	LED			CROUSE HINDS ALP
640	101Q	45		6.6	GE EXM
641	105	200		6.6	AIRPORT LIGHTING COMPANY
642	104	150		6.6	AIRPORT LIGHTING COMPANY
643	PCA-1305	3	12-48V		AVLITE
645	XQE AWT White	LED	120		ORGA ORGA
646	XQE RED	LED	120		ORGA ORGA
647	113760	LED			OBSTA
648	113761U	LED			OBSTA
649	424985	83	120		HALI-BRITE
650	04713	100	120		HALI-BRITE
651	50646-R RED	LED		6.6	CROUSE HINDS ALP
652	50649-R2 RED	LED		6.6	CROUSE HINDS ALP
653	50643 WHITE	LED		6.6	CROUSE HINDS ALP
654	50669-Y YELLOW	LED		6.6	CROUSE HINDS ALP
655	50667-1 BLUE	LED		6.6	CROUSE HINDS ALP
656	60646-G GREEN	LED		6.6	CROUSE HINDS ALP

LAMP	DESIGNATION	WATTS	VOLTS	AMPS	Lamp Manufacturer
657	60649-G2 GREEN	LED		6.6	CROUSE HINDS ALP
658	44A7479 1000-3 GREEN	LED		6.6	ADB SAFEGATE AMERICAS, LLC
659	44A7479 700-3 YELLOW	LED		6.6	ADB SAFEGATE AMERICAS, LLC
660	122-208A	LED		6.6	YOUYANG
661	100Q	30		6.6	GE
662	44A7479 160-1 Green	LED		6.6	ADB SAFEGATE AMERICAS, LLC
663	44A7479 195-1 Yellow	LED		6.6	ADB SAFEGATE AMERICAS, LLC
664	44A7479 195-2 Green	LED		6.6	ADB SAFEGATE AMERICAS, LLC
665	44A7479 160-2 Yellow	LED		6.6	ADB SAFEGATE AMERICAS, LLC
666	44A7479 1000-3 White	LED		6.6	ADB SAFEGATE AMERICAS, LLC
667	48A0353	150		6.6	Osram
668	44A7302	LED		6.6	ADB SAFEGATE AMERICAS, LLC
669	A1-14-0086-004	LED		6.6	ASTRONICS DME Corporation
670	100	30		6.6	AIRPORT LIGHTING CO
671	1593.15.895 White	LED		6.6	ADB SAFEGATE AMERICAS, LLC
672	1593.15.880 Yellow	LED		6.6	ADB SAFEGATE AMERICAS, LLC
673	1593.15.865 Green	LED		6.6	ADB SAFEGATE AMERICAS, LLC
674	1593.15.870 Red	LED		6.6	ADB SAFEGATE AMERICAS, LLC
675	D564-1012 RED 1 TIER	LED			DIALIGHT
676	D1CW-1020 DUAL IR	LED			DIALIGHT
680	44A6950/7X0 LED	LED		6.6	ADB SAFEGATE AMERICAS, LLC
681	11482-EXM	45		6.6	ASTRONICS DME Corporation
682	A1-03-0235-007 Blue	LED		6.6	ASTRONICS DME Corporation
683	LXHL-FB3C	LED		6.6	ASTRONICS DME Corporation
684	104	150		6.6	AIRPORT LIGHTING COMPANY
685	11478-EXL	30	6.6		ASTRONICS DME Corporation
686	SG18470W5; SG18415WW1	LED		6.6	ADB SAFEGATE BVBA
687	SG18416WY1;SG18471Y4;SG18416WY1	LED		6.6	ADB SAFEGATE BVBA
688	SG18417WR1; SG18470W5; SG18472R7	LED		6.6	ADB SAFEGATE BVBA

LAMP	DESIGNATION	WATTS	VOLTS	AMPS	Lamp Manufacturer
689	SG18432YR1; SG18471Y4; SG18472R7	LED		6.6	ADB SAFEGATE BVBA
690	NSL.12L.RC.S.W	LED		6.6	ADB SAFEGATE BVBA ADB SAFEGATE AMERICAS, LLC
691	SG18500R2	LED		6.6	ADB SAFEGATE BVBA
692	NSL.12L.RE.C.W1	LED		6.6	ADB SAFEGATE BVBA ADB SAFEGATE AMERICAS, LLC
693	NSL.12L.RE.C.R1	LED		6.6	ADB SAFEGATE BVBA ADB SAFEGATE AMERICAS, LLC
694	NSL.12L.RE.C.F2	LED		6.6	ADB SAFEGATE BVBA ADB SAFEGATE AMERICAS, LLC
695	NSL.12L.RE.C.Y2	LED		6.6	ADB SAFEGATE BVBA ADB SAFEGATE AMERICAS, LLC
696	NSL.12L.RE.C.W2	LED		6.6	ADB SAFEGATE BVBA ADB SAFEGATE AMERICAS, LLC
697	NSL.12L.RE.C.R2	LED		6.6	ADB SAFEGATE BVBA ADB SAFEGATE AMERICAS, LLC
698	NSL.12L.RE.C.F2	LED		6.6	ADB SAFEGATE BVBA ADB SAFEGATE AMERICAS, LLC
699	NSL.12L.RE.C.Y2	LED		6.6	ADB SAFEGATE BVBA ADB SAFEGATE AMERICAS, LLC
700	NSL.12L.RN.S.R	LED		6.6	ADB SAFEGATE BVBA ADB SAFEGATE AMERICAS, LLC
701	NSL.12L.RT.L.F.F	LED		6.6	ADB SAFEGATE BVBA ADB SAFEGATE AMERICAS, LLC
703	NSL.12L.RT.R.F.F	LED		6.6	ADB SAFEGATE BVBA ADB SAFEGATE AMERICAS, LLC
704	NSL.12L.RT.R.F.F	LED		6.6	ADB SAFEGATE BVBA ADB SAFEGATE AMERICAS, LLC
705	GN 45W EXM 6.6A	45		6.6	HUGHEY & PHILLIPS
706	GN 45W EXM 6.6A T10P	45		6.6	HUGHEY & PHILLIPS
707	GN 30W EXM 6.6A	30		6.6	HUGHEY & PHILLIPS
708	GN 30W EXM 6.6A T10P	30		6.6	HUGHEY & PHILLIPS
709	A1-14-0093-001	LED		6.6	ASTRONICS DME Corporation
710	NAC-LXL01-1030-H-A-T	LED			NAC DYNAMICS, LLC.
713	44A7479 1000-3 Red	LED		6.6	ADB SAFEGATE AMERICAS, LLC
714	NSL.8L.RG.S.Y	LED		6.6	ADB SAFEGATE BVBA ADB SAFEGATE AMERICAS, LLC
715	NSL.8L.SB.S.R	LED		6.6	ADB SAFEGATE BVBA ADB SAFEGATE AMERICAS, LLC
716	51-0054-003	LED	48		HUGHEY & PHILLIPS
717	51-0060-003	LED	48		HUGHEY & PHILLIPS
718	NSL.12L.RG.S.Y	LED		6.6	ADB SAFEGATE BVBA ADB SAFEGATE AMERICAS, LLC

LAMP	DESIGNATION	WATTS	VOLTS	AMPS	Lamp Manufacturer
719	NSL.12L.SB.S.R	LED		6.6	ADB SAFEGATE BVBA ADB SAFEGATE AMERICAS, LLC
720	44A7479 700-3 Red	LED		6.6	ADB SAFEGATE AMERICAS, LLC
721	NSL.8L.TC.N.Y	LED		6.6	ADB SAFEGATE BVBA ADB SAFEGATE AMERICAS, LLC
722	NSL.12L.TC.N.Y	LED		6.6	ADB SAFEGATE BVBA ADB SAFEGATE AMERICAS, LLC
723	NSL.8L.TC.N.F	LED		6.6	ADB SAFEGATE BVBA ADB SAFEGATE AMERICAS, LLC
724	NSL.12L.TC.N.F	LED		6.6	ADB SAFEGATE BVBA ADB SAFEGATE AMERICAS, LLC
725	101Q	45		6.6	AIRPORT LIGHTING CO
726	NSL.8L.TC.D.Y	LED		6.6	ADB SAFEGATE BVBA ADB SAFEGATE AMERICAS, LLC
727	NSL.12L.TC.D.Y	LED		6.6	ADB SAFEGATE BVBA ADB SAFEGATE AMERICAS, LLC
728	NSL.8L.TC.D.F	LED		6.6	ADB SAFEGATE BVBA ADB SAFEGATE AMERICAS, LLC
729	NSL.12L.TC.D.F	LED		6.6	ADB SAFEGATE BVBA ADB SAFEGATE AMERICAS, LLC
730	SG18646R10	LED		6.6	ADB SAFEGATE BVBA
731	44A7606 1700-1 WHT	LED		6.6	ADB SAFEGATE AMERICAS, LLC
732	44A7606 285-2 GRN	LED		6.6	ADB SAFEGATE AMERICAS, LLC
733	44A7606 400-1 RED	LED		6.6	ADB SAFEGATE AMERICAS, LLC
734	A3-06-3122-002	LED		6.6	ASTRONICS DME Corporation
735	1593.18.462 Red	LED		6.6	ADB SAFEGATE BVBA
736	A3-06-3122-001	LED		6.6	ASTRONICS DME Corporation
738	A3-06-3116-002	LED	3		ASTRONICS DME Corporation
739	SG18947G7	LED		6.6	ADB SAFEGATE BVBA
742	111-503K	LED		6.6	YOUYANG AIRPORT LIGHTING
743	111-503L1	LED		6.6	YOUYANG AIRPORT LIGHTING
744	111-503M1	LED		6.6	YOUYANG AIRPORT LIGHTING
745	111-503N1	LED		6.6	YOUYANG AIRPORT LIGHTING
746	48A0443-GRN-500	LED		6.6	ADB SAFEGATE AMERICAS, LLC
747	48A0007	45		6.6	ADB SAFEGATE AMERICAS, LLC
748	48A0444/GRN/300	LED		6.6	ADB SAFEGATE AMERICAS, LLC
749	48A0444/GRN/350	LED		6.6	ADB SAFEGATE AMERICAS, LLC
750	1371010	LED	120-240		FLASH TECHNOLOGY
751	1119011 with IR	LED			FLASH TECHNOLOGY
752	1119010	LED			FLASH TECHNOLOGY
753	122-208A	LED		6.6	YOUYANG AIRPORT LIGHTING EQUIPMENT INC
754	111-503F2	LED		6.6	YOUYANG AIRPORT LIGHTING EQUIPMENT INC

LAMP	DESIGNATION	WATTS	VOLTS	AMPS	Lamp Manufacturer
755	111-503G2	LED		6.6	YOUYANG AIRPORT LIGHTING EQUIPMENT INC
756	111-503D2	LED		6.6	YOUYANG AIRPORT LIGHTING EQUIPMENT INC
757	111-503A2	LED		6.6	YOUYANG AIRPORT LIGHTING EQUIPMENT INC
758	111-503B2	LED		6.6	YOUYANG AIRPORT LIGHTING EQUIPMENT INC
759	111-200A	LED		6.6	YOUYANG AIRPORT LIGHTING EQUIPMENT INC
760	111-227B	LED		6.6	YOUYANG AIRPORT LIGHTING EQUIPMENT INC
761	62438	LED		6.6	CROUSE HINDS ALP
762	44a7606 800-1 GRN	LED		6.6	ADB SAFEGATE AMERICAS, LLC
763	44A7606 1100-1 WHT	LED		6.6	ADB SAFEGATE AMERICAS, LLC
764	44A7606 1000-1 RED	LED		6.6	ADB SAFEGATE AMERICAS, LLC
765	44A7606 700-2 GRN	LED		6.6	ADB SAFEGATE AMERICAS, LLC
766	NSL.8L.TC.L.F	LED		6.6	ADB SAFEGATE BVBA ADB SAFEGATE AMERICAS, LLC
767	NSL.8L.TC.R.F	LED		6.6	ADB SAFEGATE BVBA ADB SAFEGATE AMERICAS, LLC
768	NSL.8L.TC.L.Y	LED		6.6	ADB SAFEGATE BVBA ADB SAFEGATE AMERICAS, LLC
769	NSL.8L.TC.R.Y	LED		6.6	ADB SAFEGATE BVBA ADB SAFEGATE AMERICAS, LLC
770	1371012	LED	48		FLASH TECHNOLOGY
771	1371011	LED	24		FLASH TECHNOLOGY
772	1593.15.670 AD-light TWY GREEN LED	LED			ADB SAFEGATE BVBA
773	1593.15.660 AD-light TWY YELLOW LED	LED			ADB SAFEGATE BVBA
774	AT996	LED			ATG AIRPORTS LTD.
775	ITL-1710-ENG	50	120-240		INTERNATIONAL TOWER LIGHTING, LLC
776	ITL-1700-ENG-IR	50	120-240		INTERNATIONAL TOWER LIGHTING, LLC
777	ITL-1710-ENG-IR	50	120-240		INTERNATIONAL TOWER LIGHTING, LLC
778	PL11187-R	LED			POINT LIGHTING CORPORATION
779	BE-226-235	LED			TECHNOSTROBE
780	0100-3930	LED	24Vdc		HALI-BRITE, INC.
781	NSL.12L.TC.C.F2	LED			ADB SAFEGATE BVBA ADB SAFEGATE AMERICAS, LLC
782	NSL.12L.TC.C.F1	LED			ADB SAFEGATE BVBA ADB SAFEGATE AMERICAS, LLC
783	NSL.12L.TC.C.Y2	LED			ADB SAFEGATE BVBA ADB SAFEGATE AMERICAS, LLC

LAMP	DESIGNATION	WATTS	VOLTS	AMPS	Lamp Manufacturer
784	NSL.12L.TC.C.Y1	LED			ADB SAFEGATE BVBA ADB SAFEGATE AMERICAS, LLC
785	PL11235-W	LED			POINT LIGHTING CORPORATION
786	218206	LED	24vdc		Wanco
787	111-503J3	LED			YOUYANG AIRPORT LIGHTING
788	111-503K	LED			YOUYANG AIRPORT LIGHTING
789	111-503A2	LED			YOUYANG AIRPORT LIGHTING
790	111-503D2	LED			YOUYANG AIRPORT LIGHTING
793	79243-C	LED			AIRSAFE
794	79243-Y	LED			AIRSAFE
795	79243-R	LED			AIRSAFE
796	79243-G	LED			AIRSAFE
797	A3-06-3161-001	LED	12.8v		ASTRONICS DME Corporation
798	40925	150			CROUSE HINDS ALP
799	A3-06-3161-004; A3-06-3161-011	LED			ASTRONICS DME Corporation
800	48A0044	150			ADB SAFEGATE AMERICAS, LLC
801	48A0145	200			ADB SAFEGATE AMERICAS, LLC
802	PL11199R-WH; PL11199L-WH; PL111099R-WHR PL11199L-WHR;	LED			POINT LIGHTING
803	PL11199R-WH; PPL11199L-WH; PL11199R-WHW; PL11199L-WHW	LED			POINT LIGHTING
804	LFHMRO-G3	LED			TECHNOSTROBE
805	50755-3	LED			CROUSE HINDS ALP
806	50755-2	LED			CROUSE HINDS ALP
807	50755-5	LED			CROUSE HINDS ALP
808	50755-1	LED			CROUSE HINDS ALP
809	50755-4	LED			CROUSE HINDS ALP
810	50755-6	LED			CROUSE HINDS ALP
811	SH810005	LED	120		SHERWIN INDUSTRIES
812	21771	LED			CROUSE HINDS ALP
813	21774-Y	LED			CROUSE HINDS ALP
814	21777-G	LED			CROUSE HINDS ALP
815	21777-R	LED			CROUSE HINDS ALP
816	PCA-1509	LED			AVLITE
817	LA-6112LL	30W			FLIGHT LIGHT
818	LA-6134LL	45W			FLIGHT LIGHT
819	48A0069				ADB SAFEGATE AMERICAS, LLC
820	48A0069				ADB SAFEGATE AMERICAS, LLC

LAMP	DESIGNATION	WATTS	VOLTS	AMPS	Lamp Manufacturer
821	PCA-1412-REV1	LED			AVLITE
822	A3-06-3185-001	LED			ASTRONICS DME
823	A3-06-3185-002 RED LED without arctic kit	LED			ASTRONICS DME
824	A3-06-3185-003 GREEN LED without arctic kit	LED			ASTRONICS DME
825	A3-06-3185-004 WHITE LED without arctic kit	LED			ASTRONICS DME
826	A3-06-3185-005 YELLOW LED with arctic kit	LED			ASTRONICS DME
827	A3-06-3185-006 RED LED with arctic kit	LED			ASTRONICS DME
828	A3-06-3185-007 GREEN LED with arctic kit	LED			ASTRONICS DME
829	A3-06-3185-008 WHITE LED with arctic kit	LED			ASTRONICS DME
830	79221-G	LED			AIRSAFE
831	79221-Y	LED			AIRSAFE
832	K1-02-0019-005	LED			ASTRONICS DME
833	K1-02-0019-006	LED			ASTRONICS DME
834	K1-02-0019-007	LED			ASTRONICS DME
835	K1-02-0019-008	LED			ASTRONICS DME
836	K1-02-0019-009	LED			ASTRONICS DME
837	SLC 008152	LED			ATG AIRPORTS LTD.
838	SLC 008154	LED			ATG AIRPORTS LTD.
839	SLC 008155	LED			ATG AIRPORTS LTD.
840	SLC 008156	LED			ATG AIRPORTS LTD.
841	A3-07-1172-001	LED			ASTRONICS DME
842	111-227B	48W		6.6	YOUYANG AIRPORT LIGHTING
843	770233	LED			OBSTA
844	50762	LED			CROUSE HINDS ALP
845	113790-RI-240	LED			OBSTA
846	113790-RR-240	LED			OBSTA
847	113790-RI-048	LED			OBSTA
848	113790-RR-048	LED			OBSTA
849	NSL.8L.RZ.LRS.W	LED		6.6	ADB SAFEGATE BVBA ADB SAFEGATE AMERICAS, LLC
850	NSL.12L.RZ.SLR.W	LED		6.6	ADB SAFEGATE BVBA ADB SAFEGATE AMERICAS, LLC
851	48A0444-GRN-280	LED			ADB SAFEGATE AMERICAS, LLC
852	F1370480	LED			FLASH TECHNOLOGY
853	9697	150W		6.6	Multi Electric Mfg., Inc.
854	9699	200W		6.6	Multi Electric Mfg., Inc.

LAMP	DESIGNATION	WATTS	VOLTS	AMPS	Lamp Manufacturer
855	F1270110 with IR		100-277VAC		FLASH TECHNOLOGY
856	14383 RED LED with 15563 IR LED	LED	24VDC	713mA	QUANTEC
857	111-222A	45W		6.6	YOUYANG AIRPORT LIGHTING EQUIPMENT INC
858	48A0443-GRN-300	LED			ADB SAFEGATE AMERICAS, LLC
859	111-503M2	LED			YOUYANG AIRPORT LIGHTING EQUIPMENT INC
860	111-503R1	LED			YOUYANG AIRPORT LIGHTING EQUIPMENT INC
861	F1372102 with IR	LED	120-240VAC		FLASH TECHNOLOGY
862	211.638-00 BLUE LED	LED			TKH
863	213.429-10 WHITE LED	LED			TKH
864	187.493-11 RED LED	LED			TKH
865	300.020-00 GREEN LED	LED			TKH
866	191.316-00 YELLOW LED	LED			TKH
867	217.159-00 WHITE LED	LED			TKH
868	192.856-11 RED LED	LED			TKH
869	300.030-00	LED			TKH
870	300.070-00	LED			TKH
871	300.030-00	LED			TKH
872	21797	LED			Crouse Hinds ALP
873	48A0444-GRN-200	LED			ADB Safegate Americas, LLC
874	IFH-1910-ENG	LED	120		ITL, LLC
875	REIL/XXXXX0XX	LED			ADB Safegate Americas,LLC
876	EP00008-001	LED			ADB Safegate Americas,LLC
877	(White) 152-454B8	LED		2.8-6.6	Youyang AIrport Lighting Equipment Inc.
878	A1-14-0091-001	105W		6.6	Hughey and Phillips
879	EP00008-001	LED		6.6	ADB Safegate Americas,LLC
880	LED9172	LED	48		Orga B.V.
881	50755-8	LED			Crouse Hinds ALP
882	D3661019MOD	LED	208-277		Dialight
883	LG7185 and LG7186	LED	24VDC		Sealite
884	EP00009-005-01 (RT)	LED		6.6	ADB Safegate Americas,LLC
885	EP00009-006-01 (LT)	LED		6.6	ADB Safegate Americas,LLC
886	EP00009-007-01 (RT)	LED		6.6	ADB Safegate Americas,LLC

LAMP	DESIGNATION	WATTS	VOLTS	AMPS	Lamp Manufacturer
887	EP00009-008-01 (LT)	LED		6.6	ADB Safegate Americas,LLC
888	EP00009-001-01 (RT)	LED		6.6	ADB Safegate Americas,LLC
889	EP00009-002-01 (LT)	LED		6.6	ADB Safegate Americas,LLC
890	EP00009-003-01 (RT)	LED		6.6	ADB Safegate Americas,LLC
891	EP00009-004-01 (LT)	LED		6.6	ADB Safegate Americas,LLC
892	F1371010	LED			Flash Technology, LLC
893	F1402010	LED			Flash Technology, LLC
894	11000016728	LED			Flash Technology, LLC
895	D664R54001	LED			Dialight
896	D664R13001	LED			Dialight
897	RT0CR28	LED			Dialight
898	RT0CR27	LED			Dialight
899	SH810005	LED	120		SHERWIN INDUSTRIES
900	I7-LEDV2	LED			AGM Airfeild Guidancesign Manufacturers, Inc
901	191.060-20	LED			TKH Airport Solutions A/S
902	192.737-00	LED			TKH Airport Solutions A/S
903					
904	21794	LED			Crouse Hinds ALP
905	LFHMWRO-G5	LED			TECHNOSTROBE
906	1350100	LED			FLASH TECHNOLOGY
907	LFHMRIRO-G3	LED			TECHNOSTROBE
908	50755-9	LED			Crouse Hinds ALP
909	193.021-10	LED			TKH Airport Solutions A/S
910	LMP-0LTG-0IR	LED			International Tower Lighting, LLC
912	PL11492-R & PL11495-A	LED			Point Light Corporation
913	113760IR	LED			OBSTA
914	113761UIR	LED			OBSTA
915	NAVLITE-FAA-120-240V	LED			OBSTA
917	9200-0052	LED			HALI-BRITE, INC.
918	9200-0053	LED			HALI-BRITE, INC.
919	9200-0047	LED			HALI-BRITE, INC.
920	9200-0048	LED			HALI-BRITE, INC.
921	9200-0049	LED			HALI-BRITE, INC.
922	9200-0050	LED			HALI-BRITE, INC.
923	9200-0051	LED			HALI-BRITE, INC.

LAMP	DESIGNATION	WATTS	VOLTS	AMPS	Lamp Manufacturer
924	51-0094-005	LED			Hughey & Phillips LLC
925	IFH-1900-ENG	LED			International Tower Lighting, LLC
926	(Blue)122-208A7	LED			Youyang Airport Lighting Airport Equipment inc.
927	62-3X30	LED			Airporting Lighting Company
928	62-3X31	LED			Airporting Lighting Company
929	62-3X32	LED			Airporting Lighting Company
930	62-3X33	LED			Airporting Lighting Company
931	45001837	LED			HONEYWELL
932	45001838	LED			HONEYWELL
933	45001839	LED			HONEYWELL
934	45001841	LED			HONEYWELL
935	45001845	LED			HONEYWELL
936	45001846	LED			HONEYWELL
937	45002005	LED			HONEYWELL
938	45002006	LED			HONEYWELL
939	45002313	LED			HONEYWELL
940	45002314	LED			HONEYWELL
941	45002315	LED			HONEYWELL
942	PL11526-R3	LED			Point Lighting Corporation
944	FL-810LEDNVXXX	LED			Flight Light Inc.
945	62-3X35	LED			Airporting Lighting Company
946	62-3X36	LED			Airporting Lighting Company
947	F1372112	LED			FLASH TECHNOLOGY
948	SEIYN0027	LED			OCEM
949	SEIYN0028	LED			OCEM
950	SEIYN0031	LED			OCEM
951	SEIYN0032	LED			OCEM
952	SEIYN0033	LED			OCEM
953	AS00116-000-01	LED			ADB Safegate Americas,LLC
954	9200-0041	LED			HALI-BRITE, INC.
955	9200-0042	LED			HALI-BRITE, INC.
956	(White)111-503F4	LED			Youyang Airport Lighting Airport Equipment inc.
957	(Red)111-503G4	LED			Youyang Airport Lighting Airport Equipment inc.
958	88-00200	LED			Airport Lighting Company
959	40925	150W			
960	111-503A4	LED			Youyang Airport Lighting Airport Equipment inc.
961	111-503B4	LED			Youyang Airport Lighting Airport Equipment inc.
962	AS00023-SW2-02	LED			ADB Safegate Americas,LLC
963	AS00020-SW2-02	LED			ADB Safegate Americas,LLC
964	AS00023-xW2-02	LED			ADB Safegate Americas,LLC
965	AS00020-xW2-02	LED			ADB Safegate Americas,LLC

LAMP	DESIGNATION	WATTS	VOLTS	AMPS	Lamp Manufacturer
966	AS00023-xW3-02	LED			ADB Safegate Americas,LLC
967	AS00023-SR1-02	LED			ADB Safegate Americas,LLC
968	AS00020-SR1-02	LED			ADB Safegate Americas,LLC
969	AS00023-xR2-02	LED			ADB Safegate Americas,LLC
970	AS00023-xSR3-02	LED			ADB Safegate Americas,LLC
971	HI-LED-WR120-G2	LED			Technostrobe
972	LFHMRO-G3-SEC	LED			Technostrobe
973	48A0420	INCAN			ADB Safegate Americas,LLC
974	2010405	LED			Shanghai Nanhua Electronics Co. Ltd.
975	ASTE01-047-IR	LED			TWR Lighting Inc.
976	13440 RED LED with 11767 IR LED	LED			QUANTEC
977	AS00143-01Bx-01	LED			ADB Safegate Americas,LLC
978	101211	LED			TWR LIGHTING
979	AS00023-xY3-02	LED			ADB Safegate Americas,LLC
980	AS00023-xF2-02	LED			ADB Safegate Americas,LLC
981	AS00089-0FN-02	LED			ADB Safegate Americas,LLC
982	AS00089-0YN-02	LED			ADB Safegate Americas,LLC
983	AS00089-NFN-02	LED			ADB Safegate Americas,LLC
984	AS00089-NYN-02	LED			ADB Safegate Americas,LLC
985	AS00089-DFF-02	LED			ADB Safegate Americas,LLC
986	AS00089-DYY-02	LED			ADB Safegate Americas,LLC
987	AS00089-DWW-02	LED			ADB Safegate Americas,LLC
988	AS00089-CRR-02	LED			ADB Safegate Americas,LLC
989	AS00089-CFN-02	LED			ADB Safegate Americas,LLC
990	AS00089-CYN-02	LED			ADB Safegate Americas,LLC
991	21611-5	LED			Crouse Hinds ALP
992	21611-6	LED			Crouse Hinds ALP
993	111-503K1	LED			Youyang Airport Lighting Airport Equipment inc.
994	111-503L2	LED			Youyang Airport Lighting Airport Equipment inc.
995	111-503N3	LED			Youyang Airport Lighting Airport Equipment inc.
996	111-503M4	LED			Youyang Airport Lighting Airport Equipment inc.
997	51-0094-001	LED			Hughey & Phillips LLC
998	54-0094-003	LED			Hughey & Phillips LLC
999	AS00023-SR2-02	LED			ADB Safegate Americas,LLC
1000	4072.70.760/10	LED			ADB Safegate BV
1001	LEDLTENGSTAR	LED			TWR Lighting Inc.

LAMP	DESIGNATION	WATTS	VOLTS	AMPS	Lamp Manufacturer
1002	PL11492-R, PL11495-DC	LED			Point Lighting Corporation
1006	PL11594-RW	LED			Point Lighting Corporation
10A	6.6A/T10/1P	30		6.6	GE
11A	6.6A/T10/P	45		6.6	GE
32B	116A21/TS	116	120		Philips
32C	116A21/TS	116	130		Philips
1003	PCA-2008	LED			Avlite Systems
1004	111-503G8	LED			Youyang Airport Lighting
1005	111-503I1	LED			Youyang Airport Lighting
1006	111-503J3	LED			Youyang Airport Lighting
1007	111-503J13	LED			Youyang Airport Lighting
1008	111-503B5	LED			Youyang Airport Lighting
1009	111-503A6	LED			Youyang Airport Lighting
1010	111-503B6	LED			Youyang Airport Lighting

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ABB 12 Southland Road Ormond Beach, FL 32174	
ADB Safegate Americas, LLC 700 Science Blvd. Columbus, OH 43230 Tel: (614) 861 -1304	
ADB Safegate BV Leuvensesteenweg 585 B 1930 Zaventem Belgium Tel: (032) 2 722 17 11	**ADB Safegate Americas, LLC** 977 Gahanna Pkwy PO Box 30829 Columbus, OH 43230-0829 Tel: (614) 861 -1304
AGM Airfield Guidancesign Mfrs Inc 108 Fairgrounds Dr. Suite 8 Manlius, NY 13104 Tel: (315) 682-6707 Fax: (315) 682-6758	
Airport Lighting Company 108 Fairgrounds Dr. Manlius, NY 13104 Tel: (315) 682-6460 Fax: (315) 682-6469	
Airport Lighting Equipment Inc 208 H Street Rupert, ID 83350 Tel (208) 436-0513 Fax (208) 436-3492	
Airsafe Airport Equipment Co Ltd Room 27AB Dongtai Bldg No 309 Tanggu Rd Shanghai 200080 PRC	**Kwon HyoSup** 13974 Rockland Village Dr #302 Chantilly, VA 20151 Tel (703) 980-0157
atg airports ltd Lowton Business Park Newton Road Lowton St.Mary's Warrington, UK WA3 2AP Tel: 44 1942 685555 Fax: 44 1942 685518	**ATG Airports Inc.** 7857 Drew Circle #11 Fort Myers, FL33967 Tel: (239) 985-9406 Fax: (239) 985-9435 http://www.atgairports.com
Augier SAS 1 ere avenue, nº2243 Carros, France 06513 Tel: +33 4 92086200	**Multi Electric Mfg. Inc.** 4223-43 West Lake Street Chicago, IL. 60624
Avlite Systems 11 Industrial Drive Somerville, Victoria 3912 Australia Tel: 61 0 3 5977 6128	**Sealite USA LLC (dba Avlite Systems)** 61 Business Park Drive Tilton, NH 03276 Tel (603) 737-1310

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BrightPortal Reources, LLC 1410 Counrty Road Blanco TX 78606 Tel-979-270-1655 www.brightportalresourecs.com	
Conductores Monterrey S.A. de C.V/ Viakon Avenue Conductores No. 505 Ote Col. Constituyentes de Queretaro San Nicholas de Los Garza Nuevo Leon 66493 Mexico Tel: 5281 8030 8053	
Controlled Power, Inc. 17909 Bothell Everett Hwy SE Suite 102 Bothell, WA 98012 Tel: (425) 485 1778 Fax: (425) 485 0658 www.controlledpowerinc.com	
Crouse-Hinds Airport Lighting Products 1200 Kennedy Road Windsor, Connecticut 06095 Tel: (860) 683-4300	
Dialight Corporation 1501 Rt. 34 South Farmingdale, NJ 07727 Tel: (732)-919-3119 Fax: (732)-751-5778 www.dialight.com	
EFLA Oy Kipinatie 3 06150 Porvoo, Finland Tel: 358 (0) 204 76 2367 www.efla.net	**LED Airport Lighting Inc.** Melanie Prada 305-790-6157 5245 NW 36th St., Ste 217 Miami Springs, FL 33166 sales@ledairportlighting.com www.ledairportlighting.com
Flash Technology LLC 332 Nichol Mill Lane Franklin, TN 37067 Tel: (615) 503-2000 Fax: (615) 261-2600	

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Flexstake Inc. 2150 Andrea Lane Fort Myers, FL 33912 Tel (941) 481-3539	
Flight Light, Inc. 2708 47th Ave Sacramento, CA 95822 http://www.flightlight.com	
Hali-Brite, Inc. 925 First Street SW Crosby, MN 56441 Tel: (800) 553-6269 http://www.halibrite.com	
Honeywell 715 Peachtree St NE Atlanta, GA 30308 Tel +1 (847) 391-3223	
Honeywell International Inc 715 Peachtree St NE Atlanta, GA 30308 Tel +1 (847) 391-3223	
Hughey & Phillips, LLC 240 W Twain Ave Urbana, OH 43078 Tel: (937)-652-3500 Fax: (937) 652 3508	
International Tower Lighting, LLC 1001 Centre Pointe Drive, Suite A La Vergne, TN 37086 USA	
Jaquith Industries Inc. 600 East Brighton Avenue P.O. Box 780 Syracuse, New York 13205 Tel (315) 478-5700	
Kukdong Electric Wire Co., Ltd a NEXANS company 29-23 Yongjeong-Gil Chopyeong-Myeon Jincheon-Gun Chungcheongbuk-Do Seoul, South Korea	**Nexans AmerCable Service Center** 182 Milburn Drive Tooele, Utah 84074 Tel: (866) 337-0803 Fax: (435) 843-9136
MC SOLUTIONS SRL VIA VAL D'OSSOLA 12/14 VIMERCATE, ITALY 20871 +39 039 66.69.93 www.mc-solutions.it	**Marcos Costilla Aviation Consulting Group,LLC** 501 Clariden Ranch Rd Southlake TX 76092 mcostilla@mcacg.us
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Monroe Integro LLC 30 Peter Court New Britain, Connecticut 06051 Tel: (860) 832-8960 Fax: (860) 832-8965 www.Integro-USA.com	
Multi-Electric Manufacturing, Inc 4223-43 West Lake Street Chicago, Illinois 60624 Tel: (773) 722-1900 Fax: (773) 722-5694	
Nehring Electrical Works Company PO Box 965 813 East Locust Street De Kalb, IL 60115 Tel: (800) 435-4481 Fax: (815) 756-7048 www.info@nehringwire.com	
Nova Group Inc. 185 Delvin Road NAPA, CA 94558 Tel: (707) 265-1100 www.novagrp.com	
OBSTA 2, rue Troyon 92316 Sevres France Tel: 33 1 41 23 50 10	**OBSTA** 10108 USA Today Way Miramar, FL 33025 Tel: (954) 430 6310 (800) 248-3548 Fax: (954)-430-7785 www.obsta.us 1pecourt@obsta.us
OCEM Airfield Technology **a division of Energy Technology S.r.l.** Via Della Solidarieta 2/1 40056 Valsamoggia Localita Crespellano Bologna Italy Tel: 39 051 665 6611 Fax: 39 051 665 6099 www.ocem.com	**Multi Electric Mfg Inc.** 4223-43Weast Lake St Chicago, IL 60624
Orga B.V. Strickledeweg 13 3125 At Schiedam The Netherlands Tel: (011) 31 10 415 0333 Fax: (011) 31 10 437 8445	**Orga Manufacturing Inc.** PO Box 5719 Kingwood, TX 77325 Tel: (281) 358-2544 Fax: (281) 358-0788

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Point Lighting Corporation P.O. Box 686 Simsbury, Connecticut 06070 Tel: (860) 243-0600, (800) 900-0433 Fax: (860) 243-0665	
Pollite LTD 38 Borough Rd Darlington DL1 1SW UK Tel: 44 1325 355433	Robert R Caggiano 45 Clarken Dr West Orange, NJ 07052 Tel (973) 271-8431
Prysmian Power Cables and Systems USA, LLC 4 Tesseneer Dr Highland Heights, KY 41076 Tel: (859)-572-8000 https://na.prysmiangroup.com	
Quantec Networks GmbH Rieselwiese 1 38690 Vienenburg GERMANY	**Einpart LLC** 204 Valley Lane, Suite B, Kennedale, TX 76060
Rural Electric Inc. 9502 E Main St Mesa, AZ 85207 Tel: (480) 986-1488 Fax: (480) 984-0319 http://ruralelectric.com/	
Saudi International Co. (SAINTCO) Alkhomrah Industrial Aria - Alkaramah Scheme 21442, Kingdom of Saudi Arabia www.saint-sa.com	**JIR Ventures** Address: 4927 Evening Moon Ln,Katy TX 77449. Tel No.: +1 832-874-826. Email: b.jiroudy@jirventures.com.
Sealite USA LLC bd/a Avlite Systems 61 Business Park Drive Tilton, New Hampshire 03276 https://www.sealite.com/united-states/	
Servicios Condumex S.A. de C.V. Carr. Constitución a S.L.P. km 9.6 Parque Industrial Jurica Querétaro, México 76127	Alex Sanchez alex@condumex.com
Sherwin Industries, Inc. 2129 W. Morgan Avenue Milwaukee, WI 53221 Tel: (414) 281-6400 https://sherwinindustriesinc.com	
Southwire Co. One Southwire Dr. Carrollton, GA 30119 Tel: (770) 832-5092	

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Standard Signs Inc 9115 Freeway Drive Macedonia, OH 44056 Tel: (330) 467-2030 Fax: (330-467 2076	
Strobe Approach Lighting Technology 108 Fairgrounds Drive Manlius, NY 13104 Tel: 603 598 4100 Fax 603 598 4198	
Technostrobe 65 Herbert O'Connell Coteau-du-Lac QC J10P 1B0 Canada Tel: 450 763 2097	
The Okonite Company 102 Hilltop Road PO Box 340 Ramsey, NJ 07445 Tel: (201) 825 0300 Fax: (201) 327 0273	
TKH Airport Solutions A/S Kobenhavnsvej 1 Nykobing Falster, Denmark 4800	**ParkAssist** 57 W 38th Street, 11th Floor New York, NY 10018, USA Contact Person: Gary Neff, CEO NA@parkassist.com +1 917-793-5400 (8am – 5pm EST)
TWR Lighting, Inc. 15102 Sommermeyer St. #125 Houston, Texas 77041 Phone: 713-973-6905 Web: www.twrlighting.com [twrlighting.com]	Gavin Sebek 15102 Sommermeyer St. #125 Houston, Texas 77041 Phone: 713-973-6905
Unika Universal Kablo Sanayi ve Tic A.S. Velikoy Sanai Bolgesi Sanayi Mah 3 Cadde No. 4 Velikoy Gerkezkoy Tekirdag, Turkey 59550	**Eutex International, Inc.** Contact Person: Nick Mair (Operations Director) 3409 Brinkman Houston, TX, 77018 Tel: (832) 358 1177 Fax: (832) 358 1165 www.eutex.international.com
Unimar Inc. 3195 Vickery Rd N Syracuse, NY 13212 Tel: (315) 699-4400 Fax: (315) 699-3700	

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Valley Illuminators PO Box 64095 Tacoma, Washington 98464 Tel (253) 833-3016 Fax (253) 735-5414 www.valleyilluminators.com	
Valtir, LLC 15601 Dallas Parkway Addison, TX 75001 Tel (312)705-8436	
WANCO, INC. 5870 Tennyson Street Arvada, CO 80003 Tel 800-972-0755 www.wanco.com	
Youyang Airport Lighting Equipment Inc. 738-2, Kwanyang-dong, Dongan-gu, Anyang-si, Gyeonggi-do, Korea 431-060 Tel 82 31 422-0021 Fax 82 31 424-6044 www.youyang.co.kr	**Pantree Co.** 9 Perryville Irvine, CA 92620 Tel: (714) 544-1194 Tel: (714) 544-1074