

AGENDA  
SHAWNEE AIRPORT AUTHORITY  
JULY 17, 2023 AT 6:00 PM  
COMMISSION CHAMBERS AT CITY HALL  
16 WEST 9TH STREET  
SHAWNEE, OKLAHOMA

Official action can only be taken on items which appear on the agenda. The public body may adopt, approve, ratify, deny, defer, recommend, amend, strike, or continue any agenda item. When more information is needed to act on an item, the public body may refer the matter to Staff or back to Committee or the recommending body. Under certain circumstances, items are deferred to a future date or stricken from the agenda entirely.

CALL TO ORDER

DECLARATION OF QUORUM

1. Consider approval of Consent Agenda:
  - a. Minutes from the June 20, 2023 regular meeting.
  - b. Acknowledge the Airport Advisory Board Minutes from the February 15, 2023 and April 19, 2023 regular meetings.
2. Consideration of a proposal to provide Engineering Services in support of the Federal Aviation Administration (FAA) Improve Drainage Project No. 3-40-0088-025-2023, Oklahoma Aeronautics Commission Project No. SNL-24-FS.
3. Consider Bid(s):
  - a. Improve Airport Drainage (Award)
4. Consideration of a proposal to provide Engineering Services in support of Oklahoma Aeronautics Commission (OAC) Project SNL-24-FS Pavement Condition Rating (PCR) Report - Shawnee Regional Airport.
5. Consideration of a proposal to provide Engineering Services in support of Oklahoma Aeronautics Commission (OAC) Project SNL-24-FS Terminal Area Plan - Shawnee Regional Airport.
6. Consideration of a resolution accepting a grant offer from the U.S. Department of Transportation Federal Aviation Administration (FAA) for the Improve

Airport Drainage Project No. 3-40-0088-025-2023 for the Shawnee Regional Airport.

7. Consideration of a resolution accepting a grant offer from the State of Oklahoma Aeronautics Commission (OAC) for the Improve Drainage and Install Solar Powered LED Taxiway Centerline Lights; Pavement Condition Rating (PCR) Study; and Terminal Area Plan - OAC Project Number SNL-24-FS for the Shawnee Regional Airport.
8. New Business
9. Adjournment

Respectfully submitted,



Lisa Lasyone, CMC, City Clerk

The City of Shawnee encourages participation from its citizens in public meetings. If participation is not possible due to a disability, notify the City Clerk, in writing, at least forty-eight hours prior to the scheduled meeting, and necessary accommodations will be made. (ADA 28 CFR 36)

# DRAFT

## SHAWNEE AIRPORT AUTHORITY PROCEEDINGS

JUNE 20, 2023 AT 6:00 PM

The Shawnee Airport Authority of the City of Shawnee, County of Pottawatomie, State of Oklahoma, met in Regular Session in the Commission Chambers at City Hall, 16 West 9th Street, Shawnee, Oklahoma on, Tuesday, June 20, 2023 at 6:00 PM, pursuant to notice duly posted as prescribed by law on Thursday, June 15, 2023 at 4:33 PM. Mayor Bolt presided and called the meeting to order. Upon roll call, the following members were in attendance.

Ed Bolt  
Chairman/Mayor

Daniel Matthews  
Trustee Ward 1

Cami Engles  
Trustee Ward 2

Travis Flood  
Trustee Ward 3

Darren Rutherford  
Trustee Ward 4

Mark Sehorn  
Trustee Ward 5

Lauren Richter  
Trustee Ward 6

ABSENT: None

### CALL TO ORDER

### DECLARATION OF QUORUM

#### 1. Consider approval of Consent Agenda:

- a. Minutes from the May 15, 2023 regular meeting and June 9, 2023 special call meeting.

A motion was made by Trustee Flood, seconded by Trustee Engles, to approve the Minutes from the May 15, 2023 regular meeting and June 9, 2023 special call meeting. Motion Carried 7-0-0.

AYE: Flood, Engles, Bolt, Rutherford, Sehorn, Richter, Matthews

NAY: None

ABSTAIN: None

#### 2. Consideration of a resolution adopting the Fiscal Year 2023-2024 Budget for the Shawnee Airport Authority for the period of July 1, 2023 through June 30,

2024.

Finance Director Lindsey McNabb-Fox explained the proposed resolution adopting the Fiscal Year 2023-2024 budget.

A motion was made by Trustee Rutherford, seconded by Trustee Matthews, to approve a resolution adopting the Fiscal Year 2023-2024 Budget for the Shawnee Airport Authority for the period of July 1, 2023 through June 30, 2024.

Resolution No. SAA-2023-2 was introduced.

A RESOLUTION APPROVING AND ADOPTING THE FISCAL YEAR 2023-2024 BUDGET FOR SHAWNEE AIRPORT AUTHORITY, OKLAHOMA FOR THE PERIOD JULY 1, 2023 THROUGH JUNE 30, 2024.

Motion Carried 7-0-0.

AYE: Rutherford, Matthews, Engles, Flood, Bolt, Sehorn, Richter

NAY: None

ABSTAIN: None

3. Consider Bid(s):

a. Improve Airport Drainage (Open)

BIDDER

Tri-City Seal Co.  
Tuttle, Oklahoma

AMOUNT

\$635,775.00

Airport Manager Bonnie Wilson announced that one (1) bid had been received and read the bid into record. Ms. Wilson requested the bid award be deferred to a future meeting.

A motion was made by Trustee Matthews, seconded by Trustee Flood, to defer the item to a future Shawnee Airport Authority meeting. Motion Carried 7-0-0.

AYE: Matthews, Flood, Bolt, Rutherford, Sehorn, Richter, Engles

NAY: None

ABSTAIN: None

4. New Business

There was no new business.

5. Adjournment

There being no further business to be considered, the meeting was adjourned by power of the Chair. (9:30 p.m.)

---

ED BOLT, CHAIRMAN/MAYOR

ATTEST:

---

KACIE ECK, CMC  
SENIOR DEPUTY CITY CLERK  
SECRETARY

**MINUTES  
AIRPORT ADVISORY BOARD  
FEBRUARY 15, 2023  
REGULAR MEETING  
2202 NORTH AIRPORT DR  
SHAWNEE, OK**

**AIRPORT ADVISORY BOARD MEMBERS PRESENT**

Mr. Harmik DerSahakian, Chairman  
Mr. Larry Briggs  
Mr. Colton Crowder  
Mr. Randall Rogers  
Mr. Cody Smithson

**OTHERS PRESENT**

Mr. Matthew Buoy, BUCO Aviation  
Mr. Rob Morris, Citizen of Shawnee  
Mr. Matthew Lovelace, Shawnee Regional Airport Staff  
Ms. Bonnie Wilson, Shawnee Regional Airport Staff

**I. DECLARATION OF A QUORUM**

Five members of the Advisory Committee were noted as present, the Chairman Declared a Quorum.

**II. DISCUSSION AND CONSIDERATION OF MINUTES FROM JANUARY 18, 2023, REGULAR MEETING**

A copy of the Minutes document was included in the meeting agenda package.

The Chairman called for a motion to approve the Minutes.

Mr. Rogers made the Motion; Mr. Briggs provided a Second.

The Chairman called the Question, members of the Airport Advisory Board (Board) present approved the Motion.

**III. CITIZEN COMMENTS**

Mr. Morris was recognized for comments, and recommended the Board and staff continue to track revenue resources available through the City of Shawnee to support the airport.

**IV. DISCUSSION OF PUBLIC COMMENTS ON PROPOSED REVISIONS TO MINIMUM STANDARDS AND REQUIREMENTS FOR COMMERCIAL AERONAUTICAL SERVICES AND NON-COMMERCIAL AERONAUTICAL TENANT ACTIVITIES AND RULES AND REGULATIONS FOR THE OPERATION OF SHAWNEE REGIONAL AIRPORT (MINIMUM STANDARDS)**

The Chairman introduced the item by noting the Board authorized staff to publish a revised draft of the Shawnee Airport Authority's (SAA) Minimum Standards, and that the draft was posted on the airport website and the city website, and a link was emailed to all current tenants. The Chairman then opened the floor to any person wishing to provide comments on the proposed draft.

No public comments were offered. Staff noted that Mr. Rogers had submitted a written comment regarding unintentional duplicative language. Staff indicated this error would be addressed prior to submitting the revised Minimum Standards to the SAA for adoption.

**V. DISCUSSION AND CONSIDERATION OF REQUEST TO AMEND COMMERCIAL AERONAUTICAL SERVICES LEASE AGREEMENT – BUCO AVIATION, LLC**

The Chairman led a discussion to consider an amendment to an existing commercial use agreement. Staff provided the members of the Board with copies of the written proposal submitted by Buco Aviation, LLC ("BUCO") seeking to amend their current Commercial Aeronautical Services Lease Agreement to include authorization to provide airframe and powerplant (A&P) services to the public within their current leasehold at the Shawnee Regional Airport; no request has been made to amend other terms and conditions of their agreement.

Staff noted the written proposal addressed each of the requirements for providing this service as established by the Minimum Standards.

The Chairman opened the floor for questions from the Board. Mr. Smithson inquired about BUCO's ability to hangar customers seeking A&P services. Mr. Buoy was in attendance, and the Chairman offered him the opportunity to respond. Mr. Buoy stated that he had sufficient room and would be scheduling customers to ensure he could accommodate them. Staff also indicated that per long standing current practice, customers are provided with thirty days of free parking on the main aircraft parking ramp, customers arriving prior to scheduled services at the current shops often use this option.

The Chairman called for a motion to accept the proposal and amend numerical paragraphs 3, AUTHORIZED USE OF LEASED PREMISE, and 4. AIRCRAFT RESTORATION AND/OR MAINTENANCE of the Agreement between the Shawnee Airport Authority and BUCO Aviation, LLC to explicitly authorize the provision of airframe and powerplant services to the public as governed by the Minimum Standards. As well as authorize staff to prepare a draft amendment to the current Agreement and recommend approval of the amendment to the SAA for authorization to execute.

Mr. Briggs made the Motion; Mr. Smithson provided a Second to the Motion.

The Chairman called the Question, and the Members of the Advisory Board present approved the Motion.

## **VI. DISCUSSION AND CONSIDERATION OF AIRPORT ADVISORY BOARD BUDGET COMMITTEE RECOMMENDATIONS FOR FISCAL YEAR 2024**

The Chairman opened the discussion by thanking the Budget Committee for the time they volunteered on the development of the Fiscal Year 2024 Budget recommendations. The Budget Committee reviewed the list of repairs, restorations, and capital improvements represented on the airport's five-year project plan. The committee held a meeting on Thursday February 2, 2023, to assign priorities for the remainder of this fiscal year and Fiscal Year 2024. Staff provided a memo highlighting significant projects, and costs.

The Chairman called for a motion to (i) accept the Budget Committee's recommendation; and (ii) authorize staff to submit the Fiscal Year 2024 Budget to the City of Shawnee requesting the funds necessary to support the identified projects and expenses as presented in the memorandum.

Mr. DerSahakian made the Motion; Mr. Rogers provided a Second to the Motion.

The Chairman called the Question, and the Members of the Advisory Board present approved the Motion.

## **VII. STAFF REPORT**

The Chairman led a discussion on the monthly fuel and budget reports provided in the agenda packages and directed questions to staff.

## **VIII. BOARD COMMENTS**

Mr. Rogers announced to the Board members that the upcoming FAASTeam meeting "How Wings Work" led by Aviation inspectors, Aaron Varland and Mark Schurig, will be on March 1, 2023.

## **IX. ADJOURNMENT**

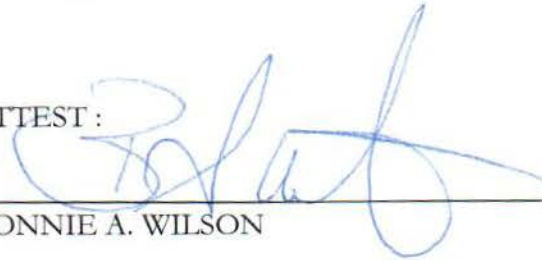
The Chairman called for a Motion to Adjourn the meeting.

Mr. Briggs made a Motion to Adjourn; Mr. Rogers provided a Second to the Motion.

The Chairman called the Question, and the Members of the Advisory Board present approved the Motion. The meeting was adjourned.

  
HARMIK DERSAHAKIAN, CHAIRMAN

6/21/2023  
DATE

ATTEST :  
  
BONNIE A. WILSON

6/21/2023  
DATE

## AIRPORT ADVISORY BOARD PROCEEDINGS

APRIL 19, 2023, AT 5:30 PM

The Airport Advisory Board of the City of Shawnee, County of Pottawatomie, State of Oklahoma, met in Regular Session at the Shawnee Regional Airport at 2202 North Airport Drive, Shawnee, Oklahoma on, Wednesday, April 19, 2023, at 5:30 PM, pursuant to notice duly posted as prescribed by law at 3:30 p.m. on April 14, 2023. Chairman DerSahakian presided and called the meeting to order. Upon roll call, the following members were in attendance.

Harmik DerSahakian  
Chairman

Absent  
Board Member

Colton Crowder  
Board Member

Scott Lee  
Vice Chairman

Absent  
Board Member

Cody Smithson  
Board Member

Absent  
Board Member

ABSENT: Larry Briggs, Randall Rogers, Blake White

### CALL TO ORDER

### DECLARATION OF QUORUM

#### 1. Minutes from the February 15, 2023, Regular Meeting.

The Chairman inquired if any member of the Board had questions or comments regarding the minutes. None were offered.

A motion was made by the Chairman, seconded by Mr. Lee, to approve the Minutes from the February 15, 2023, Regular Meeting. Motion 4-0-0.

AYE: Crowder, Der Sahakian, Lee, Smithson

NAY: None

ABSTAIN: None

#### 2. Citizens Participation

No citizens attended the meeting.

### 3. Discussion and Consideration of Revised Minimum Standards

The Chairman introduced the item, noting the Minimum Standards were initially adopted by the Shawnee Airport Authority in July 2000, amended, and reissued in May 2019. The Board directed staff to prepare an additional amendment for public consideration in January 2023. The draft was published on the airport website, City of Shawnee website and directly emailed to all tenants.

A motion was made by Mr. DerSahakian to recommend the revised Minimum Standards be presented to the Shawnee Airport Authority for adoption as a City of Shawnee Ordinance. Mr. Smithson provided a second. Motion 4-0-0.

AYE: Crowder, DerSahakian, Lee, Smithson

NAY: None

ABSTAIN: None

### 4. Discussion and Consideration of Revisions to Airport Lease and Development Policy Statement

The Chairman introduced the item, noting the lease policy statement (Policy) was initially adopted by the Shawnee Airport Authority in May 2018, and was amended and reissued in October 2019. At the request of the Board, the Budget Committee reviewed the policy and drafted a revision included in the agenda package.

The revised edition included a recommendation to separate the governing policy statement from the administrative procedural elements of the document.

Other key changes to the procedures section include:

- Amending the current practice of increasing rental rates based on the annual rate of inflation and instead using an average of the rates for the prior three calendar years, with current pricing retained as minimums regardless of inflation activity.
- Survey comparable airports annually to ensure competitive pricing for non-commercial aeronautical use facilities owned by the Shawnee Airport Authority.
- Authorize the Airport Advisory Board to determine if an increase is warranted

when, and if a rate increase based on the CPI calculation exceeds the average rates charged by the top 25% of all the airports in the survey for the purpose of hangar rate market evaluation.

The Chairman called for a motion to accept the Budget Committee's recommendations regarding the revisions to the Lease Policy and for a recommendation to present the revised policy to the Shawnee Airport Authority for adoption.

A motion was made by Mr. Smithson, seconded by Mr. Lee to present the revised Policy to the Shawnee Airport Authority for adoption. Motion carried 3-1-0.

AYE: Crowder, DerSahakian, Smithson

NAY: Lee

ABSTAIN: None

## 5. Staff Reports

Staff presented materials on fuel sales, current pricing and budget performance year to date.

- a. Shawnee Regional Airport Fuel Sales
- b. Current Fuel Price Comparisons
- c. Budget Summary Report

## 6. Board Comments

No comments were offered by members of the Airport Advisory Board.

## 7. Adjournment

There being no further business to be considered, the meeting was adjourned by power of the Chair. (7:00 p.m.)



---

Harmik DerSahakian  
Chairman



---

Bonnie A. Wilson, CM  
Secretary



**Airport**  
2202 N. Airport Dr.  
Shawnee, OK 74804  
ShawneeOK.org

**Date:** July 17, 2023  
**To:** Shawnee Airport Authority  
**From:** Bonnie Wilson, Airport Manager  
**Subject:** Consideration of a proposal to provide Engineering Services in support of the Federal Aviation Administration (FAA) Improve Drainage Project No. 3-40-0088-025-2023, Oklahoma Aeronautics Commission Project No. SNL-24-FS.

**Background:** At the July 15, 2019, Regular Meeting, the Shawnee Airport Authority accepted and approved the recommendation of staff to award a contract for general engineering services to H.W. Lochner, Inc. (Lochner) based on a review of Statements of Qualifications. Staff is seeking authorization to execute an Addendum to that agreement for professional engineering services in support of the construction phase of a project to improve airport drainage at the Shawnee Regional Airport for a fee not to exceed \$155,700. A copy of the proposed agreement is attached.

The proposed scope of work and associated fees were reviewed by an independent third party engineer, Rood & Associates, in conformity with provisions relating to formal consultant/sponsor negotiations described in Federal Aviation Administration Advisory Circular 150/5100-14E and found to be appropriate for the services offered. A copy of the Rood & Associates report is attached.

The scope of the work of the amendment includes:

1. Providing construction management and on-site construction observation for sixty-six (66) calendar days of the construction project.
2. Preparing sub-agreement for construction materials testing.
3. Preparing Construction Contracts for the Shawnee Airport Authority and successful bidder's execution.
4. Preparing copies of the Construction Plans and Contract Documents/Technical Specifications for use by the Contractors during construction.
5. Developing a Construction Observation Plan for submittal to the Shawnee Airport Authority.
6. Conduct and document a pre-construction conference.
7. Provision of full-time construction observation services, including preparation of daily reports, weekly reports, material test results and other reports as required by the Federal Aviation Administration (FAA) and Oklahoma Aeronautics Commission (OAC) to document the prosecution and progress of the project.
8. Reviewing shop drawings, material certification, and mix design submittals from the Contractor.
9. Attending and conducting on-site construction progress meetings once a month, preparing agendas and meeting minutes, and distributing minutes to attendees.
10. Preparing Contractor's progress estimates, Shawnee Airport Authority's request for reimbursement of funds through FAA and OAC, and FAA quarterly reports.
11. Preparing change orders and supplements necessary for construction of the project.

12. Providing engineer's response to contractor's request for information.
13. Attendance at and conduct of a final review of the project with the Shawnee Airport Authority and the OAC.
14. Preparation and distribution of a punch list and provision of construction observation during punch list completion.
15. Preparation and distribution of final inspection and substantial completion memo.
16. Preparation and submission to the Sponsor of one set of black line prints of the record drawings and one electronically reproducible set.
17. Preparation and submission of a Final Construction Report.
18. Preparation of necessary documents for project closeout as required by the FAA and OAC.

Fees for services will be supported by an Oklahoma Aeronautics Commission grant in the amount of \$150,995, and funds provided by Shawnee Airport Authority in the amount of \$7,945.

Execution of the amendment will be contingent on receipt of grant funds.

**Financial Impact:** Reimbursement of up to \$150,955 in State Grant Revenues deposited in Shawnee Airport Authority Account - 511-41020; Capital Outlay  
Buildings and Improvements Expense 511-5-0120-54200 \$158,900

**Attachments:** Lochner Agreement-Shawnee Drainage CEI Agreement, CEI IFE Report

**Staff Recommendation:** Authorize execution of the amendment contingent on receipt of grant funding

## **TASK ORDER (TO-07) AGREEMENT (the "Agreement")**

Owner: **City of Shawnee, Oklahoma**

Client: **Shawnee Regional Airport (SNL)**

Consultant: **H.W. Lochner, Inc. ("Lochner")**

Date: \_\_\_\_\_

Referenced Master-On-Call (MOC) Agreement: **City of Shawnee, Oklahoma / Shawnee Regional Authority – 5-Year MOC Agreement Dated July 15, 2019.**

Task Order Project: **SNL-15710-TO07 – Construction Services for: Improve Airport Drainage-Rehabilitate Storm Sewer System at Shawnee Regional Airport**

Lochner and the Client (collectively, the "Parties" and individually, a "Party") agree as follows:

**1. Task Order Agreement.** This Agreement is a contract between Lochner and the Client for Lochner to perform construction observation, administration, and closeout services, as outlined in the scope, schedule, and fee on the Project. This Task Order assumes the terms and conditions of the above referenced MOC Agreement.

### **Article I Scope of Services**

WHEREAS, the Owner has agreed to employ the Consultant to provide the engineering services necessary for the construction phase of the project by providing construction management and documentation, construction submittal review, construction materials testing and laboratory services, on-site observation, and project closeout services for the proposed project upon the award of the construction contract.

All services will be performed in accordance with good engineering practice and applicable published design criteria of the FAA, primarily FAA Advisory Circulars.

- AC 150/5300-13B *"Airport Design"*
- AC 150/5370-2G *"Operational Safety on Airports During Construction"*
- Advisory Circular 150/5370-10H *"Standards for Specifying Construction of Airports."*

The following is a detailed description of the specific engineering services that are a duty of this Agreement.

#### **A. CONSTRUCTION SERVICES**

1. Provide construction management and on-site construction observation *FOR 66 CALENDAR DAY CONSTRUCTION PROJECT.*
  - a. Prepare sub-agreement for construction materials testing.

- b. Prepare Construction Contracts for Sponsor and successful bidder execution.
- c. Prepare copies of the Construction Plans and Contract Documents/Technical Specifications for use by the Contractors during construction.
- d. Develop a Construction Observation Plan for submittal to the Sponsor.
- e. Attend and conduct a pre-construction conference. Minutes of the conference will be prepared and distributed to the attendees.
- f. Provide construction observation services, including preparation of daily reports, weekly reports, material test results and other reports as required by the FAA and OAC to document the prosecution and progress of the Project. The Consultant shall provide full time observation of the Project.
- g. Review shop drawings, material certification, and mix design submittals from the Contractor.
- h. Attend and conduct on-site construction progress meetings once a month, prepare agendas and meeting minutes, and distribute minutes to attendees.
- i. Project Manager to be on site for start of two milestone activities; Start of clearing and grubbing and start of flushing of storm pipe.
- j. Prepare Contractor's progress estimates, Sponsor's request for reimbursement of funds through FAA and OAC, and FAA quarterly reports.
- k. Prepare change orders and supplements necessary for construction of the Project.
- l. Provide engineer's response to contractor's request for information.
- m. Attend and conduct a final review of the Project with the Sponsor and the OAC.
- n. Prepare and distribute punch list and provide construction observation during punch list completion.
- o. Prepare and distribute final inspection and substantial completion memo.

**B. PROJECT CLOSEOUT SERVICES**

- 1. Prepare and submit to the Sponsor one set of black line prints of the record drawings and one electronically reproducible set.
- 2. Prepare and submit the Final Construction Report.
- 3. Prepare necessary documents for project closeout as required by the FAA.
- 4. Prepare necessary documents for project closeout as required by the OAC.
- 5. Assist Sponsor with submitting closeout documents to FAA and OAC.

**ARTICLE II  
TIME SCHEDULE**

The Consultant agrees to proceed with the services immediately upon receipt of a written Notice to Proceed (NTP) by the Owner, and to employ such personnel as required to complete the Scope of Services in accordance with the following time schedule:

**SCHEDULED PERFORMANCE IN CALENDAR DAYS**

**A. CONSTRUCTION SERVICES**

1. Construction Management and Observation Services .....As Required for 66 Calendar Day Construction Project
2. Construction Project Closeout ..... 90 Calendar Days  
After Construction Final Acceptance

The schedule presented above does not include review time by the Owner, OAC, FAA or other interested agencies.

**ARTICLE III  
COMPENSATION**

The Owner agrees to compensate the Consultant for performing engineering services as described herein on the following basis:

**COMPENSATION SCHEDULE**

**A. CONSTRUCTION SERVICES**

1. Construction Management and Observation Services .....\$ 144,300.00 Not-to-Exceed
2. Construction Project Closeout ..... \$ 11,400.00 Lump Sum

**Total Construction Services and Closeout..... \$155,700.00**

The Consultant shall not proceed with the services described herein until written authorization in the form of a Notice to Proceed is received from the Owner.

The fixed payment to the Consultant for services outlined in Item A.1, Construction Services shall be \$14,577.00, and the total payment to the Consultant shall not exceed \$144,300.00.

If the Contractor exceeds a construction contract period of 66 calendar days, the Consultant may renegotiate with the Sponsor the respective fixed payment and not-to-exceed amount. The renegotiated fixed payment and not-to-exceed amount will be estimated based on direct salary costs, labor and general overhead, out-of-pocket expenses, and profit similar to those used in this Task Order.

The Consultant will use an independent laboratory for all materials acceptance testing not provided by the contractor.

Travel on and off the Project site required of Consultant personnel will be compensated at the current rate allowed by the Internal Revenue Service.

For engineering services applicable to Item A.1 through A.3, the Consultant will submit monthly statements to the Sponsor for payroll costs times a factor for labor and general administrative overhead (3.01) and all other expenses incurred on the Project. A pro rata share of the fixed payment in proportion of the statement amount to the not-to-exceed amount will be included on the monthly statement.

Costs other than personnel services incurred by the Consultant will be documented in the written statement and will be at the cost to the Consultant from the vendor.

For Item A.3, Construction Project Closeout, partial payment shall be made to the Consultant for those portions of the services completed. The Consultant shall submit to the Sponsor a monthly statement showing an estimate of completion, and the portion of compensation requested for each element and phase of the services. The request for partial payments will not be in excess of the value of the services completed at the time the statement is rendered.

Progress payments shall be made to the Consultant within thirty (30) calendar days of receipt of proper billing statement.

IN WITNESS WHEREOF, the parties hereto have caused this Task Order Agreement SNL-15710-TO07 to be signed by their duly authorized officers. This Task Order Agreement shall be binding upon the undersigned parties, their successors, partners, assigns, and legal representatives. All other stipulations of the Master On Call Agreement dated July 15, 2019 shall remain in effect.

**H.W. LOCHNER, INC.**

**CITY OF SHAWNEE, OKLAHOMA**

By: \_\_\_\_\_

By: \_\_\_\_\_

Title: Vice President

Title: \_\_\_\_\_

Date: 6/29/2023

Date: \_\_\_\_\_

**DERIVATION OF CONSULTANT PROJECT COSTS**  
**CONSTRUCTION OBSERVATION AND ADMINISTRATION SERVICES**

**Improve Airport Drainage**

**FAA PROJECT NO. A.I.P. 3-40-0088-025-2023**

**SHAWNEE REGIONAL AIRPORT (SNL)**  
**SHAWNEE, OKLAHOMA**

**66 CALENDAR DAY CONSTRUCTION CONTRACT**

**June 15, 2023**

**1. DIRECT SALARY COSTS:**

| <u>TITLE</u>               | <u>HOURS</u> | <u>RATE/HOUR</u> | <u>COST (\$)</u> |
|----------------------------|--------------|------------------|------------------|
| Principal                  | 1            | \$75.00          | \$ 75.00         |
| Project Manager            | 38           | \$65.00          | \$ 2,470.00      |
| Senior Electrical Engineer | 0            | \$65.00          | \$ -             |
| Senior Design Engineer     | 0            | \$50.00          | \$ -             |
| Design Engineer            | 50           | \$42.00          | \$ 2,100.00      |
| Senior Airport Planner     | 0            | \$43.00          | \$ -             |
| Environmental Scientist    | 0            | \$40.00          | \$ -             |
| Engineer Intern            | 127          | \$32.00          | \$ 4,064.00      |
| Design Technician          | 8            | \$27.00          | \$ 216.00        |
| Administrative Assistant   | 23           | \$23.00          | \$ 529.00        |
| Sr. Construction Inspector | 615          | \$45.00          | \$ 27,675.00     |
| Construction Inspector     | 0            | \$38.00          | \$ -             |

Total Direct Salary Costs = \$ 37,129.00

**2. OVERHEAD, ADMINISTRATIVE EXPENSES, AND PROFIT MULTIPLIER:**

Overhead, Administrative Expenses, and Profit Multiplier per  
Article IV and Attachment "A" - Lochner 2020 Compensation  
Rates in Five-Year Master On-Call Agreement dated July 15, 2019 **3.01**

**3. CONTRACT MULTIPLIER APPLIED TO DIRECT LABOR** **\$ 111,758.29**

**4. OUT-OF-POCKET EXPENSES:**

|                         |       |                        |             |
|-------------------------|-------|------------------------|-------------|
| a. Mileage              | 3,160 | miles @ \$0.655/mile = | \$ 2,069.80 |
| b. Meals                | 66    | @ \$59.00/day =        | \$ 3,894.00 |
| c. Motel                | 58    | days @ \$113.00/day =  | \$ 6,554.00 |
| d. Materials & Supplies |       | =                      | \$ 23.91    |

Total Out-of-Pocket Expenses = \$ 12,541.71

**5. SUBCONTRACT COST:**

a. Materials Acceptance Testing (estimated) **\$ 20,000.00**

**6. TOTAL FEE:**

Items 3, 4, and 5 **\$ 144,300.00**

# DERIVATION OF CONSULTANT PROJECT COSTS

## PROJECT CLOSEOUT SERVICES

### Improve Airport Drainage

FAA PROJECT NO. A.I.P. 3-40-0088-025-2023

SHAWNEE REGIONAL AIRPORT (SNL)  
SHAWNEE, OKLAHOMA

June 15, 2023

#### 1. DIRECT SALARY COSTS:

| <u>TITLE</u>               | <u>HOURS</u> | <u>RATE/HOUR</u> | <u>COST (\$)</u> |
|----------------------------|--------------|------------------|------------------|
| Principal                  | 1            | \$75.00          | \$ 75.00         |
| Project Manager            | 9            | \$65.00          | \$ 585.00        |
| Senior Electrical Engineer | 0            | \$65.00          | \$ -             |
| Senior Design Engineer     | 2            | \$50.00          | \$ 100.00        |
| Design Engineer            | 23           | \$42.00          | \$ 966.00        |
| Senior Airport Planner     | 0            | \$43.00          | \$ -             |
| Environmental Scientist    | 0            | \$40.00          | \$ -             |
| Engineer Intern            | 35           | \$32.00          | \$ 1,120.00      |
| Design Technician          | 24           | \$27.00          | \$ 648.00        |
| Administrative Assistant   | 12           | \$23.00          | \$ 276.00        |
| Sr. Construction Inspector | 0            | \$45.00          | \$ -             |
| Construction Inspector     | 0            | \$38.00          | \$ -             |
| Total Direct Salary Costs  |              |                  | = \$ 3,770.00    |

#### 2. OVERHEAD, ADMINISTRATIVE EXPENSES, AND PROFIT MULTIPLIER:

Overhead, Administrative Expenses, and Profit Multiplier per  
Article IV and Attachment "A" - Lochner 2020 Compensation  
Rates in Five-Year Master On-Call Agreement dated July 15, 2019 3.01

#### 3. CONTRACT MULTIPLIER APPLIED TO DIRECT LABOR \$ 11,347.70

#### 4. OUT-OF-POCKET EXPENSES:

|                                                     |   |                        |          |
|-----------------------------------------------------|---|------------------------|----------|
| a. Mileage                                          | 0 | miles @ \$0.655/mile = | \$ -     |
| b. Meals                                            | 0 | @ \$59.00/day =        | \$ -     |
| c. Motel                                            | 0 | days @ \$108.00/day =  | \$ -     |
| d. Printing, Plotting, Mailing, & Supplies Expenses |   | =                      | \$ 52.30 |

Total Out-of-Pocket Expenses = \$ 52.30

#### 5. TOTAL COST:

Items 3 and 4 \$ 11,400.00

# INDEPENDENT FEE ESTIMATE

## CONSTRUCTION OBSERVATION AND ADMINISTRATION SERVICES

### Improve Airport Drainage

FAA PROJECT NO. A.I.P. 3-40-0088-025-2023

SHAWNEE REGIONAL AIRPORT (SNL)  
SHAWNEE, OKLAHOMA

66 CALENDAR DAY CONSTRUCTION CONTRACT

June 23, 2023

#### 1. DIRECT SALARY COSTS:

| <u>TITLE</u>               | <u>HOURS</u> | <u>RATE/HOUR</u> | <u>COST (\$)</u> |
|----------------------------|--------------|------------------|------------------|
| Principal                  | 1            | \$75.00          | \$ 75.00         |
| Project Manager            | 106          | \$65.00          | \$ 6,890.00      |
| Senior Electrical Engineer | 0            | \$65.00          | \$ -             |
| Senior Design Engineer     | 16           | \$50.00          | \$ 800.00        |
| Design Engineer            | 338          | \$42.00          | \$ 14,196.00     |
| Senior Airport Planner     | 0            | \$43.00          | \$ -             |
| Environmental Scientist    | 0            | \$40.00          | \$ -             |
| Engineer Intern            | 223          | \$32.00          | \$ 7,136.00      |
| Design Technician          | 6            | \$27.00          | \$ 162.00        |
| Administrative Assistant   | 32           | \$23.00          | \$ 736.00        |
| Sr. Construction Inspector | 716          | \$45.00          | \$ 32,220.00     |
| Construction Inspector     | 0            | \$38.00          | \$ -             |

Total Direct Salary Costs = \$ 62,215.00

#### 2. OVERHEAD, ADMINISTRATIVE EXPENSES, AND PROFIT MULTIPLIER:

Overhead, Administrative Expenses, and Profit Multiplier per  
Article IV and Attachment "A" - Lochner 2020 Compensation  
Rates in Five-Year Master On-Call Agreement dated July 15, 2019 3.01

3. CONTRACT MULTIPLIER APPLIED TO DIRECT LABOR \$ 187,267.15

#### 4. OUT-OF-POCKET EXPENSES:

|                         |       |                        |             |
|-------------------------|-------|------------------------|-------------|
| a. Mileage              | 3,160 | miles @ \$0.655/mile = | \$ 2,069.80 |
| b. Meals                | 66    | @ \$59.00/day =        | \$ 3,894.00 |
| c. Motel                | 58    | days @ \$113.00/day =  | \$ 6,554.00 |
| d. Materials & Supplies |       | =                      | \$ 250.00   |

Total Out-of-Pocket Expenses = \$ 12,767.80

#### 5. SUBCONTRACT COST:

a. Materials Acceptance Testing (estimated) \$ 20,000.00

#### 6. TOTAL FEE:

Items 3, 4, and 5 \$ 220,034.95



**Airport**  
2202 N. Airport Dr.  
Shawnee, OK 74804  
ShawneeOK.org

**Date:** July 17, 2023  
**To:** Shawnee Airport Authority  
**From:** Bonnie Wilson, Airport Manager  
**Subject:** Improve Airport Drainage (Award)

**Background:** The Shawnee Regional Airport received one bid in response to the published Request for Bids/Invitation to Bid (Bid Number 2023-504; Project 3-40-0088-025-2023) for the construction phase of the Improve Airport Drainage project from Tri-City Seal Company, Inc., DBA TCS General Contractors, an Oklahoma Certified Disadvantaged Business Enterprise (DBE), of Tuttle, Oklahoma.

The Shawnee Airport Authority's consulting engineering firm, H.W. Lochner, reviewed the bid for sufficiency, confirmed the licensure and references for TCS General Contractors and is recommending the award of the bid in the amount of \$635,775. A complete bid tabulation is provided as an attachment.

Fees for services will be supported by a Federal Aviation Administration (FAA) Airport Improvement Program (AIP) grant in the amount of \$504,378, and an Oklahoma Aeronautics Commission (OAC) grant in the amount of \$66,276, and funds provided by Shawnee Airport Authority in the amount of \$65,121.

Award of the contract will be contingent on receipt of grant funds.

**Financial Impact:** Reimbursement of up to \$504,378 in Federal Grant Revenues deposited in Shawnee Airport Authority Account - 511-41010; reimbursement of up to \$66,276 in State Grant Revenues deposited in Shawnee Airport Authority Account - 511-41020; Capital Outlay Buildings and Improvements Expense 511-5-0120-54200 \$635,775

**Attachments:** Advertisement for Bids #2023-504, Plan Holders List, SNL Improve Airport Drainage Specifications, SNL Improve Airport Drainage Bid Addendum 1, SNL Improve Airport Drainage Bid Addendum 2, 10 - 15710 SNL Recommendation of Award, 12 - 15710 SNL Bid Tab\_Executed

**Staff Recommendation:** Authorize award of the contract for construction services contingent on receipt of AIP and OAC grant funds

**BID# 2023-504**  
**REQUESTS FOR BIDS / INVITATION FOR BIDS**

**CITY OF SHAWNEE, OKLAHOMA**  
**SHAWNEE REGIONAL AIRPORT**

SEALED BIDS subject to the conditions and provisions presented herein must be hand delivered to the City of Shawnee (City Clerk's Office) at 16 W. 9th St., Shawnee, OK 74801-6812, AND **WILL NOT BE ACCEPTED AFTER 4:00 p.m. local time ON TUESDAY, JUNE 20, 2023.** The scheduled bid opening date is **TUESDAY, JUNE 20, 2023.** Bids will be publicly read aloud at Shawnee Airport Authority meeting held at **6:00 p.m., local time** at the City of Shawnee at 16 W. 9th St., Shawnee, OK, for the work listed below.

**Base Bid: Improve Airport Drainage**

Plans and Specifications are on file and may be examined at the office of the **City Clerk, 16 West 9<sup>th</sup> Street, Shawnee, OK 74802**, and at the office of the Consulting Engineers, Lochner, 701 Cedar Lake Blvd., Suite 230, Oklahoma City, OK 73114.

Questions concerning the Plans and Specifications for this project should be directed to **Patrick Barnas, PE** at Lochner's Office in Oklahoma City, Oklahoma at **(405) 418-5881**.

A complete set of bid documents may be obtained from the Consulting Engineer, **Lochner, by emailing okcbids@hwlochner.com or by calling (405) 418-5881 and requesting a set for a fee of (\$20.) None of the charge will be refunded.** Bid documents will be provided electronically, which will include the construction plans and specifications in Adobe Acrobat® PDF format accessible with Adobe Reader. The bidder will be responsible for acquiring, copying, and distributing Bidding Documents (plans and specifications) necessary to bid and construct the project. Lochner will not provide hard paper copies of the project.

All bidders submitting a bid **must** obtain an electronic copy of bid documents from Lochner to submit a valid bid. Any proposal submitted that was obtained from an outside source other than Lochner will be considered an irregular proposal and will be eligible for rejection. When the bidder purchases a set of bid documents, the bidder will be placed on a plan holder's list which is necessary to supply bidders of any addenda that may be issued for the project.

A prebid conference for this project will be held at **1:30 pm local time, Tuesday, June 13, 2023, at the Shawnee Community Center Multi-Purpose Room, 804 S. Park, Shawnee, OK 74801 with an airport site visit to immediately follow. *This will be the only opportunity provided for a site visit.***

Each proposal must be accompanied by a bid guaranty in the amount of five (5) percent of the total amount of the bid. The bid guaranty may be by certified check or bid bond made payable to **the City of Shawnee, Oklahoma.**

Bids may be held by the **City of Shawnee, Oklahoma** for a period not to exceed **ninety (90) calendar days** from the date of the bid opening for the purpose of evaluating bids prior to award of contract.

The right is reserved, as the **City of Shawnee, Oklahoma** may require, to reject any and all bids and to waive any informality in the bids received.

This project is subject to the requirements of the Davis-Bacon Act, as amended. The Contractor is required to comply with wage and labor provisions and to pay minimum wages in accordance with the schedule of wage rates established by the United States Department of Labor.

This project is subject to the requirements of 49 CFR Part 26 Disadvantaged Business Enterprise Participation. The owner has established a contract goal of **5.63** percent participation for small business concerns owned and controlled by qualified disadvantaged business enterprises (DBE). The bidder shall make and document good faith efforts, as defined in Appendix A of 49 CFR Part 26, to meet the established goal.

Award of contract is also subject to the following Federal provisions:

- Executive Order 11246 and DOL Regulation 41 CFR PART 60 - Affirmative Action to Ensure Equal Employment Opportunity

- DOL Regulation 29 CFR Part 5 – Davis Bacon Act

- DOT Regulation 49 CFR PART 29 - Governmentwide Debarment and Suspension and Governmentwide Requirements for Drug-free Workplace

- DOT Regulation 49 CFR PART 30 - Denial of Public Works Contracts to Suppliers of Goods and Services of Countries that Deny Contracts to Suppliers of Goods and Services of Countries that Deny Procurement Market Access to U.S. Contractors (Foreign Trade Restriction).

- TITLE 49 United States Code, CHAPTER 501 – Buy American Preferences

### PLANHOLDERS LIST

| Project: The Shawnee Regional Airport      The work shall consist of <a href="#">Improve Airport Drainage</a><br>Information regarding Bid Opening and Pre-Bid times and dates can be found in Section 1 - Notice To Bidders and Section 2 - Instructions To Bidders within the Contract Documents/Specifications. Bidders shall also review any addendum issued for possible updates to information regarding Bid Opening and Pre-Bid times and dates.<br>DEPOSIT FOR PLANS AND SPECIFICATIONS: \$20.00 – Non-Refundable      Lochner Project Number: 15710 TO03 |         |              |              |                |                                                                                                                   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|--------------|--------------|----------------|-------------------------------------------------------------------------------------------------------------------|
| NAME AND ADDRESS OF PLANHOLDERS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | SET NO. | DATE ORDERED | DATE EMAILED | ADDENDUMS SENT | TELEPHONE AND FAX NUMBERS                                                                                         |
| Lochner<br>701 Cedar Lake Blvd., #230<br>Oklahoma City, OK 73114                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1       | N/A          | N/A          | 1 - 6/7/2023   | Phone: (405) 418-5881                                                                                             |
| <a href="#">City of Shawnee, Oklahoma</a><br><a href="#">16 West 9th Street</a><br><a href="#">Shawnee, OK 73114 (Sponsor)</a>                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2       | N/A          | N/A          | 1 - 6/7/2023   |                                                                                                                   |
| Bright Portal Resources, LLC<br>1410 Country Rd.<br>Blanco, TX 78606                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 3       |              | 6/1/2023     | 1 - 6/7/2023   | Phone: (979) 270-1655<br>Tim Cowser<br>tim@brightportalresources.com<br>patti.brightportal@outlook.com            |
| Custom Pavement<br>PO Box 435<br>Van Buren, AR 72957                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 4       | 5/31/2023    | 6/1/2023     | 1 - 6/7/2023   | Julie Becker 479-262-6160<br>julie@custompavement.com                                                             |
| Federal Constructors<br>1900 NE 36th St Suite 102<br>Oklahoma City, OK 73111                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 5       | 5/31/2023    | 6/1/2023     | 1 - 6/7/2023   | Vickie Guy<br>vguy@federalconstructors.com<br>405-524-4456                                                        |
| Eplan<br>1400 Forum Blvd. Suite 7B<br>Columbia, MO 65203                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 6       | 5/31/2023    | 6/1/2023     | 1 - 6/7/2023   | Elisha Hatton<br>Phone: (573)447-7130<br>elishah@eplanbidding.com                                                 |
| Third Generation Electrical<br>8620 S. 33rd W. Ave.<br>Tulsa, OK 74132                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 7       | 5/31/2023    | 6/1/2023     | 1 - 6/7/2023   | Brenda Cox<br>brenda@tgetulsa.com<br>918-446-6626                                                                 |
| Patriot Construction Services 8301 Highway 105<br>Guthrie, OK 73044                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 8       | 6/5/2023     | 6/5/2023     | 1 - 6/7/2023   | <a href="mailto:griffin@patriotcsi.com">griffin@patriotcsi.com</a><br><a href="tel:405-482-0551">405-482-0551</a> |
| Construct Connect                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 9       | 6/5/2023     | 6/5/2023     | 1 - 6/7/2023   | Justine Cataylo<br>Justine.Cataylo@ConstructConnect.com<br>323-602-5079 ext- 75315                                |
| PBW Consulting LLC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 10      | 6/5/2023     | 6/5/2023     | 1 - 6/7/2023   | James Perigo 918-829-6008.<br>Jamesperigo79@gmail.com                                                             |
| Haskell Lemon Group                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 11      | 6/7/2023     | 6/7/2023     | 1 - 6/7/2023   | Tammy Robinson 405-947-6069<br>Trobinson@haskelllemon.com                                                         |
| Libra Electric Company<br>4634 Enterprise Drive<br>Oklahoma City, Oklahoma 73128                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 12      | 6/7/2023     | 6/7/2023     | 1 - 6/7/2023   | David R. Ware<br>405-408-9074<br>davidware@libraelectric.net                                                      |

|  |    |  |  |  |  |
|--|----|--|--|--|--|
|  | 13 |  |  |  |  |
|  | 14 |  |  |  |  |
|  | 15 |  |  |  |  |
|  | 16 |  |  |  |  |
|  | 17 |  |  |  |  |
|  | 18 |  |  |  |  |
|  | 19 |  |  |  |  |
|  | 20 |  |  |  |  |
|  | 21 |  |  |  |  |
|  | 22 |  |  |  |  |
|  | 21 |  |  |  |  |
|  | 22 |  |  |  |  |
|  | 22 |  |  |  |  |
|  | 21 |  |  |  |  |
|  | 22 |  |  |  |  |

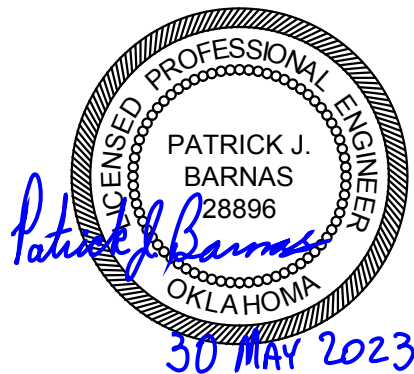
**CONTRACT DOCUMENTS/ SPECIFICATIONS FOR**

**SHAWNEE REGIONAL AIRPORT**

**FAA AIP PROJECT NO. 3-40-0088-025-2023**

**LOCHNER PROJECT NO. 15710**

**Base Bid:**  
**Improve Airport Drainage**



**BIDDING SET**  
**May 2023**

**City of Shawnee, Oklahoma**

**LOCHNER**

## TABLE OF CONTENTS

### **SECTION 1**

|                         |            |
|-------------------------|------------|
| NOTICE TO BIDDERS ..... | 1-1 TO 1-5 |
|-------------------------|------------|

### **SECTION 2**

|                               |            |
|-------------------------------|------------|
| INSTRUCTIONS TO BIDDERS ..... | 2-1 TO 2-8 |
|-------------------------------|------------|

### **SECTION 3**

|                               |             |
|-------------------------------|-------------|
| GENERAL PROVISIONS (FAA)..... | 3-1 TO 3-52 |
|-------------------------------|-------------|

### **SECTION 4**

|                                               |             |
|-----------------------------------------------|-------------|
| SUPPLEMENTARY PROVISIONS.....                 | 4-1 TO 4-50 |
| - FEDERAL PROVISIONS                          |             |
| - LOCAL PROVISIONS                            |             |
| - DBE PROGRAM, 49 CFR PART 26                 |             |
| - DEPARTMENT OF LABOR WAGE RATE DETERMINATION |             |

### **SECTION 5**

|                                                      |            |
|------------------------------------------------------|------------|
| TEMP – TEMPORARY MARKING, LIGHTING & BARRICADES..... | 5-1 TO 5-2 |
|------------------------------------------------------|------------|

### **SECTION 6**

|                                                                                        |            |
|----------------------------------------------------------------------------------------|------------|
| C-102 – TEMPORARY AIR AND WATER POLLUTION, SOIL EROSION, AND<br>SILTATION CONTROL..... | 6-1 TO 6-4 |
|----------------------------------------------------------------------------------------|------------|

### **SECTION 7**

|                            |            |
|----------------------------|------------|
| C-105 – MOBILIZATION ..... | 7-1 TO 7-2 |
|----------------------------|------------|

### **SECTION 8**

|                                                         |            |
|---------------------------------------------------------|------------|
| P-101 – PREPARATION/REMOVAL OF EXISTING PAVEMENTS ..... | 8-1 TO 8-6 |
|---------------------------------------------------------|------------|

### **SECTION 9**

|                                     |            |
|-------------------------------------|------------|
| P-151 – CLEARING AND GRUBBING ..... | 9-1 to 9-2 |
|-------------------------------------|------------|

### **SECTION 10**

|                                                    |              |
|----------------------------------------------------|--------------|
| P-152 – EXCAVATION, SUBGRADE, AND EMBANKMENT ..... | 10-1 to 10-8 |
|----------------------------------------------------|--------------|

### **SECTION 11**

|                                                   |              |
|---------------------------------------------------|--------------|
| D-701 – PIPES FOR STORM DRAINS AND CULVERTS ..... | 11-1 to 11-8 |
|---------------------------------------------------|--------------|

### **SECTION 12**

|                                                                   |              |
|-------------------------------------------------------------------|--------------|
| D-751 – MANHOLES, CATCH BASINS, INLETS AND INSPECTION HOLES ..... | 12-1 to 12-6 |
|-------------------------------------------------------------------|--------------|

### **SECTION 13**

|                      |              |
|----------------------|--------------|
| T-904 – SODDING..... | 13-1 to 13-4 |
|----------------------|--------------|

### **APPENDIX**

#### ADVISORY CIRCULARS:

150/5370-2 – OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION

STORMWATER POLLUTION PREVENTION PLAN

**PROPOSAL/FORMS**

|                                               |                |
|-----------------------------------------------|----------------|
| PROPOSAL FORM.....                            | PF-1 to PF-7   |
| DBE FORMS .....                               | DBE-1 to DBE-4 |
| BUY AMERICAN CERTIFICATION .....              | BA-1 to BA-2   |
| BUSINESS RELATIONSHIPS AFFIDAVIT .....        | BR-1 to BR-2   |
| NON-COLLUSION STATEMENT .....                 | NC-1           |
| CITY OF SHAWNEE’S SMALL BUSINESS PROGRAM..... | SB-1 to SB-4   |
| PERFORMANCE BOND.....                         | PB-1 to PB-3   |
| PAYMENT BOND.....                             | PA-1 to PA-3   |
| MAINTENANCE BOND.....                         | MB-1 to MB-2   |
| CONTRACT AGREEMENT .....                      | CA-1 to CA-5   |

## SECTION 1

### NOTICE TO BIDDERS

#### THE CITY OF SHAWNEE, OKLAHOMA

#### SHAWNEE REGIONAL AIRPORT

#### AIP PROJECT NO.: 3-40-0088-025-2023

Sealed bids subject to the conditions and provisions presented herein will be received until **4:00 pm local time, Tuesday, June 20, 2023**, at the City Clerk's office, and then publicly opened and read at the **Shawnee Airport Authority meeting held at 6:00 pm local time at Shawnee City Hall, 16 West 9<sup>th</sup> St., Shawnee, Oklahoma 74801**, for furnishing all labor, materials and equipment and performing all work necessary to:

#### **Base Bid: Improve Airport Drainage**

Plans and Specifications are on file and may be examined at the office of the **City Clerk, 16 West 9<sup>th</sup> St., Shawnee, Oklahoma 74801**, and at the office of the Consulting Engineers, H.W. Lochner, Inc., 701 Cedar Lake Blvd., Ste. 230, Oklahoma City, OK 73114. Questions concerning the Plans and Specifications for this project should be directed to **Patrick J. Barnas, PE** at H.W. Lochner's Office in Oklahoma City, Oklahoma at (405) 418-5881.

A complete set of bid documents may be obtained from the Consulting Engineer, **Lochner**, by emailing **okcbids@hwlochner.com** or by calling **(405) 418-5881** and requesting a set for a fee of **(\$20.)** **None of the charge will be refunded.** Bid documents will be provided electronically in Adobe Acrobat® PDF format accessible with Adobe Reader®. The bidder will be responsible for acquiring, copying and distributing bidding documents (plans and specifications) necessary to bid and construct the project. Lochner will not provide hard copies of the document.

All bidders submitting a bid **must** obtain an electronic set of bidding documents from Lochner to submit a valid bid. Any proposal submitted that was obtained from an outside source other than Lochner will be considered an irregular proposal and will be eligible for rejection. When the bidder purchases a set of bid documents, the bidder will be placed on the plan holder's list which is necessary to supply bidders of any addenda that may be issued for the project. When orders for a set of bid documents are received, a link from which the documents can be downloaded will be emailed to the bidder. The bidder will be responsible for downloading, printing and distributing the documents to suppliers and subcontractors.

A pre-bid conference for this project will be held at **1:30 pm local time on Tuesday, June 13, 2023**, at the **Shawnee Community Center Multi-Purpose Room, 804 S Park, Shawnee, OK 74801** with an **airport site visit to immediately follow. This will be the only opportunity provided for a site visit.**

**Contract Work Items:** This project will involve the following work items and estimated quantities. Prospective bidders are hereby advised that the quantities indicated herein are approximate and are subject to change.

| ITEM NO.                                  | SPEC. | ITEM DESCRIPTION                                                                | QTY.  | UNIT |
|-------------------------------------------|-------|---------------------------------------------------------------------------------|-------|------|
| <b>FAA PROJECT NO. 3-40-0088-025-2023</b> |       |                                                                                 |       |      |
| <b>BASE BID</b>                           |       |                                                                                 |       |      |
| <b>Improve Airport Drainage</b>           |       |                                                                                 |       |      |
| 1                                         | TEMP  | Temporary Marking, Lighting & Barricades                                        | 1     | L.S. |
| 2                                         | C-102 | Temporary Erosion Control                                                       | 1     | L.S. |
| 3                                         | C-105 | Mobilization (NTE 10% of Total Bid Amount)                                      | 1     | L.S. |
| 4                                         | P-101 | Remove Inlets/Manholes                                                          | 3     | EA.  |
| 5                                         | P-101 | Remove 18" Storm Pipe                                                           | 8     | L.F. |
| 6                                         | P-101 | Remove 24" Storm Pipe                                                           | 8     | L.F. |
| 7                                         | P-101 | Remove 60" Storm Pipe                                                           | 16    | L.F. |
| 8                                         | P-101 | Plug 8" Storm Sewer Pipe                                                        | 75    | L.F. |
| 9                                         | P-101 | Plug 18" Storm Sewer Pipe                                                       | 100   | L.F. |
| 10                                        | P-101 | Plug 30" Storm Sewer Pipe                                                       | 50    | L.F. |
| 11                                        | P-101 | Clean End Section                                                               | 16    | EA.  |
| 12                                        | P-101 | Clean Headwall                                                                  | 7     | EA.  |
| 13                                        | P-101 | Flush and Clean Storm Sewer Pipe                                                | 5,720 | L.F. |
| 14                                        | P-101 | Rehabilitate Storm Structure                                                    | 17    | EA.  |
| 15                                        | P-151 | Clearing and Grubbing                                                           | 2.2   | AC   |
| 16                                        | P-152 | Unclassified Excavation                                                         | 735   | C.Y. |
| 17                                        | D-701 | 18" RCP (Class 3)                                                               | 8     | L.F. |
| 18                                        | D-701 | 24" RCP (Class 3)                                                               | 8     | L.F. |
| 19                                        | D-701 | 60" RCP (Class 3)                                                               | 16    | L.F. |
| 20                                        | D-701 | 24" RCP End Section                                                             | 1     | EA.  |
| 21                                        | D-751 | 5' x 5' Grate Inlet                                                             | 1     | EA.  |
| 22                                        | D-751 | 9' x 5' Grate Inlet                                                             | 1     | EA.  |
| 23                                        | T-904 | Sodding                                                                         | 3,975 | S.Y. |
| 24                                        | --    | Furnish and Install Solar Powered LED Taxiway Centerline Light (FAA Ineligible) | 242   | EA.  |
| 25                                        | --    | Furnish Solar Powered LED Taxiway Centerline Light (FAA Ineligible)             | 25    | EA.  |

### Contract Time

The owner has established a contract performance time of **sixty-six (66) calendar days for Base Bid** from the date of the Notice-to-Proceed. All project work shall be substantially completed within the stated timeframe. This project is subject to liquidated damages as prescribed within the project manual in the Proposal Section.

### Bid Security

Each proposal must be accompanied by a bid guaranty in the amount of five (5) percent of the total amount of the bid. The bid guaranty may be by certified check or bid bond made payable to **the City of Shawnee, Oklahoma**.

### Bonding Requirements

The successful bidder will be required to furnish separate performance, payment, and maintenance bonds each in the amount equal to 100% of the contract price 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 **City of Shawnee** for a period not to exceed **ninety (90) calendar days** from the date of the bid opening for the purpose of conducting the bid evaluation.

Award of contract will be based on the lowest aggregate sum proposal submitted from those bidders that are confirmed as being responsive and responsible. The right is reserved, as the **City of Shawnee** may require, to reject any and all bids and to waive any informality in the bids received.

Award of contract is contingent upon the owner receiving Federal funding assistance under the Airport Improvement Program.

### **Federal Provisions**

This project is subject, but not limited, to the following Federal provisions, statutes and regulations. Reference Section 4 Supplementary Provisions for a complete list of applicable provisions.

**Equal Opportunity Clause and Specifications – Reference 41 CFR § 60-1.4, Executive Order 11246:** 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.

**Affirmative Action Requirement – Reference 41 CFR part 60-4, Executive Order 11246:**

1. 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.
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: **10.2%**

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 is also subject to the goals for both federally funded and non-federally funded construction regardless of the percentage of federal participation in funding.

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 shall 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, 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 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 **Oklahoma, Pottawatomie County, City of Shawnee, Shawnee Regional Airport.**

**Nonsegregated Facilities Requirement – Reference 41 CFR § 60-1.8:**  
**Notice to Prospective Federally Assisted Construction Contractors**

1. A Certification of Non-segregated Facilities shall be submitted prior to the award of a federally-assisted construction contract exceeding \$10,000 which is not exempt from the provisions of the Equal Opportunity Clause.
2. Contractors receiving federally-assisted construction contract awards exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity Clause will be required to provide for the forwarding of the following notice to prospective subcontractors for supplies and construction contracts where the subcontracts exceed \$10,000 and are not exempt from the provisions of the Equal Opportunity Clause.
3. The penalty for making false statements in offers is prescribed in 18 U.S.C. § 1001.

**Notice to Prospective Subcontractors of Requirements for Certification of Non-Segregated Facilities**

1. A Certification of Non-segregated Facilities shall be submitted prior to the award of a subcontract exceeding \$10,000, which is not exempt from the provisions of the Equal Opportunity Clause.
2. Contractors receiving subcontract awards exceeding \$10,000 which are not exempt from the provisions of the Equal Opportunity Clause will be required to provide for the forwarding of this notice to prospective subcontractors for supplies and construction contracts where the subcontracts exceed \$10,000 and are not exempt from the provisions of the Equal Opportunity Clause.
3. The penalty for making false statements in offers is prescribed in 18 U.S.C. § 1001.

**Disadvantaged Business Enterprise – Reference 49 CFR Part 26:** The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of this DOT-assisted contracts. In accordance with 49 CFR Part 26.45, the sponsor has established a contract goal of **5.63%** percent participation for small business concerns owned and controlled by certified socially and economically disadvantaged enterprise (DBE). The bidder shall make and document good faith efforts, as defined in Appendix A of 49 CFR Part 26, to meet this established goal. **The bidder shall**

complete the Disadvantaged Business Enterprise forms (DBE-1 to DBE-4) regardless of the DBE goal if a DBE firm is to be utilized on the project.

**Davis-Bacon Requirements – Reference 2 CFR § 200 Appendix II(D):** 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.

**Debarment and Suspension (Non-Procurement) – Reference 2 CFR Part 180 (Subpart C), 2 CFR Part 1200, DOT Order 4200.5 DOT Suspension & Debarment Procedures & Ineligibility:** By submitting a bid/proposal under this solicitation, the bidder or offeror certifies that at the time the bidder or offeror submits its proposal that neither it nor its principals are presently debarred or suspended by any Federal department or agency from participation in this transaction.

**Trade Restriction – Reference 49 CFR Part 30:** The contractor or subcontractor, by submission of an offer and/or execution of a contract, certifies that it:

- a. 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 published by the Office of the United States Trade Representative (USTR);
- b. 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 on said list, or is owned or controlled directly or indirectly by one or more citizens or nationals of a foreign country on said list;
- c. has not procured any product nor subcontracted for the supply of any product for use on the project that is produced in a foreign country on said list.

**Buy American Preference – Reference 49 USC § 50101:**

The contractor agrees to comply with 49 USC § 50101, which provides that Federal funds may not be obligated unless all steel and manufactured goods used in AIP-funded projects are produced in the United States, unless the FAA 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.

A bidder or offeror must submit the appropriate Buy America certification with all bids or offers on AIP funded projects. Bids or offers that are not accompanied by a completed Buy America certification must be rejected as nonresponsive.

**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 electronic project manual issued by Lochner. Any proposal submitted that was obtained from an outside source other than Lochner will be considered an irregular proposal and will be eligible for rejection. Bidders must supply all required information prior to the time of the bid opening.**

**Submittal of Proposals**

Additional information and instructions for submittal of a proposal are provided within the Instructions-to-Bidders.

## SECTION 2

### INSTRUCTIONS TO BIDDERS

#### **Owner and Owner's Representative**

The Owner as stated herein refers to the following agency: **City of Shawnee, Oklahoma.**

The Owner's authorized representative as stated herein refers to the Owner's Consultant, H.W. Lochner, Inc., herein referred to as Engineer with offices at 701 Cedar Lake Blvd., Suite 230, Oklahoma City, Oklahoma 73114, Telephone (405) 418-5881.

#### **Bidder Representations**

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

- The Bidder has read and thoroughly examined the project documents
- 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 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.

#### **Bid Documents/Project Manual**

The bid documents are comprised of the following; Notice-to-Bidders, Instructions-to-Bidders, General Provisions, Supplementary Provisions, Technical Specifications, Project Drawings, Proposal Form with attachments, Form of Contract Agreement, any authorized addenda issued by the Owner and any document incorporated in whole or in part by reference therein.

All documents comprising the Bid Documents are complementary to one another and together establish the complete terms, conditions and obligations of the successful Bidder.

Those individual elements of the Contract Documents that issued electronically shall also be referred to as the Project Manual. No part of the project manual may be removed or detached.

Prospective Bidders may obtain a copy of the project manual and project drawings from the designated office identified within the Notice-to-Bidders.

#### **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.

### **Errors and Discrepancies in Project Documents**

Should the Bidder find an error, discrepancy, ambiguity or omission in the project documents prior to submittal of a proposal, the Bidder is obligated to contact the Owner or Engineer with written notice of the error, discrepancy, ambiguity or omission. The written notice shall identify the nature and location of the error, discrepancy, ambiguity or omission. Corrections or modifications to the project documents will only be made by written addendum as prescribed herein. By submittal of a Bid Proposal, the Bidder represents that they have thoroughly reviewed the project documents and that they have not identified any error, discrepancy, ambiguity or omission that would affect cost, progress or performance of the project work.

### **Clarifications and Interpretations**

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.

### **Interpretations of Estimated Proposal Quantities**

An estimate of quantities of work to be done and materials to be furnished under these specifications is stated within the project manual. This estimate is a result of careful calculations and is believed to be correct. The estimated quantities are given only as a basis for comparison of proposals and the award of contract. The Owner does not expressly or impliedly agree that the actual quantities involved will correspond exactly with the estimated quantities. The Bidder shall not plead misunderstandings 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 hereinafter provided in the subsection titled "Alteration of Work and Quantities" of the general provisions without in any way invalidating the unit bid prices.

### **Examination of Plans, Specifications and Site Conditions**

As stated within the "Bidder Representations" and reaffirmed herein, the Bidder is expected to carefully examine the site of the proposed work, the proposal, drawings, specifications, terms and conditions of the proposed agreement and the form of agreement. The Bidder 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, as appropriate may be available for inspection by the Bidder. 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 the Bidder is solely responsible for all assumptions, deductions, or conclusions which he or she may make from his or her examination of the boring logs and other records of subsurface investigations and tests that are furnished by the Owner.

### **Issuance of Proposal Forms**

The Owner reserves the right to refuse to issue a proposal form to a prospective Bidder should the

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 satisfactory 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. Contractor default under previous contracts with the owner
- d. Unsatisfactory work on previous contracts with the owner

### **Form of Proposal**

All bid proposals shall be made on the forms provided by the Owner within the **electronic** project manual. No Bidder may submit more than one proposal. All proposals are to be written in ink and shall be clearly legible. All blank spaces in the proposal forms shall be legibly completed for each and every bid item. The Bidder shall not qualify any bid item. The Bidder shall initial any erasures and alterations made on the proposal form by the Bidder.

The Bidder shall state the price of their bid in U.S. dollars and cents in both written and numeral format. In the event of a discrepancy, the written value will take precedence.

### **Signature of Proposal**

The proposal shall be signed and dated by an authorized representative of the Bidder. All signatures shall be made with an ink pen. The Bidder's representative shall have the legal authority to obligate and bind the Bidder to the terms and conditions of the contract. The Bidder shall legibly state the name of the Bidder's representative, the legal name of the Bidder, the address of the Bidder including City, State and Zip Code, and the telephone number of the Bidder.

- For bids by corporations, an officer of the corporation shall sign the bid, the State of incorporation shall be identified and the corporate seal affixed.
- For bids submitted by an agent, evidence of the power of attorney shall be attached to the bid.
- For bids submitted by a partnership or joint venture, the proposal shall identify the name of all firms and the authorized parties of all firms. A copy of the partnership/joint-venture agreement shall be provided to the Owner as an attachment to the proposal.

### **Modification or Withdrawal of Bid Proposal**

Bidder may modify or withdraw their proposal at any point up to the specified time and date identified for receipt of proposals. Any request for bid withdrawal or modification by the Bidder that is received after the specified time and date for receipt of proposals will be returned unopened to the sender.

Any modification to a Bidder's proposal, subject to the time constraint noted herein, must be made on the proposal forms contained in the project manual. The Bidder's authorized representative must sign the modification. The modification shall be placed in a sealed envelope and the statement "Modification to Proposal" shall be legibly marked in the upper left hand corner. Withdrawal of a proposal may be made, subject to the time constraint noted herein, only with written confirmation under signature of the Bidder.

### **Bid Guaranty**

Each bid proposal shall be accompanied by a bid guaranty in the amount of five percent (5%) of the total amount of the bid. The bid guaranty may be by bid bond or certified check made payable to the Owner. The bid bond shall be from a responsible surety qualified to conduct business within the State of **Oklahoma**. A certified check shall be issued from a responsible and solvent bank or trust company.

### **Disadvantage Business Enterprise (DBE)**

The requirements of 49 CFR Part 26, Regulations of the U.S. Department of Transportation, apply to this contract. The Owner has established a DBE contract goal of **5.63%** for this contract. Award of this contract will be conditioned upon satisfying the requirements of this section. The Bidder/Offeror shall make good faith efforts, as defined in Appendix A, 49 CFR Part 26, to subcontract **the aforementioned DBE percentage(s)** of the dollar value of the prime contract to certified DBE firms as defined in 49 CFR Part 26. These requirements apply to all Bidders/Offerors, including those who qualify as a Disadvantaged Business Enterprise. Per the provisions of Federal Regulation 29 CFR Part 26.55, qualified DBE firms that subcontract work to a non-DBE firm shall deduct the amount of the non-DBE subcontract from the total amount of the DBE participation that counts toward meeting the Owner's DBE participation goal. **The bidder shall complete the Disadvantaged Business Enterprise forms (DBE-1 to DBE-4) regardless of the DBE goal if a DBE firm is to be utilized on the project.**

All Bidders shall submit the following information with their proposal on the forms provided in the project manual:

- (1) The names and addresses of 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 participating;
- (4) Written documentation of the Bidder/Offeror's commitment to use a DBE subcontractor whose participation it submits to meet the contract goal;
- (5) Evidence of good faith efforts undertaken by the Bidder, as described in appendix A to 49 CFR Part 26.

**Good Faith Efforts:** If the bidder is unable to meet the DBE goal, the bidder must submit in and as part of its bid, written documentation and evidence of good faith efforts taken to meet the goal. Good faith efforts conducted after the bid opening will not be considered adequate to fulfill these bid requirements. Good faith efforts may include but are not limited to:

- (1) Efforts to select portions of the work for performance by DBE's, in order to increase the likelihood of achieving the DBE goal. This can include, but is not limited to, breaking down contracts into economically feasible units to facilitate DBE participation. Selection of portions of work shall be at least equal to the DBE goal.
- (2) Written notification to individual DBE's likely to participate in the contract sent at least 7 calendar days prior to the bid opening. The notification shall list specific items or types of work and shall be sent to a reasonable number of DBE's qualified to participate in the contract.
- (3) Efforts to negotiate with DBE's for specific items of work including:
  - (a) Names, addresses, and telephone numbers of DBE's who were contacted, the dates of initial contact and information on further contacts made to determine with certainty if the DBE's were interested. Personal or phone contacts are expected;
  - (b) Description of the information provided to the DBE's regarding the plans, specifications and estimated quantities for portions of the work to be performed;
  - (c) Individual statements as to why agreements with DBE's were not reached; and
  - (d) Information on each DBE contacted but rejected and the reasons for the rejection.
- (4) Efforts to assist the DBE's that need assistance in obtaining bonding, insurance, or lines of credit required by the contractor.
- (5) Documentation that qualified DBE's are not available or not interested.

- (6) Advertisements in general circulation media, trade association publications and disadvantaged-focus media concerning subcontracting opportunities.
- (7) Efforts to use the services of available disadvantaged community organizations; disadvantaged contractor's groups; local, state and federal disadvantaged business assistance offices; and other organizations that provide assistance in recruitment and placement of DBE's.

The demonstration of good faith efforts by the contractor must prove the contractor actively and aggressively sought out DBE's to participate in the project. The following actions would not be considered acceptable reasons for failure to meet the DBE goal and would not constitute a good faith effort:

- (1) The DBE was unable to provide adequate performance and/or payment bonds.
- (2) A reasonable DBE bid was rejected based on price.
- (3) The DBE would not agree to perform the subcontract work at the prime contractors unit bid price.
- (4) Union versus non-union status of the DBE firm.
- (5) The prime contractor would normally perform all or most of the work included in this contract.
- (6) The prime contractor solicited DBE participation by mail only.

The successful Bidder will be required to provide written confirmation from the participating DBE firms verifying their intent to participate as in the project. This written confirmation shall be submitted **within three (3) working days following the bid opening.**

### **Bidder Qualifications**

Each Bidder shall furnish the owner satisfactory evidence of their competency and financial capability to perform the proposed work. The Bidder shall demonstrate that they are a responsible firm that possesses the skills, abilities, and integrity to faithfully perform the project work. Evidence of competency shall consist of statements covering the Bidder's past experience on similar work, a listing of plant and equipment immediately available for use on the project, and a listing of key personnel that are available for the project. The listing for plant and equipment shall identify the type, the capacity and the present condition of the item.

Evidence of financial responsibility shall consist of a confidential statement or report of the Bidder's financial resources and liabilities as of the last calendar year. A public accountant must certify such statements and reports. If the Bidder is presently pre-qualified with the State Highway agency, evidence of this pre-qualification may serve as evidence of financial responsibility in lieu of the certified financial statements and reports.

### **Alternate Bids**

The Bidder shall complete all blanks provided on the proposal forms. When so permitted by the Owner, the Bidder shall legibly write the statement "No Bid" for those alternate bid options that the Bidder elects not to submit a proposal.

### **Submission of Bid Proposal**

Proposals shall be sent to arrive at the specified time and date for receipt of bids. Proposals received after the specified time will not receive consideration and will be returned unopened. Proposals shall be enclosed in a sealed opaque envelope. Each proposal shall be addressed to the office location identified as follows:

City Clerk  
City of Shawnee, Oklahoma  
16 West 9<sup>th</sup> Street  
Shawnee, OK 74802

The upper left hand corner of the envelope shall be marked as follows:

**SEALED BID PROPOSAL**

Bid of {Name of Contractor}

for construction improvements at the **Shawnee Regional Airport**

AIP Project No.: **3-40-0088-025-2023**

To be received before: **4:00 pm local time on Tuesday, June 20, 2023**

To be opened at: **6:00 pm local time on Tuesday, June 20, 2023**

For a modification to a previously submitted proposal, insert “MODIFICATION TO PROPOSAL” in place of “SEALED BID PROPOSAL”.

**Bid Opening**

All proposals submitted prior to the stated time and date for receipt of bids will be publicly opened and read aloud by the Owner or the Owner’s representative. Bidders, their authorized agents, and other interested parties are invited to attend. Proposals submitted after the stated time and date for receipt of bids will be automatically rejected without consideration and will be returned unopened.

**Evaluation of Proposals**

Proposals may be held by the Owner for purposes of review and evaluation by the Owner for a period not to exceed **ninety (90)** calendar days from the stated date for receipt of bids. The Owner’s representative will tabulate all bids and verify proper extension of unit costs. The Bidder shall honor their proposal for the duration of this period of review and evaluation. The bid guaranty will be held by the Owner until this period of review has expired or a contract has been formally executed.

**Bid Informalities and Irregularities**

The Owner reserves the right to waive any informality or irregularity discovered in any proposal, which in the owner’s judgment best serves the Owner’s interest. In the situation where an extension of a unit price is found to be incorrect, the stated unit price and correct extension will govern. In the event of a discrepancy between the written and numeral values, the written value shall take precedence.

**Irregular Proposals**

Proposals meeting the following criteria are subject to consideration as being irregular:

1. If the proposal is on a form other than that furnished by the Owner or Owner’s representative.
2. If the form furnished by the Owner or Owner’s representative is altered or detached from the original document.
3. If there are unauthorized additions, conditional or alternate pay items or irregularities of any kind that make the proposal incomplete, indefinite, or otherwise ambiguous.
4. If the proposal does not contain a unit price for each pay item listed in the proposal, except in the case of authorized pay items, for which the Bidder is not required to furnish a unit price.
5. If the proposal contains unit prices that are obviously unbalanced.
6. If the proposal is not accompanied by the bid guarantee specified herein.

### **Disqualification of Bid Proposals**

The Owner reserves the right to reject any or all bids, as determined to be in the best interest of the Owner.

Causes for rejection of proposals include but are not limited to:

- Submittal of an irregular proposal;
- Submittal of more than one proposal from the same partnership, firm or corporation;
- Failure by Bidder to submit the bid prior to the stated time and date for receipt of bids;
- Failure by Bidder to furnish satisfactory bid guarantee;
- Failure by Bidder to provide all information required of the bid forms;
- Failure by Bidder to comply with the requirements of bid instructions;
- Failure by the Bidder to demonstrate good faith efforts in obtaining participation by certified DBE firms;
- Determination by the Owner that Bidder is not qualified to accomplish the project work;
- Determination by the Owner that the Bidder has placed conditions on or qualified their proposal;
- Discovery of any alteration, interlineations or erasure of any project requirement by the Bidder;
- Inclusion of the Bidder on the “Excluded Parties Listing System” as maintained and published by the General Services Administration;
- Evidence of collusion among Bidders.

### **Cancellation of Award**

At any time prior to execution of a contract agreement, the Owner reserves the right to cancel the award for any reason without liability to the Bidder, with the exception of the return of the bid guaranty, at any time prior to execution of the contract.

### **Notice of Award of Contract**

It is the intent of the Owner, after a period of review and evaluation, to award a contract to the responsible Bidder that submits the lowest responsive proposal. The successful Bidder will be informed their bid has been accepted through the Owner’s issuance of a Notice-of-Award. The Notice-of-Award shall not be construed as a binding agreement. The proper execution of a contract agreement shall serve as the binding agreement.

### **Federal Funding Assistance**

It is the intent of the Owner to seek Federal participation assistance for this project under the Airport Improvement Program (AIP). Award of contract is conditioned upon the FAA concurring in award of contract and the owner securing Federal assistance. The issuance of the Notice-of-Award will not be made until the FAA has concurred in award and Federal funding is confirmed.

### **Award of Alternates**

Unless specifically stated, the Owner reserves the right to accept alternates in any order or combination, which in the judgment of the Owner, best serves the Owner’s interest.

### **Return of Bid Guaranty**

The bid guaranty of the successful Bidder will be returned upon successful execution of the contract documents as specified herein. Failure by the successful Bidder to execute the contract documents within the specified time shall result in forfeiture of the bid guaranty. The bid guaranty of the second and third lowest responsible Bidders will be retained for a period pending the execution of the contract documents by the successful Bidder.

Except as noted above, the bid guaranty of unsuccessful Bidders will be returned at the point their proposal is rejected.

### **Contract Agreement**

The successful Bidder shall execute the contract agreement in accordance with the accepted bid proposal within **fifteen (15)** calendar days of the date of the Notice-of-Award. Failure to execute the contract agreement within the specified time frame may result in the bid being awarded to the next low Bidder and shall result in the forfeiture of the Bidder's bid guarantee as a liquidated damage.

### **Performance, Payment, and Maintenance Bonds**

The successful Bidder shall furnish separate performance, payment, and maintenance 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 project manual. 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 simultaneously with the delivery of the executed contract. 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.

### **Certificates of Insurance**

The successful Bidder shall furnish to the Owner all required certificates of insurance as specified with the project manual.

### **DBE Affirmation**

If not submitted with the proposal, the successful Bidder shall furnish, within three (3) working days following the bid opening, written affirmation from each identified Disadvantaged Business Enterprise (DBE) firm of their intent to participate in the project.

### **Approval of the Contract**

Upon receipt of the Contract Agreement, Contract Bonds and Certificate of Insurance as executed by the successful Bidder, the Owner will complete execution of the contract conditioned upon the Owner's judgment that it remains in their best interest to enter into the Agreement.

Delivery of the fully executed Contract Agreement to the successful Bidder shall constitute the Owner's approval to be bound by the successful Bidder's proposal and all terms and conditions of the Contract Agreement.

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".

### **State Sales Tax on Materials and Supplies Purchased for Use on This Project**

Prior to procurement of equipment and upon the request of the Contractor, the City of Shawnee will issue a State sales tax exemption certificate to the successful Bidder and the successful Bidder will not be required to pay State sales tax on materials and supplies purchased for use on this project. The successful Bidder will be responsible for payment of all other taxes.

## **SECTION 3**

### **PART 1 – GENERAL PROVISIONS**

#### **INDEX TO GENERAL PROVISIONS**

#### **SECTION 10        DEFINITION OF TERMS**

#### **SECTION 20        PROPOSAL REQUIREMENTS AND CONDITIONS**

|       |                                                 |
|-------|-------------------------------------------------|
| 20-01 | Advertisement (Notice to Bidders)               |
| 20-02 | Qualification of bidders                        |
| 20-03 | Contents of proposal forms                      |
| 20-04 | Issuance of proposal forms                      |
| 20-05 | Interpretation of estimated proposal quantities |
| 20-06 | Examination of plans, specifications, and site  |
| 20-07 | Preparation of proposal                         |
| 20-08 | Responsive and responsible bidder               |
| 20-09 | Irregular proposals                             |
| 20-10 | Bid guarantee                                   |
| 20-11 | Delivery of proposal                            |
| 20-12 | Withdrawal or revision of proposals             |
| 20-13 | Public opening of proposals                     |
| 20-14 | Disqualification of bidders                     |
| 20-15 | Discrepancies and Omissions                     |

#### **SECTION 30        AWARD AND EXECUTION OF CONTRACT**

|       |                                |
|-------|--------------------------------|
| 30-01 | Consideration of proposals     |
| 30-02 | Award of contract              |
| 30-03 | Cancellation of award          |
| 30-04 | Return of proposal guaranty    |
| 30-05 | Requirements of contract bonds |
| 30-06 | Execution of contract          |
| 30-07 | Approval of contract           |
| 30-08 | Failure to execute contract    |

#### **SECTION 40        SCOPE OF WORK**

|       |                                                  |
|-------|--------------------------------------------------|
| 40-01 | Intent of contract                               |
| 40-02 | Alteration of work and quantities                |
| 40-03 | Omitted items                                    |
| 40-04 | Extra work                                       |
| 40-05 | Maintenance of traffic                           |
| 40-06 | Removal of existing structures                   |
| 40-07 | Rights in and use of materials found in the work |
| 40-08 | Final cleanup                                    |

## **SECTION 50**

### **CONTROL OF WORK**

- 50-01 Authority of the Resident Project Representative (RPR)
- 50-02 Conformity with plans and specifications
- 50-03 Coordination of contract, plans, and specifications
- 50-04 List of Special Provisions
- 50-05 Cooperation of Contractor
- 50-06 Cooperation between Contractors
- 50-07 Construction layout and stakes
- 50-08 Authority and duties of Quality Assurance (QA) Inspectors
- 50-09 Inspection of the work
- 50-10 Removal of unacceptable and unauthorized work
- 50-11 Load restrictions
- 50-12 Maintenance during construction
- 50-13 Failure to maintain the work
- 50-14 Partial acceptance
- 50-15 Final acceptance
- 50-16 Claims for adjustment and disputes

## **SECTION 60**

### **CONTROL OF MATERIALS**

- 60-01 Source of supply and quality requirements
- 60-02 Samples, tests, and cited specifications
- 60-03 Certification of compliance/analysis (COC/COA)
- 60-04 Plant inspection
- 60-05 Engineer/Resident Project Representative (RPR) field office
- 60-06 Storage of materials
- 60-07 Unacceptable materials
- 60-08 Owner furnished materials

## **SECTION 70**

### **LEGAL REGULATIONS AND RESPONSIBILITY TO PUBLIC**

- 70-01 Laws to be observed
- 70-02 Permits, licenses, and taxes
- 70-03 Patented devices, materials, and processes
- 70-04 Restoration of surfaces disturbed by others
- 70-05 Federal aid participation
- 70-06 Sanitary, health, and safety provisions
- 70-07 Public convenience and safety
- 70-08 Construction Safety and Phasing Plan (CSPP)
- 70-09 Use of explosives
- 70-10 Protection and restoration of property and landscape
- 70-11 Responsibility for damage claims
- 70-12 Third party beneficiary clause
- 70-13 Opening sections of the work to traffic
- 70-14 Contractor's responsibility for work
- 70-15 Contractor's responsibility for utility service and facilities of others
- 70-16 Furnishing rights-of-way
- 70-17 Personal liability of public officials
- 70-18 No waiver of legal rights

|       |                                        |
|-------|----------------------------------------|
| 70-19 | Environmental protection               |
| 70-20 | Archaeological and historical findings |
| 70-21 | Insurance Requirements                 |

## **SECTION 80            EXECUTION AND PROGRESS**

|       |                                                    |
|-------|----------------------------------------------------|
| 80-01 | Subletting of contract                             |
| 80-02 | Notice to proceed (NTP)                            |
| 80-03 | Execution and progress                             |
| 80-04 | Limitations of operations                          |
| 80-05 | Character of workers, methods, and equipment       |
| 80-06 | Temporary suspension of the work                   |
| 80-07 | Determination and extension of contract time       |
| 80-08 | Failure to complete on time                        |
| 80-09 | Default and termination of contract                |
| 80-10 | Termination for national emergencies               |
| 80-11 | Work area, storage area and sequence of operations |

## **SECTION 90            MEASUREMENT AND PAYMENT**

|       |                                        |
|-------|----------------------------------------|
| 90-01 | Measurement of quantities              |
| 90-02 | Scope of payment                       |
| 90-03 | Compensation for altered quantities    |
| 90-04 | Payment for omitted items              |
| 90-05 | Payment for extra work                 |
| 90-06 | Partial payments                       |
| 90-07 | Payment for materials on hand          |
| 90-08 | Payment of withheld funds              |
| 90-09 | Acceptance and final payment           |
| 90-10 | Construction warranty                  |
| 90-11 | Contractor Final Project Documentation |

Page Intentionally Left Blank

## Part 1 – General Contract Provisions

### SECTION 10

#### DEFINITION OF TERMS

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).                                                                                                                                                                                                                                                                                                |

| <b>Paragraph Number</b> | <b>Term</b>                            | <b>Definition</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>10-09</b>            | <b>Award</b>                           | The Owner's notice to the successful bidder of the acceptance of the submitted bid.                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>10-10</b>            | <b>Bidder</b>                          | Any individual, partnership, firm, or corporation, acting directly or through a duly authorized representative, who submits a proposal for the work contemplated.                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>10-11</b>            | <b>Building Area</b>                   | 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.                                                                                                                                                                                                                                                                                                                                               |
| <b>10-12</b>            | <b>Calendar Day</b>                    | Every day shown on the calendar.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>10-13</b>            | <b>Certificate of Analysis (COA)</b>   | The COA is the manufacturer's Certificate of Compliance (COC) including all applicable test results required by the specifications.                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <b>10-14</b>            | <b>Certificate of Compliance (COC)</b> | 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.                                                                                                                                                                                                                                                                                                                                       |
| <b>10-15</b>            | <b>Change Order</b>                    | 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.                                                                                                                                                                                                                                                                                       |
| <b>10-16</b>            | <b>Contract</b>                        | <p>A written agreement between the Owner and the Contractor that 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.</p> <p>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.</p> |
| <b>10-17</b>            | <b>Contract Item (Pay Item)</b>        | A specific unit of work for which a price is provided in the contract.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>10-18</b>            | <b>Contract Time</b>                   | 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                                                                                                                                                                                                                                                                                                                      |

| <b>Paragraph Number</b> | <b>Term</b>                                        | <b>Definition</b>                                                                                                                                                                                                                                                                                      |
|-------------------------|----------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                         |                                                    | calendar or working days, the contract shall be completed by that date.                                                                                                                                                                                                                                |
| <b>10-19</b>            | <b>Contractor</b>                                  | 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.                          |
| <b>10-20</b>            | <b>Contractors Quality Control (QC) Facilities</b> | The Contractor's QC facilities in accordance with the Contractor Quality Control Program (CQCP).                                                                                                                                                                                                       |
| <b>10-21</b>            | <b>Contractor Quality Control Program (CQCP)</b>   | 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. |
| <b>10-22</b>            | <b>Control Strip</b>                               | A demonstration by the Contractor that the materials, equipment, and construction processes results in a product meeting the requirements of the specification.                                                                                                                                        |
| <b>10-23</b>            | <b>Construction Safety and Phasing Plan (CSPP)</b> | 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.                 |
| <b>10-24</b>            | <b>Drainage System</b>                             | The system of pipes, ditches, and structures by which surface or subsurface waters are collected and conducted from the airport area.                                                                                                                                                                  |
| <b>10-25</b>            | <b>Engineer</b>                                    | 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.                                                                     |
| <b>10-26</b>            | <b>Equipment</b>                                   | 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.                                                                                                               |
| <b>10-27</b>            | <b>Extra Work</b>                                  | 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                                                                      |

| <b>Paragraph Number</b> | <b>Term</b>                           | <b>Definition</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                         |                                       | complete the work within the intended scope of the contract as previously modified.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>10-28</b>            | <b>FAA</b>                            | The Federal Aviation Administration. When used to designate a person, FAA shall mean the Administrator or their duly authorized representative.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>10-29</b>            | <b>Federal Specifications</b>         | The federal specifications and standards, commercial item descriptions, and supplements, amendments, and indices prepared and issued by the General Services Administration.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>10-30</b>            | <b>Force Account</b>                  | <p><b>a.</b> Contract Force Account - A method of payment that addresses extra work performed by the Contractor on a time and material basis.</p> <p><b>b.</b> Owner Force Account - Work performed for the project by the Owner's employees.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>10-31</b>            | <b>Intention of Terms</b>             | <p>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.</p> <p>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.</p> |
| <b>10-32</b>            | <b>Lighting</b>                       | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>10-33</b>            | <b>Major and Minor Contract Items</b> | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

| <b>Paragraph Number</b> | <b>Term</b>                            | <b>Definition</b>                                                                                                                                                                                                                                                                                   |
|-------------------------|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>10-34</b>            | <b>Materials</b>                       | Any substance specified for use in the construction of the contract work.                                                                                                                                                                                                                           |
| <b>10-35</b>            | <b>Modification of Standards (MOS)</b> | Any deviation from standard specifications applicable to material and construction methods in accordance with FAA Order 5300.1.                                                                                                                                                                     |
| <b>10-36</b>            | <b>Notice to Proceed (NTP)</b>         | 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.                                                                                                   |
| <b>10-37</b>            | <b>Owner</b>                           | 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 <b>the City of Shawnee, Oklahoma.</b>                        |
| 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.                                                                                         |
| <b>10-39</b>            | <b>Pavement Structure</b>              | The combined surface course, base course(s), and subbase course(s), if any, considered as a single unit.                                                                                                                                                                                            |
| <b>10-40</b>            | <b>Payment bond</b>                    | 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.                                                                              |
| <b>10-41</b>            | <b>Performance bond</b>                | 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.                                                                                                               |
| <b>10-42</b>            | <b>Plans</b>                           | 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.' |
| <b>10-43</b>            | <b>Project</b>                         | The agreed scope of work for accomplishing specific airport development with respect to a particular airport.                                                                                                                                                                                       |
| <b>10-44</b>            | <b>Proposal</b>                        | The written offer of the bidder (when submitted on the approved proposal form) to perform the contemplated work                                                                                                                                                                                     |

| <b>Paragraph Number</b> | <b>Term</b>                                   | <b>Definition</b>                                                                                                                                                                                                                                                                                                                                                     |
|-------------------------|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                         |                                               | and furnish the necessary materials in accordance with the provisions of the plans and specifications.                                                                                                                                                                                                                                                                |
| <b>10-45</b>            | <b>Proposal guaranty</b>                      | 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.                                                                                                                                                                                                                        |
| <b>10-46</b>            | <b>Quality Assurance (QA)</b>                 | Owner's responsibility to assure that construction work completed complies with specifications for payment.                                                                                                                                                                                                                                                           |
| <b>10-47</b>            | <b>Quality Control (QC)</b>                   | Contractor's responsibility to control material(s) and construction processes to complete construction in accordance with project specifications.                                                                                                                                                                                                                     |
| <b>10-48</b>            | <b>Quality Assurance (QA) Inspector</b>       | 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.                                                                  |
| <b>10-49</b>            | <b>Quality Assurance (QA) Laboratory</b>      | 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.                                                                                                                                                            |
| <b>10-50</b>            | <b>Resident Project Representative (RPR)</b>  | 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. |
| <b>10-51</b>            | <b>Runway</b>                                 | The area on the airport prepared for the landing and takeoff of aircraft.                                                                                                                                                                                                                                                                                             |
| <b>10-52</b>            | <b>Runway Safety Area (RSA)</b>               | 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.                                                                                                                                                                                 |
| <b>10-53</b>            | <b>Safety Plan Compliance Document (SPCD)</b> | Details how the Contractor will comply with the CSPP.                                                                                                                                                                                                                                                                                                                 |
| <b>10-54</b>            | <b>Specifications</b>                         | 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                                                                                                                                                                                      |

| <b>Paragraph Number</b> | <b>Term</b>                               | <b>Definition</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-------------------------|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                         |                                           | contract specifications by reference shall have the same force and effect as if included in the contract physically.                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>10-55</b>            | <b>Sponsor</b>                            | 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.                                                                                                                                                                                                                                                                                                                                                  |
| <b>10-56</b>            | <b>Structures</b>                         | 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.                                                                                                                                                                         |
| <b>10-57</b>            | <b>Subgrade</b>                           | The soil that forms the pavement foundation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>10-58</b>            | <b>Superintendent</b>                     | 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.                                                                                                                                                                                                                                                                                                                                                                      |
| <b>10-59</b>            | <b>Supplemental Agreement</b>             | 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. |
| <b>10-60</b>            | <b>Surety</b>                             | The corporation, partnership, or individual, other than the Contractor, executing payment or performance bonds that are furnished to the Owner by the Contractor.                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>10-61</b>            | <b>Taxilane</b>                           | A taxiway designed for low speed movement of aircraft between aircraft parking areas and terminal areas.                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>10-62</b>            | <b>Taxiway</b>                            | 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.                                                                                                                                                                                                                                                                                                                                                         |
| <b>10-63</b>            | <b>Taxiway/Taxilane Safety Area (TSA)</b> | A defined surface alongside the taxiway prepared or suitable for reducing the risk of damage to an aircraft. See                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

| <b>Paragraph Number</b> | <b>Term</b>                | <b>Definition</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                         |                            | the construction safety and phasing plan (CSPP) for limits of the TSA.                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>10-64</b>            | <b>Work</b>                | 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.                                                                                                                                                                                                                                                     |
| <b>10-65</b>            | <b>Working day</b>         | 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. |
| <b>10-66</b>            | <b>Owner Defined terms</b> | <b>None</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

**END OF SECTION 10**

## SECTION 20

### PROPOSAL REQUIREMENTS AND CONDITIONS

**20-01 Advertisement (Notice to Bidders).** See Notice to Bidders (Section 1) and Instructions to Bidders (Section 2)

**20-02 Qualification of bidders.** 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.** 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 ten (10%) percent of the total project cost.**

**A prebid conference will be held for this project will 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. See Notice to Bidders for prebid conference requirements, time, date and location.**

**20-04 Issuance of proposal forms.** 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.** 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.** 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.

**20-07 Preparation of proposal.** 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.** 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.** 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.** 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.** 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 the receipt of bids. Proposals received after the time specified shall be returned to the bidder unopened.

**20-12 Withdrawal or revision of proposals.** 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 **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.** 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.** 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.** 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 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

Page Intentionally Left Blank

## SECTION 30

### AWARD AND EXECUTION OF CONTRACT

**30-01 Consideration of proposals.** 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.** The award of a contract, if it is to be awarded, shall be made within the timeframe as specified in the Notice to Bidders (Section 1)

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.** 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.** 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.** 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.** 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.** 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.** 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**

## 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.

**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**

Page Intentionally Left Blank

## 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.** The contractor shall schedule the closure of Runway 17-35 a minimum of 60 calendar days in advance. The Airport and Engineer will coordinate the closure with FAA based on the schedule provided by the contractor.

**50-05 Cooperation of Contractor.** The Contractor shall be supplied with 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): **AutoCAD Civil3D 2018.dwg File**.

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.

#### **END OF SECTION 50**

Page Intentionally Left Blank

## 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.**

**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. 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**

Page Intentionally Left Blank

## 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: **None.**

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 on sheet(s) see **plan sheet list table for pages**.

**70-09 Use of explosives.** The use of explosives is not permitted on this project.

**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.

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.

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.

|                      |                                 |                       |
|----------------------|---------------------------------|-----------------------|
| <b>All Utilities</b> | <b>Oklahoma One Call</b>        | <b>1-800-522-OKIE</b> |
| <b>FAA Utilities</b> | <b>FAA SSC Point of Contact</b> | <b>405-686-6024</b>   |

**All utilities within the work limits not located by One Call shall be located by the Contractor at the contractor's expense prior to beginning work.**

**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 **manager** and engineer 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.** See Section 4.

## **END OF SECTION 70**

Page Intentionally Left Blank

## SECTION 80

### EXECUTION 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 **twenty-five (25)** 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 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 **10** days of the NTP date. The Contractor shall notify the RPR at least **48 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 **ten (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 **48 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** monthly 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: **See CSPP Plan Sheets**

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 shall be stated in the proposal and contract and shall be known as the Contract Time.

If the contract time requires extension for reasons beyond the Contractor's control, it shall be adjusted as follows:

**80-07.1 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.

| Phase | Liquidated Damages Cost | Allowed Construction Time |
|-------|-------------------------|---------------------------|
| 1     | \$1,500/Calendar Day    | 7                         |
| 2     | \$1,500/Calendar Day    | 7                         |
| 3     | \$1,500/Calendar Day    | 14                        |
| 4     | \$1,500/Calendar Day    | 10                        |
| 5     | \$1,500/Calendar Day    | 14                        |
| 6     | \$1,500/Calendar Day    | 14                        |

The maximum construction time allowed is **sixty-six (66) calendar 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.

**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 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|---------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Excavation and Embankment Volume</b>     | In computing volumes of excavation, the average end area method will be used unless otherwise specified.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Measurement and Proportion by Weight</b> | The term “ton” will mean the short ton consisting of 2,000 pounds (907 kg) 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. |
| <b>Measurement by Volume</b>                | 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.                                                                                                                                                                                             |

| <b>Term</b>                | <b>Description</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Asphalt Material</b>    | 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 truck or transport, net certified weights by volume, subject to correction for loss or foaming, will be used for computing quantities.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Cement</b>              | Cement will be measured by the ton (kg) or hundredweight (km).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>Structure</b>           | Structures will be measured according to neat lines shown on the plans or as altered to fit field conditions.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Timber</b>              | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Plates and Sheets</b>   | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Miscellaneous Items</b> | 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Scales</b>              | <p>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.</p> <p>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.</p> <p>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%.</p> <p>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.</p> <p>Beams, dials, platforms, and other scale equipment shall be so arranged that the operator and the RPR can safely and conveniently view them.</p> |

| Term                    | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                         | <p>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.</p> <p>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.</p> |
| <b>Rental Equipment</b> | <p>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 <i>Payment for Extra Work</i>.</p>                                                                                                                                                                |
| <b>Pay Quantities</b>   | <p>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.</p> |

**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.

**a. From the total of the amount determined to be payable on a partial payment, five (5%) 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. The 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**

**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**

## SECTION 4

### SUPPLEMENTARY PROVISIONS

These Supplementary Provisions amend and/or supplement the General Provisions of the Contract and other provisions of the Contract Documents as indicated herein. All contract provisions that are not so amended or supplemented remain in full force and effect.

#### PART A: FEDERAL PROVISIONS

##### REQUIRED CONTRACT PROVISIONS

Federal laws and regulations require that specific contract provisions be included in certain contracts, requests for proposals, or invitations to bid *whether or not* the contracts are federally-funded. This requirement is established within the grant assurances. Other contract provisions are required to be in federally-funded contracts, including all subcontracts. For purposes of determining requirements for contract provisions, the term *contract* includes subcontracts.

The type and magnitude of a project determines whether a provision is required. Some Federal provisions have dollar thresholds that define when they are applicable. The majority of the Federal provisions may be incorporated within the contract itself. However, certain Federal notices are required to be identified within the Notice-to-Bidders.

##### GENERAL REQUIREMENT FOR CONTRACTS.

In general, the sponsor must:

- 1) Physically incorporate these contract provisions (not simply by reference) in each contract funded under AIP;
- 2) Require the contractor (including all subcontractors) to insert these contract provisions in each contract and subcontract, and further require that the clauses be included in all subcontracts;
- 3) Require the contractor (or subcontractor) to incorporate applicable requirements of these contract provisions by reference for work done under any purchase orders, rental agreements and other agreements for supplies or services;
- 4) Require that the prime contractor be responsible for compliance with these contract provisions by any subcontractor, lower-tier subcontractor or service provider; and
- 5) Not modify the provisions. Minor additions covering state or sponsor requirements may be included in a separate supplemental specification, provided they do not conflict with federal laws and regulations and do not change the intent of the required contract provision.

Subject to the applicability criteria noted in the specific contract provisions, these contract provisions apply to all work performed on the contract.

##### FAILURE TO COMPLY WITH PROVISIONS.

Failure to comply with the terms of these contract provisions may be sufficient grounds to:

- 1) Withhold progress payments or final payment,
- 2) Terminate the contract,
- 3) Seek suspension/debarment, or
- 4) Any other action determined to be appropriate by the sponsor or the FAA.

Page Intentionally Left Blank

**SUPPLEMENTARY PROVISIONS**

**PART A - FEDERAL CONTRACT PROVISIONS FOR CONSTRUCTION  
AND EQUIPMENT CONTRACTS**

**APPLICATION OF REFERENCES**

ALL REFERENCES MADE HEREIN TO "CONTRACTOR", "BIDDER", AND "OFFEROR" SHALL PERTAIN TO THE PRIME CONTRACTOR. ALL REFERENCES MADE HEREIN TO "SUBCONTRACTOR" SHALL PERTAIN TO ANY AND ALL SUBCONTRACTORS UNDER CONTRACT WITH THE PRIME CONTRACTOR OR A SUBCONTRACTOR.

ALL REFERENCES MADE HEREIN TO "CONSULTANT" SHALL PERTAIN TO ARCHITECT/ENGINEER (A/E) UNDER CONTRACT WITH THE SPONSOR. ALL REFERENCES MADE HEREIN TO "SUBCONSULTANT" SHALL PERTAIN TO ANY AND ALL SUBCONSULTANTS UNDER CONTRACT WITH THE A/E.

ALL REFERENCES MADE HEREIN TO "SPONSOR" AND "OWNER" SHALL PERTAIN TO THE STATE, CITY, AIRPORT AUTHORITY OR OTHER PUBLIC ENTITY EXECUTING CONTRACTS WITH THE PRIME CONTRACTOR AND/OR THE A/E.

**PROVISIONS APPLICABLE TO ALL CONTRACTS**

|                                                                                                 |   |
|-------------------------------------------------------------------------------------------------|---|
| ACCESS TO RECORDS AND REPORTS .....                                                             | 3 |
| BUY AMERICAN PREFERENCE .....                                                                   | 3 |
| CIVIL RIGHTS – GENERAL .....                                                                    | 4 |
| CIVIL RIGHTS – TITLE VI ASSURANCE .....                                                         | 4 |
| PROHIBITION ON CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE<br>SERVICES OR EQUIPMENT ..... | 6 |
| FEDERAL FAIR LABOR STANDARDS ACT (FEDERAL MINIMUM WAGE).....                                    | 7 |
| OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 .....                                                | 7 |
| RIGHT TO INVENTIONS.....                                                                        | 7 |
| SEISMIC SAFETY.....                                                                             | 7 |
| TAX DELINQUENCY AND FELONY CONVICTIONS .....                                                    | 8 |
| TRADE RESTRICTION CERTIFICATION.....                                                            | 8 |
| VETERAN’S PREFERENCE .....                                                                      | 9 |
| DOMESTIC PREFERENCES FOR PROCUREMENTS.....                                                      | 9 |

**PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING \$2,000**

|                                    |    |
|------------------------------------|----|
| COPELAND "ANTI-KICKBACK" ACT ..... | 10 |
| DAVIS-BACON REQUIREMENTS .....     | 10 |

**PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING \$10,000**

|                                            |    |
|--------------------------------------------|----|
| AFFIRMATIVE ACTION REQUIREMENT .....       | 17 |
| DISTRACTED DRIVING.....                    | 18 |
| EQUAL EMPLOYMENT OPPORTUNITY (EEO) .....   | 18 |
| PROHIBITION OF SEGREGATED FACILITIES ..... | 24 |
| PROCUREMENT OF RECOVERED MATERIALS .....   | 24 |
| TERMINATION OF CONTRACT .....              | 25 |

**PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING \$25,000**

|                                |    |
|--------------------------------|----|
| DEBARMENT AND SUSPENSION ..... | 28 |
|--------------------------------|----|

**PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING \$100,000**

|                                                                |    |
|----------------------------------------------------------------|----|
| CONTRACT WORKHOURS AND SAFETY STANDARDS ACT REQUIREMENTS ..... | 29 |
| LOBBYING AND INFLUENCING FEDERAL EMPLOYEES .....               | 30 |

**PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING \$150,000**

|                                             |    |
|---------------------------------------------|----|
| CLEAN AIR AND WATER POLLUTION CONTROL ..... | 31 |
|---------------------------------------------|----|

**PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING \$250,000**

|                                        |    |
|----------------------------------------|----|
| BREACH OF CONTRACT TERMS .....         | 32 |
| DISADVANTAGED BUSINESS ENTERPRISE..... | 32 |

## PROVISIONS APPLICABLE TO ALL CONTRACTS

### ACCESS TO RECORDS AND REPORTS

Reference: 2 CFR § 200.334  
2 CFR § 200.337  
FAA Order 5100.38

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.

### BUY AMERICAN PREFERENCE

Reference: 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,<sup>1</sup> 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.

<sup>1</sup> 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.

## **CIVIL RIGHTS – GENERAL**

Reference: 49 USC § 47123

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 ASSURANCES**

Reference: 49 USC § 47123  
FAA Order 1400.11

### *Title VI Solicitation Notice*

The 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.

### *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).

#### Nondiscrimination Requirements / Title VI Clauses for Compliance

##### **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:
  - a. Withholding payments to the Contractor under the contract until the Contractor complies; and/or
  - b. 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.

#### **PROHIBITION ON CERTAIN TELECOMMUNICATIONS AND VIDEO SURVEILLANCE SERVICES OR EQUIPMENT**

Reference: 2 CFR § 200, Appendix II(K)  
2 CFR § 200.216

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)].

#### **FEDERAL FAIR LABOR STANDARDS ACT (FEDERAL MINIMUM WAGE)**

Reference: 29 USC § 201, et seq  
2 CFR § 200.430

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.

#### **OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970**

Reference: 20 CFR Part 1910

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.

#### **RIGHT TO INVENTIONS**

Reference: 2 CFR Part 200, Appendix II(F)  
37 CFR Part 401

Contracts or agreements that include the performance of experimental, developmental, or research work must provide for the rights of the Federal Government and the Owner in any resulting invention as established by 37 CFR part 401, Rights to Inventions Made by Non-profit Organizations and Small Business Firms under Government Grants, Contracts, and Cooperative Agreements. This contract incorporates by reference the patent and inventions rights as specified within 37 CFR § 401.14. Contractor must include this requirement in all sub-tier contracts involving experimental, developmental, or research work.

#### **SEISMIC SAFETY**

Reference: 49 CFR Part 41

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 DELINQUENCY AND FELONY CONVICTIONS**

Reference: Section 8113 of the Consolidated Appropriations Act, 2022 (Public Law 117-103) and similar provisions in subsequent appropriations acts  
DOT Order 4200.6 – Appropriations Act Requirements for Procurement and Non-Procurement Regarding Tax Delinquency and Felony Convictions

The Contractor certifies:

- 1) It 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. 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.
- 2) It is not a corporation that was convicted of a criminal violation under any Federal law within the preceding 24 months. A felony conviction is 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.

The Contractor agrees to incorporate the above certification in all lower tier subcontracts.

## **TRADE RESTRICTION CERTIFICATION**

Reference: 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.

#### **VETERAN'S PREFERENCE**

Reference: 49 USC § 47112(c)

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.

#### **DOMESTIC PREFERENCES FOR PROCUREMENTS**

Reference: 2 CFR § 200.322  
2 CFR Part 200, Appendix II(L)

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.

## PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING \$2,000

### COPELAND "ANTI-KICKBACK" ACT

Reference: 2 CFR Part 200, Appendix II(D)  
29 CFR Parts 3 and 5

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

Reference: 2 CFR Part 200, Appendix II(D)  
29 CFR Part 5  
49 USC § 47112(b)  
40 USC §§ 3141-3144, 3146, and 3147

#### 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) thru (D)

- (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:
    - (1) The work to be performed by the classification requested is not performed by a classification in the wage determination;
    - (2) The classification is utilized in the area by the construction industry; and
    - (3) 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) thru (D)

(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:
  - (1) 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;
  - (2) 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;
  - (3) 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.

## PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING \$10,000

### AFFIRMATIVE ACTION REQUIREMENT

Reference: 41 CFR Part 60-4  
Executive Order 11246

#### Notice of Requirement for Affirmative Action to Ensure Equal Employment Opportunity

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:                                      | Goal: |
|--------------------------------------------------|-------|
| Goals for minority participation for each trade: | 10.2% |
| 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:

|          |               |         |
|----------|---------------|---------|
| State    | County        | City    |
| Oklahoma | Pottawattamie | Shawnee |

## **DISTRACTED DRIVING**

Reference: Executive Order 13513  
DOT Order 3902.10

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.

## **EQUAL EMPLOYMENT OPPORTUNITY (EEO)**

Reference: 2 CFR Part 200, Appendix II(C)  
41 CFR § 60-1.4  
41 CFR § 60-4.3  
Executive Order 11246

### **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 identity, 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.

*Standard Federal Equal Employment Opportunity Construction Contract Specifications*

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 as 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).

#### **PROHIBITION OF SEGREGATED FACILITIES**

Reference: 2 CFR Part 200, Appendix II(C)  
41 CFR Part 60-1

- (a) 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.
- (b) "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.
- (c) The Contractor shall include this clause in every subcontract and purchase order that is subject to the Equal Employment Opportunity clause of this contract.

#### **PROCUREMENT OF RECOVERED MATERIALS**

Reference: 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))

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:

- a) The contract requires procurement of \$10,000 or more of a designated item during the fiscal year; or
- b) 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](http://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:

- a) Not reasonably available within a timeframe providing for compliance with the contract performance schedule;
- b) Fails to meet reasonable contract performance requirements; or
- c) Is only available at an unreasonable price.

#### **TERMINATION OF CONTRACT**

Reference: 2 CFR Part 200, Appendix II(B)  
FAA Advisory Circular 150/5370-10, Section 80-09

##### **Termination for Convenience (Construction & Equipment Contracts)**

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 (Construction)

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.

#### Termination for Cause (Equipment)

The Owner may, by written notice of default to the Contractor, terminate all or part of this Contract for cause if the Contractor:

1. Fails to begin the Work under the Contract within the time specified in the Notice- to-Proceed;
2. Fails to make adequate progress as to endanger performance of this Contract in accordance with its terms;
3. Fails to make delivery of the equipment within the time specified in the Contract, including any Owner approved extensions;
4. Fails to comply with material provisions of the Contract;
5. Submits certifications made under the Contract and as part of their proposal that include false or fraudulent statements; or
6. Becomes insolvent or declares bankruptcy.

If one or more of the stated events occur, the Owner will give notice in writing to the Contractor and Surety of its intent to terminate the contract for cause. At the Owner's discretion, the notice may allow the Contractor and Surety an opportunity to cure the breach or default.

If within ten (10) days of the receipt of notice, the Contractor or Surety fails to remedy the breach or default to the satisfaction of the Owner, the Owner has authority to acquire equipment by other procurement action. The Contractor will be liable to the Owner for any excess costs the Owner incurs for acquiring such similar equipment.

Payment for completed equipment delivered to and accepted by the Owner shall be at the Contract price. The Owner may withhold from amounts otherwise due the Contractor for such completed equipment, such sum as the Owner determines to be necessary to protect the Owner against loss because of Contractor default.

Owner will not terminate the Contractor's right to proceed with the work under this clause if the delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor. Examples of such acceptable causes include: acts of God, acts of the Owner, acts of another Contractor in the performance of a contract with

the Owner, and severe weather events that substantially exceed normal conditions for the location.

If, after termination of the Contractor's right to proceed, the Owner determines that the Contractor was not in default, or that the delay was excusable, the rights and obligations of the parties will be the same as if the Owner issued the termination for the convenience the Owner.

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

## PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING \$25,000

### DEBARMENT AND SUSPENSION

Reference: 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

#### Certification of Offeror/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.

## PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING \$100,000

### CONTRACT WORKHOURS AND SAFETY STANDARDS ACT REQUIREMENTS

Reference: 2 CFR Part 200, Appendix II(E)  
2 CFR § 5.5(b)  
40 USC § 3702  
40 USC § 3704

#### 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 workweek.

#### 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.

## LOBBYING AND INFLUENCING FEDERAL EMPLOYEES

Reference: 31 USC § 1352 – Byrd Anti-Lobbying Amendment  
2 CFR Part 200, Appendix II(I)  
49 CFR Part 20, Appendix A

### Certification Regarding Lobbying

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.

## **PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING \$150,000**

### **CLEAN AIR AND WATER POLLUTION CONTROL**

References: 2 CFR Part 200, Appendix II(G)  
42 USC § 7401, et seq  
33 USC § 1251, et seq

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.

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

## PROVISIONS APPLICABLE TO CONTRACTS EXCEEDING \$250,000

### BREACH OF CONTRACT TERMS

Reference: 2 CFR § 200 Appendix II(A)

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.

### DISADVANTAGED BUSINESS ENTERPRISE

Reference: 49 CFR Part 26

Solicitation Language (Solicitations that include a Contract Goal)

**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.

**Bid 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 Owner 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.

**Prime Contracts (Contracts Covered by a DBE Program)**

**Contract Assurance (49 CFR § 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 thirty (30) calendar days from the receipt of each payment the prime contractor receives from Owner. The prime contractor agrees

further to return retainage payments to each subcontractor within thirty (30) calendar 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 Owner. 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 the above *Solicitation Language (Solicitations that include a Contract Goal)* section (or an approved substitute DBE firm) without prior written consent of Owner. 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 from the Owner. Unless the Owner's 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.

The Owner may provide such written consent only if the Owner 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 the Owner 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 the Owner, 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 the Owner and the contractor of the reasons, if any, why it objects to the proposed termination of its subcontract and why the Owner should not approve the prime contractor's action. If required in a particular case as a matter of public necessity (e.g., safety), the Owner 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.

## **PART B: STATE PROVISIONS**

**NOT USED**

## **PART C: LOCAL PROVISIONS**

**GENERAL DESCRIPTION.** These Supplementary Provisions with the accompanying Plans, Specifications and related documents as hereinafter listed cover the requirements of the Owner for construction of various improvements to the **Shawnee Regional Airport**. The airport is located **2 miles Northwest of Shawnee, Oklahoma**. The work consists of:

### **Base Bid: Improve Airport Drainage**

**CONTRACT SPECIFICATIONS.** The Specifications which are bound herewith and which shall govern the materials furnished and the work to be performed in construction of the work under the Contract based thereon, are identified and indexed in the Table of Contents at the beginning of this volume of the Contract Documents.

**COPIES OF PLANS AND SPECIFICATIONS.** The Contractor will be furnished without cost to him **one electronic** copy of all Specifications and Plans, together with any and all addenda thereto. The Contractor **shall be responsible for printing and distributing Specifications and Plans to employees, subcontractors, and suppliers**, and the Contractor shall keep a minimum of one copy of all such Specifications and Plans constantly accessible on the work.

**LIQUIDATED DAMAGES.** Should the Contractor fail to complete the work within the required number of calendar days, or within such extra time as may have been allowed by extension, the Owner will deduct from any monies due or coming due the Contractor, the amount indicated in the Proposal for each calendar day that the work shall remain uncompleted. This sum shall be considered and treated not as a penalty but as fixed, agreed and liquidated damages due the Owner from the Contractor for reasons of inconvenience to the public, added cost of engineering, administration, supervision, inspection and other items which have caused an expenditure of public funds resulting from his failure to complete the work within the time specified in the Contract.

**DEFENSE OF SUITS.** In case any action at law or suit in equity is brought against the Owner or any officer or agent thereof, for or on account of the failure, omission, or neglect of the Contractor to do and perform any of the covenants, acts, matters, or things by this Contract undertaken to be done or performed, or for the injury or damage caused by the negligence or alleged negligence of the Contractor or his subcontractors or his or their agents, or in connection with any claim or claims based on the lawful demands of subcontractors, workmen, material men, or suppliers of machinery and parts thereof, equipment, power tools, and supplies incurred in the fulfillment of this Contract, the Contractor shall indemnify and save harmless the Owner and officers and agents of the Owner, of and from all losses, damages, costs, expenses, judgments, or decrees whatever arising out of such action or suit that may be brought as aforesaid.

**INSURANCE.** The Contractor shall secure, and maintain throughout the duration of this Contract, insurance of such types and in such amounts as may be necessary to protect himself against all hazards or risks of loss as hereinafter designated and specified. The form and limits of such insurance, together with the underwriter thereof in each case, shall be approved by the Owner but, regardless of such approval, it shall be the responsibility of the Contractor to maintain adequate insurance coverage at all times. Failure of the Contractor to maintain such coverage shall not relieve him of any contractual responsibility or obligation.

a. If a part of the Contract work is to be sublet, the Contractor shall:

(1) Cover any and all subcontractors in his insurance policies, or

(2) Require each subcontractor not so covered to secure insurance which will protect said subcontractor against all applicable hazards or risks of loss designated herein.

b. Satisfactory certificates of insurance shall be filed *by the Contractor and all Subcontractors* with the Owner prior to starting any construction work for or in connection with this Contract. Said certificates shall state that ten (10) day's written notice will be given the Owner before any policy covered thereby is changed or canceled.

c. Workmen's Compensation and Employers' Liability Insurance. This insurance shall protect the Contractor against any and all claims brought under the Workmen's Compensation Law for the state or states involved in work performed under this Contract. It shall also protect the Contractor against claims for injury to, disease or death of workmen engaged in work under this Contract which, for any reason, may not fall within the provisions of the Workmen's Compensation Act.

|                                  |                                                                                                    |
|----------------------------------|----------------------------------------------------------------------------------------------------|
| Workmen's Compensation Statutory |                                                                                                    |
| Employers' Liability             | \$100,000 (each accident)<br>\$500,000 (disease-policy limit)<br>\$100,000 (disease-each employee) |

d. Comprehensive General Liability Insurance. This insurance, to be on the comprehensive form, shall protect the Contractor against any and all claims arising from injuries to members of the public or damage to property of others arising out of any act or omission of the Contractor, his agents, employees or subcontractor, in connection with the operation or performance of the work for and in connection with this Contract. In addition, this general liability insurance policy shall specifically insure the contractual liability of the Contractor assumed under the foregoing Paragraph, "Defense of Suits".

The property damage liability coverage under this policy shall contain no exclusion relative to blasting, explosion, collapse of buildings, or damage to underground property.

Liability limits for general liability insurance coverage under this policy shall be not less than the following:

|                 |                                                                                                                       |
|-----------------|-----------------------------------------------------------------------------------------------------------------------|
| Bodily Injury   | \$500,000 (personal & advertising injury)<br>\$500,000 (each occurrence)<br>\$5,000 (medical expense, any one person) |
| Property Damage | \$500,000 (products-comp/ops aggregate)<br>\$500,000 (general aggregate)<br>\$50,000 (fire damage)                    |

e. Comprehensive Automobile Liability Insurance. This insurance, to be on the comprehensive form, shall protect the Contractor against any and all claims for injuries to members of the public and damage to property of others arising from the use of automobiles and trucks in connection with the performance of work under this Contract, and shall cover the operation on or off the site of the work of all motor vehicles licensed for highway use, whether they are owned, non-owned, or hired by the Contractor. The policy shall include an "all states" endorsement.

Liability limits for automobile liability insurance coverage under this policy shall be not less than the following:

Combined Single Limit

\$500,000 each person

**GENERAL GUARANTY.** Neither the final certificate of payment nor any provision in the Contract nor partial or entire use of the improvements embraced in this Contract by the Owner or the public shall constitute an acceptance of work not done in accordance with the Contract or relieve the Contractor of liability in respect to any express warranties or responsibility for faulty materials or workmanship. The Contractor shall promptly remedy any defects in the work and pay for any damage to other work resulting therefrom which shall appear within a period of 12 months from the date of final acceptance of the work. The Owner will give notice of defective materials and work with reasonable promptness. In the event repair work is required, the Contractor shall remedy any defects and pay for any damage to other work resulting therefrom which shall appear within a period of 12 months from the date of the acceptance of the repair work.

**EXTENSION OF CONTRACT TIME.** The Contractor is requested to bring to the attention of the Engineer, by letter, during the progress of the work, the occurrence of events which the Contractor considers may warrant extensions of time under the conditions of the Contract. If the Contract is not completed within the time stipulated, the Contractor shall at the conclusion of the work, present to the Engineer a written statement presenting his view upon all matters of time extensions.

The amount of all extensions of time for whatever reason granted shall be determined by the Engineer with due consideration given to working seasons and working conditions. In general, only actual and not hypothetical days of delay will be considered. The owner shall have authority to grant additional extensions of time as they may deem advisable and justifiable.

Promptly after the award of the Contract, the Contractor shall submit for approval to the Engineer a written program of construction outlining the proposed operations and the order of completion of the various parts in sufficient detail to demonstrate to the Engineer the adequacy of the progress to complete the construction within the time provided. No payment shall be made to the Contractor on any estimate until such a program has been submitted and approved.

Should it become evident at any time during construction that construction operations will or may fall behind the schedule of this first program of construction, the Contractor shall upon request promptly submit revised written schedules setting out operations, methods and equipment, added amount of labor, or of working shifts, night work, etc., by which lost time shall be made up, and shall confer with the Engineer until an approved modification of the original program shall have been secured. No payments on any estimates shall be made to the Contractor after such request is made until a modified program has been provided by the Contractor and approved by the Engineer. Execution of the work according to accepted program of construction, or approved modifications thereof, shall be an obligation of the Contractor.

Should the Contractor fail to complete the work on the required calendar date as stipulated in the Proposal or within such extra time as may have been allowed by extension, the Engineer will deduct from any monies due or coming due the Contractor, the amount stipulated in the Proposal of said extension of same that the work shall remain uncompleted. This sum shall be considered and treated not as penalty but as fixed, agreed and liquidated damages due to the Owner from the Contractor by reason of interference with business, convenience to the public, added cost of engineering, administration, supervision and other items which have caused an expenditure of public funds resulting from his failure to complete the work within the time specified in the Contract.

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, shall in no way operate as a waiver on the part of the Owner of any of its rights under the Contract.

Neither by the act of taking over the work nor by the annulment of the Contract nor by requiring the Surety to complete the Contract shall the owner forfeit the right to recover liquidated damages from the Contractor or his Surety for failure to complete the Contract within the specified time.

**DUST CONTROL.** Adequate precaution should be taken to insure that excessive dust does not become airborne during construction. No separate payment will be made for performing dust control or for the water used for this purpose, but the cost of these items shall be subsidiary to other items in the Contract.

**CONTRACTOR'S RESPONSIBILITY.** The Engineer's project representative shall not have responsibility for the construction site conditions, including safety, operations, equipment, or personnel other than employees of the Engineer. The Contractor is responsible to construct the project in conformance with the Plans and Specifications. The Contractor has the responsibility for safety, safety precautions and safety programs on the site. He has the responsibility and duty to provide a safe working environment for his employees or employees of others over whom he has supervision, direction and control as well as providing a safe environment for those who are required or are permitted to have access to the site including but not exclusive to engineer and owner personnel.

**CITY OF SHAWNEE, OK/SHAWNEE REGIONAL AIRPORT'S DISADVANTAGED  
BUSINESS ENTERPRISE (DBE) PROGRAM, 49 CFR PART 26**

**BIDDERS LIST: §26.11(c).** In accordance with §26.11 of the DBE program, "The questionnaire will be completed by each firm and all subcontractors who quote on the project and submitted at the time of bid."

**ASSURANCES: §26.13(a).** The City of Shawnee, OK/Shawnee Regional Airport shall not discriminate on the basis of race, color, national origin, or sex in the award and performance of any DOT-assisted contract or in the administration of its DBE Program or the requirements of 49 CFR Part 26. The City of Shawnee, OK/Shawnee Regional Airport shall take all necessary and reasonable steps under 49 CFR Part 26 to ensure nondiscrimination in the award and administration of DOT-assisted contracts. The City of Shawnee, OK/Shawnee Regional Airport DBE Program, as required by 49 CFR Part 26 and as approved by DOT, is incorporated by reference in this agreement. Implementation of this program is a legal obligation and failure to carry out its terms shall be treated as a violation of this agreement. Upon notification to the City of Shawnee, OK/Shawnee Regional Airport of its failure to carry out its approved program, the Department may impose sanctions as provided for under 49 CFR Part 26 and may, in appropriate cases, refer the matter for enforcement under 18 U.S.C. 1001 and/or the Program Fraud Civil Remedies Act of 1986 (31 U.S.C. 3801 et seq.).

**CONTRACT ASSURANCE: §26.13(b).** The contractor, sub recipient, 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 City of Shawnee, OK/Shawnee Regional Airport 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 CONTRACT CLAUSE: §26.29(a).** The prime contractor agrees to pay each subcontractor under this prime contract for satisfactory performance of its contract no later than **30** days from receipt of each payment the prime contractor receives from the **City of Shawnee, OK/Shawnee Regional Airport**. Any delay or postponement of payment may take place only for good cause and must receive prior written approval from the **City of Shawnee, OK/Shawnee Regional Airport**. If payments to subcontractors are not made in accordance with the terms of this agreement, the airport as owner has the authority to withhold the amount of funds due to the subcontractor from the prime contractor's request for payment until the airport receives confirmation of payment to the subcontractor.

**PROMPT & FULL PAYMENT OF RETAINAGE: §26.29(b).** See Section 3 - General Provisions (FAA), Section 90-06 Partial Payments

**ADDITIONAL MECHANISMS TO ENSURE PROMPT PAYMENT: §26.29(e).** The prime contractor shall to include in their subcontract language that prime contractor and subcontractors will use appropriate alternative dispute resolution mechanisms to resolve payment disputes and may specify such mechanisms. Furthermore; he prime contractor shall not be reimbursed for work performed by subcontractors unless and until the prime contractor ensures that the subcontractors are promptly paid for the work they have performed.

Prompt Payment Complaints: Complaints by subcontractors regarding the prompt payment requirements are handled according to the following procedure:

- Pursuant to Sec. 157 of the FAA Reauthorization Act of 2018, all complaints related to prompt payment will be reported in a format acceptable to the FAA, including the nature and origin of the complaint and its resolution. The airport will utilize the following website to report the Prompt Payment and Retainage Complaints:

<https://www.surveymonkey.com/r/PromptPaymentComplaints>

**GOOD FAITH EFFORTS PROCEDURAL REQUIREMENTS (Post Solicitation): §26.53(f-j).** The contractor shall utilize the specific DBEs listed in the contractor's bid/solicitation response to perform the work and supply the materials for which each is listed unless the contractor obtains our prior written consent as provided in 49 CFR Part §26.53(f). Unless our consent is provided, the contractor shall not be entitled to any payment for work or material unless it is performed or supplied by the listed DBE.

**DBE CERTIFICATION.** A DBE, as defined in these contract documents/specifications, is a firm that is certified and listed in the Oklahoma Department of Transportation's (ODOT) DBE database at the time of utilization on the project.

Page Intentionally Left Blank

## **PART D: FEDERAL WAGE RATES**

"General Decision Number: OK20230020 01/06/2023

Superseded General Decision Number: OK20220020

State: Oklahoma

Construction Type: Highway

Counties: Atoka, Bryan, Carter, Choctaw, Coal, Garvin, Haskell, Hughes, Johnston, Latimer, Love, Marshall, McCurtain, Murray, Pittsburg, Pontotoc, Pottawatomie, Pushmataha and Seminole Counties in Oklahoma.

HIGHWAY CONSTRUCTION PROJECTS (excluding tunnels, building structures in rest area projects & railroad construction; bascule, suspension & spandrel arch bridges designed for commercial navigation, bridges involving marine construction; and other major bridges).

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)(2)-(60).

|                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| If the contract is entered<br> into on or after January 30,<br> 2022, or the contract is<br> renewed or extended (e.g., an<br> option is exercised) on or<br> after January 30, 2022:<br> <br> <br> <br> <br> <br> <br> | . Executive Order 14026<br> generally applies to the<br> contract.<br> . The contractor must pay<br> all covered workers at<br> least \$16.20 per hour (or<br> the applicable wage rate<br> listed on this wage<br> determination, if it is<br> higher) for all hours<br> spent performing on the<br> contract in 2023.<br> |
| If the contract was awarded on<br> or between January 1, 2015 and<br> January 29, 2022, and the<br> contract is not renewed or<br> extended on or after January<br> 30, 2022:                                           | . Executive Order 13658<br> generally applies to the<br> contract.<br> . The contractor must pay all<br> covered workers at least<br> \$12.15 per hour (or the<br>                                                                                                                                                          |

|  |                             |
|--|-----------------------------|
|  | applicable wage rate listed |
|  | on this wage determination, |
|  | if it is higher) for all    |
|  | hours spent performing on   |
|  | that contract in 2023.      |

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                   | 01/06/2023       |

SUOK2011-007 04/18/2011

|                                                                | Rates    | Fringes |
|----------------------------------------------------------------|----------|---------|
| CARPENTER (Excludes Form Work)                                 |          |         |
| Choctaw County.....                                            | \$ 12.87 | **      |
| Hughes County.....                                             | \$ 11.75 | **      |
| Love County.....                                               | \$ 12.45 | **      |
| Pittsburg County.....                                          | \$ 12.49 | **      |
| Pottawatomie County.....                                       | \$ 12.14 | **      |
| Remaining Counties.....                                        | \$ 12.53 | **      |
| CEMENT MASON/CONCRETE FINISHER                                 |          |         |
| Carter County.....                                             | \$ 11.80 | **      |
| Choctaw County.....                                            | \$ 12.00 | **      |
| Love County.....                                               | \$ 12.95 | **      |
| Pittsburg County.....                                          | \$ 13.70 | **      |
| Pottawatomie County.....                                       | \$ 12.28 | **      |
| Remaining Counties.....                                        | \$ 12.65 | **      |
| FORM WORKER.....                                               | \$ 12.19 | **      |
| GUARDRAIL INSTALLER (Includes Guardrail/Post Driver Work)..... |          |         |
|                                                                | \$ 9.70  | **      |
| IRONWORKER, REINFORCING.....                                   | \$ 13.63 | **      |
| LABORER                                                        |          |         |
| Air/Power Tool Operator                                        |          |         |
| (Includes Handheld                                             |          |         |

|                              |          |    |
|------------------------------|----------|----|
| Concrete Saws and Chipping   |          |    |
| Guns).....                   | \$ 12.79 | ** |
| Asphalt Raker and Shoveler.. | \$ 12.35 | ** |
| Common or General            |          |    |
| Atoka County.....            | \$ 10.22 | ** |
| Bryan and Haskell Counties.. | \$ 10.49 | ** |
| Carter County.....           | \$ 9.97  | ** |
| Choctaw County.....          | \$ 10.34 | ** |
| Coal County.....             | \$ 10.55 | ** |
| Garvin County.....           | \$ 10.40 | ** |
| Hughes County.....           | \$ 10.01 | ** |
| Johnston County.....         | \$ 10.37 | ** |
| Latimer County.....          | \$ 10.25 | ** |
| Love County.....             | \$ 10.42 | ** |
| Marshall County.....         | \$ 11.68 | ** |
| McCurtain County.....        | \$ 9.82  | ** |
| Murray County.....           | \$ 9.88  | ** |
| Pittsburg County.....        | \$ 11.05 | ** |
| Pontotoc County.....         | \$ 10.48 | ** |
| Pottawatomie County.....     | \$ 10.60 | ** |
| Pushmataha County.....       | \$ 10.80 | ** |
| Seminole County.....         | \$ 10.79 | ** |
| Pipelayer.....               | \$ 11.13 | ** |
| Traffic Control (Includes    |          |    |
| Flagger, Setting Up and      |          |    |
| Moving Cones/Barrels).....   | \$ 11.15 | ** |
| Vibrating Plate.....         | \$ 12.70 | ** |

POWER EQUIPMENT OPERATOR:

|                              |          |    |
|------------------------------|----------|----|
| Asphalt Paver Screed.....    | \$ 13.99 | ** |
| Asphalt Paving Machine.....  | \$ 13.11 | ** |
| Asphalt Plant.....           | \$ 14.70 | ** |
| Backhoe/Trackhoe             |          |    |
| Choctaw County.....          | \$ 13.46 | ** |
| McCurtain County.....        | \$ 12.52 | ** |
| Pittsburg County.....        | \$ 16.83 |    |
| Remaining Counties.....      | \$ 14.05 | ** |
| Bobcat/Skid Loader.....      | \$ 12.62 | ** |
| Broom.....                   | \$ 11.02 | ** |
| Bulldozer                    |          |    |
| Choctaw County.....          | \$ 14.56 | ** |
| Love County.....             | \$ 14.35 | ** |
| McCurtain County.....        | \$ 13.02 | ** |
| Pittsburg.....               | \$ 14.89 | ** |
| Remaining Counties.....      | \$ 14.34 | ** |
| Concrete Paving Machine..... | \$ 14.42 | ** |
| Concrete Saw                 |          |    |
| Pittsburg County.....        | \$ 16.42 |    |
| Remaining Counties.....      | \$ 15.02 | ** |
| Crane.....                   | \$ 16.17 | ** |
| Distributor Truck.....       | \$ 13.25 | ** |
| Excavator.....               | \$ 14.08 | ** |

|                               |          |    |
|-------------------------------|----------|----|
| Grader/Blade.....             | \$ 17.04 |    |
| Loader (Front End)            |          |    |
| Remaining Counties.....       | \$ 13.10 | ** |
| Seminole County.....          | \$ 13.39 | ** |
| Mechanic.....                 | \$ 17.37 |    |
| Milling Machine.....          | \$ 14.16 | ** |
| Mixer.....                    | \$ 14.56 | ** |
| Oiler.....                    | \$ 16.06 | ** |
| Roller (Asphalt).....         | \$ 12.61 | ** |
| Roller (Dirt Compaction)....  | \$ 11.86 | ** |
| Rotomill.....                 | \$ 17.33 |    |
| Scraper.....                  | \$ 14.62 | ** |
| Striping Machine.....         | \$ 12.13 | ** |
| Tractor/Box Blade.....        | \$ 12.46 | ** |
| Transfer Material Machine.... | \$ 12.38 | ** |
| Trencher.....                 | \$ 14.66 | ** |

0.75

#### TRUCK DRIVER

|                           |          |    |
|---------------------------|----------|----|
| Concrete Truck.....       | \$ 14.22 | ** |
| Dump Truck.....           | \$ 14.42 | ** |
| Flatbed Truck.....        | \$ 16.18 | ** |
| Lowboy/Float.....         | \$ 14.99 | ** |
| Off the Road Truck.....   | \$ 12.63 | ** |
| Single Axle Truck         |          |    |
| (Includes Pilot Car)..... | \$ 13.15 | ** |
| Straight Truck.....       | \$ 15.92 | ** |
| Tandem Axle/Semi Trailer  |          |    |
| Carter County.....        | \$ 16.61 |    |
| Choctaw County.....       | \$ 14.43 | ** |
| Love County.....          | \$ 14.06 | ** |
| Pittsburg County.....     | \$ 15.68 | ** |
| Remaining Counties.....   | \$ 14.76 | ** |
| Seminole County.....      | \$ 16.12 | ** |
| Water Truck.....          | \$ 12.00 | ** |

-----

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

=====

\*\* Workers in this classification may be entitled to a higher minimum wage under Executive Order 14026 (\$16.20) or 13658 (\$12.15). Please see the Note at the top of the wage determination for more information.

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) (ii)).

-----

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

#### Union Rate Identifiers

A four letter classification abbreviation identifier enclosed in dotted lines beginning with characters other than ""SU"" or ""UAVG"" denotes that the union classification and rate were prevailing for that classification in the survey. Example: PLUM0198-005 07/01/2014. PLUM is an abbreviation identifier of the union which 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. 07/01/2014 is the effective date of the most current negotiated rate, which in this example is July 1, 2014.

Union prevailing wage rates are updated to reflect all rate changes in the collective bargaining agreement (CBA) governing this classification and rate.

#### Survey Rate Identifiers

Classifications listed under the "SU" identifier indicate that no one rate prevailed for this classification in the survey and the published rate is derived by computing a weighted average rate based on all the rates reported in the survey for that classification. As this weighted average rate includes all rates reported in the survey, it may include both union and non-union rates. Example: SULA2012-007 5/13/2014. SU indicates the rates are survey rates based on a weighted average calculation of rates and are not majority rates. LA indicates the State of Louisiana. 2012 is the year of 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. 5/13/2014 indicates the survey completion date for the classifications and rates under that identifier.

Survey wage rates are not updated and remain in effect until a new survey is conducted.

#### Union Average Rate Identifiers

Classification(s) listed under the UAVG identifier indicate that no single majority rate prevailed for those classifications; however, 100% of the data reported for the classifications was union data. EXAMPLE: UAVG-OH-0010 08/29/2014. UAVG indicates that the rate is a weighted union average rate. OH indicates the state. The next number, 0010 in the example, is an internal number used in producing the wage determination. 08/29/2014 indicates the survey completion date for the classifications and rates under that identifier.

A UAVG rate will be updated once a year, usually in January of each year, to reflect a weighted average of the current negotiated/CBA rate of the union locals from which the rate is based.

---

#### WAGE DETERMINATION APPEALS PROCESS

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

- \* an existing published wage determination
- \* a survey underlying a wage determination
- \* a Wage and Hour Division letter setting forth a position on a wage determination matter
- \* a conformance (additional classification and rate) ruling

On survey related matters, initial contact, including requests

for summaries of surveys, should be with the Wage and Hour National Office because National Office has responsibility for the Davis-Bacon survey program. If the response from this initial contact is not satisfactory, then the process described in 2.) and 3.) should be followed.

With regard to any other matter not yet ripe for the formal process described here, initial contact should be with the Branch of Construction Wage Determinations. Write 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 the answer to the question in 1.) is yes, then an interested party (those affected by the action) can request review and reconsideration from the Wage and Hour Administrator (See 29 CFR Part 1.8 and 29 CFR Part 7). Write 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 by 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

4.) All decisions by the Administrative Review Board are final.

=====

END OF GENERAL DECISIO"

Page Intentionally Left Blank

## SECTION 5

### LOCHNER MODIFICATIONS

#### ITEM TEMP

#### TEMPORARY MARKING, LIGHTING & BARRICADES

Item **Temporary Marking, Lighting & Barricades** is hereby added to the technical specifications with respect to the paragraphs and sections cited below.

1. **DESCRIPTION:** This item shall consist of all temporary marking, barricades and lighting shown on the safety and phasing plans, and required in accordance with FAA AC 150/5370-2. This item shall include all materials, labor, installation, maintenance and removal to provide temporary markings from diluted paint, fabric, plastic, plywood, temporary relocated threshold light assemblies, low profile barricades, temporary measures for blacking out or powering down lights in closed pavement areas, and providing temporary lighting for pavements to remain open.

2. **BASIS OF MEASUREMENT AND PAYMENT:** Based on the contract lump sum price for "Temporary Marking, Lighting & Barricades", partial payments will be made based on the estimated percent completion of the project.

Payment will be made under:

**Item TEMP                      Temporary Marking, Lighting & Barricades                      – Per Lump Sum**

**END OF ITEM TEMP**

Page Intentionally Left Blank

## SECTION 6

### ITEM C-102

#### TEMPORARY AIR AND WATER POLLUTION, SOIL EROSION, AND SILTATION CONTROL

##### 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-901 shall 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.** 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.** 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.

##### 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.** 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 ton (kg).
- e. Installation and removal of silt fence will be measured by **lump sum**.

**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:

|                   |                                  |                       |
|-------------------|----------------------------------|-----------------------|
| <b>Item C-102</b> | <b>Temporary Erosion Control</b> | <b>– Per Lump Sum</b> |
|-------------------|----------------------------------|-----------------------|

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 | <i>Hazardous Wildlife Attractants on or Near Airports</i> |
| AC 150/5370-2  | <i>Operational Safety on Airports During Construction</i> |

#### ASTM International (ASTM)

|            |                                                        |
|------------|--------------------------------------------------------|
| ASTM D6461 | <i>Standard Specification for Silt Fence Materials</i> |
|------------|--------------------------------------------------------|

United States Department of Agriculture (USDA)

FAA/USDA Wildlife Hazard Management at Airports, A Manual for Airport Personnel

**END OF ITEM C-102**

## SECTION 7

### ITEM C-105

#### MOBILIZATION

**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.** 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 | Mobilization (NTE 10% of Total Bid Amount) | – 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**

## SECTION 8

### ITEM P-101

#### PREPARATION/REMOVAL OF EXISTING PAVEMENT

##### 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. **The material shall be wasted off Airport property, and it shall become the property of the Contractor.** 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 underlying 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 material is to be **wasted off the Airport property**, it shall **become the property of the Contractor**.

**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 1/4 inch (6 mm). Any excess joint or crack sealer shall be removed from the pavement surface.

#### **101-3.3 Removal of Foreign Substances/contaminates prior to overlay, seal-coat, or 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.

**Cold milling and /or rotary grinding** 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 underlying 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**. 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 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 **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.**

**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.**

**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.**

**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 or 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 or random crack saw**. Following **routing or 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**, when outside of paved areas must be compacted to **90% of ASTM D1557**.

**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**. When outside of paved areas must be compacted to **90% of ASTM D1557**.

**c. Removal of Drainage Structures.** Where indicated on the plans or as directed by the RPR, headwalls, wingwalls, and concrete flume 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.** When outside of paved areas must be compacted to **90% of ASTM D1557**.

**d. Plug Existing Storm Sewer Pipe.** Where indicated on the plans or as directed by the RPR, the pipe shall be plugged at each end with Concrete, P-610, and the pipe filled with Controlled Low Strength Material, P-153. End sections associated with each pipe shall be removed and disposed of off airport property. This work shall be subsidiary to plugging.

**101-3.9.5 Cleaning Pipes and Structures.**

**a. Clean End Section.** Where indicated on the plans or as directed by the RPR, end sections shall be cleaned of vegetation, soil, debris, and all foreign material that restricts flow. The removed material shall be legally disposed of offsite in a timely fashion after removal. Removal of material shall be subsidiary to cleaning end sections.

**b. Clean Headwall.** Where indicated on the plans or as directed by the RPR, headwalls shall be cleaned of vegetation, soil, debris, and all foreign material that restricts flow. The removed material shall be legally disposed of offsite in a timely fashion after removal. Removal of material shall be subsidiary to cleaning headwalls.

**c. Flush and Clean Storm Sewer Pipe.** Where indicated on the plans or as directed by the RPR, storm sewer pipes shall be cleaned by removing and disposing of all debris and obstructions. Pipes shall be cleaned by flushing, rodding, or whatever means are necessary to provide unobstructed drainage without damaging the existing pipes. All debris shall be legally disposed of offsite in a timely fashion after removal. Removal of debris shall be subsidiary to cleaning storm pipes.

**101-3.9.6 Rehabilitate Storm Structure.** Where indicated on the plans or as directed by the RPR, storm structures (inlets, manholes, junction boxes) shall be rehabilitated by excavating around the structure, sealing penetrations with non-shrink grout, mastic, or other approved sealant material, filling and sealing openings in structures with non-shrink grout, backfilling, and grading the surrounding area to drain. Additionally, this item shall include cleaning the structure of debris, rock, sediment, and any other

obstructions. All debris shall be legally disposed of offsite in a timely fashion after removal. Removal of debris shall be subsidiary to rehabilitating storm structures.

## **METHOD OF MEASUREMENT**

**101-4.1 Pavement removal.** The unit of measurement for pavement removal shall be the number of square yards 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 **offset saw cutting as required for protection of pavement scheduled to remain in place.**

**101-4.2 Saw Cut.** The unit of measurement for saw cut shall be the linear foot of saw cut. Saw cutting shall only be measured in conjunction with pavement removal. Any other saw cut shall be considered subsidiary obligation of the Contractor under the other contract items.

**101-4.3 Removal of Pipe.** The unit of measurement for removal of pipe will be **made at the contract unit price per linear foot completed and accepted. 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.**

**101-4.4 Removal of Inlets/Manholes.** The unit of measurement for removal of inlets/manholes will be **made at the contract unit price for each completed and accepted inlet/manhole/storm sewer junction box. 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.**

**101-4.5 Plug Storm Sewer Pipe.** The unit of measurement for plugging existing storm sewer pipes will be **made at the contract unit price per linear foot completed and accepted. 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.**

**101-4.6 Clean End Section.** The unit of measurement for cleaning end sections will be **made at the contract price for each completed and accepted cleaned end section. This price shall be full compensation for all labor, equipment, tools, and incidentals necessary to complete this item in accordance with paragraph 101-3.9.5.**

**101-4.7 Clean Headwall.** The unit of measurement for cleaning headwalls will be **made at the contract price for each completed and accepted cleaned headwall. This price shall be full compensation for all labor, equipment, tools, and incidentals necessary to complete this item in accordance with paragraph 101-3.9.5.**

**101-4.8 Flush and Clean Storm Sewer Pipe.** The unit of measurement for flushing and cleaning storm sewer pipes will be **made at the contract price per linear foot completed and accepted. This price shall be full compensation for all labor, equipment, tools, and incidentals necessary to complete this item in accordance with paragraph 101-3.9.5.**

**101-4.9 Rehabilitate Storm Structure.** The unit of measurement for rehabilitation of storm structures will be **made at the contract price for each completed and accepted rehabilitated storm structure. This price shall be full compensation for all labor, equipment, tools, and incidentals necessary to complete this item in accordance with paragraph 101-3.9.6.**

## **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.

|                   |                                         |                          |
|-------------------|-----------------------------------------|--------------------------|
| <b>Item P-101</b> | <b>Remove Inlets/Manholes</b>           | <b>– Per Each</b>        |
| <b>Item P-101</b> | <b>Remove 18” Storm Pipe</b>            | <b>– Per Linear Foot</b> |
| <b>Item P-101</b> | <b>Remove 24” Storm Pipe</b>            | <b>– Per Linear Foot</b> |
| <b>Item P-101</b> | <b>Remove 60” Storm Pipe</b>            | <b>– Per Linear Foot</b> |
| <b>Item P-101</b> | <b>Plug 8” Storm Sewer Pipe</b>         | <b>– Per Linear Foot</b> |
| <b>Item P-101</b> | <b>Plug 18” Storm Sewer Pipe</b>        | <b>– Per Linear Foot</b> |
| <b>Item P-101</b> | <b>Plug 30” Storm Sewer Pipe</b>        | <b>– Per Linear Foot</b> |
| <b>Item P-101</b> | <b>Clean End Section</b>                | <b>– Per Each</b>        |
| <b>Item P-101</b> | <b>Clean Headwall</b>                   | <b>– Per Each</b>        |
| <b>Item P-101</b> | <b>Flush and Clean Storm Sewer Pipe</b> | <b>– Per Linear Foot</b> |
| <b>Item P-101</b> | <b>Rehabilitate Storm Structure</b>     | <b>– Per Each</b>        |

## **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**

## SECTION 9

### ITEM P-151

#### CLEARING AND GRUBBING

##### 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 and grubbed** shall be staked on the ground by the **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 **outside the Airport's limits at the Contractor's responsibility**, except when otherwise directed by the RPR. 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.**

**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 and grubbing as shown by the limits on the plans shall be **the number of acres** of land specifically cleared and grubbed.

## **BASIS OF PAYMENT**

**151-4.1** Payment shall be made at the contract unit price **per acre** 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.

Payment will be made under:

|                   |                              |                   |
|-------------------|------------------------------|-------------------|
| <b>Item P-151</b> | <b>Clearing and Grubbing</b> | <b>– Per Acre</b> |
|-------------------|------------------------------|-------------------|

## **END OF ITEM P-151**

## SECTION 10

### ITEM P-152

#### EXCAVATION, SUBGRADE, AND EMBANKMENT

##### 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.

**152-1.3 Unsuitable excavation.** Unsuitable material shall be disposed **off Airport property**. 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 **off Airport property**. 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.**

**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 of the stated elevations for ground surfaces, or within 0.04 foot 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 **off Airport property.**

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 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**.

**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 **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.**

**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** 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  $\pm 2\%$  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** 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 D1557**. A new Proctor shall be developed for each soil type based on visual classification.

Density tests will be taken by the **RPR** 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 D1557**. 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 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**.

On all areas outside of the pavement areas, no compaction will be required on the top **4 inches** which shall be prepared for a seedbed in accordance with **Item T-901**.

The in-place field density shall be determined in accordance with **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.** 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.**

**152-2.9 Proof rolling.** 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 **25 ton Tandem axle Dual Wheel Dump Truck loaded to the legal limit with tires inflated to 80 psi** in the presence of the RPR. Apply a minimum of **one (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** and to a density of not less than **95 percent** of the maximum dry density as determined by **ASTM D1557**. The subgrade in areas outside the limits of the pavement areas shall be compacted to a depth of **8 inches** and to a density of not less than **90 percent** of the maximum density as determined by **ASTM D1557**.

The material to be compacted shall be within  $\pm 2\%$  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  $\frac{3}{4}$  inch (19.0 mm) sieve, follow the **methods in ASTM D1557**. 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 in-place field density shall be determined in accordance with **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  $\pm \frac{1}{2}$  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 be 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 shall be computed by 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.

**152-3.2** The quantity of unclassified excavation to be paid for shall be the number of cubic yards 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.

## BASIS OF PAYMENT

**152-4.1 Unclassified excavation** payment shall be made at the contract unit price per cubic yard. This price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

|                   |                                |                         |
|-------------------|--------------------------------|-------------------------|
| <b>Item P-152</b> | <b>Unclassified Excavation</b> | <b>– Per Cubic Yard</b> |
|-------------------|--------------------------------|-------------------------|

## 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 <sup>3</sup> (600 kN-m/m <sup>3</sup> ))  |
| 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 <sup>3</sup> (2700 kN-m/m <sup>3</sup> )) |
| 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**

## SECTION 11

### ITEM D-701

#### PIPE FOR STORM DRAINS AND CULVERTS

##### DESCRIPTION

**701-1.1** This item shall consist of the construction of pipe culverts and storm drains in accordance with these specifications and in reasonably close conformity with the lines and grades shown on the plans.

##### MATERIALS

**701-2.1** Materials shall meet the requirements shown on the plans and specified below. Underground piping and components used in drainage systems for terminal and aircraft fueling ramp drainage shall be noncombustible and inert to fuel in accordance with National Fire Protection Association (NFPA) 415.

**701-2.2 Pipe.** The pipe shall be of the type called for on the plans or in the proposal and shall be in accordance with the following appropriate requirements:

|                   |                                                                                                                                                                |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>AASHTO R73</b> | <b>Standard Practice for Evaluation of Precast Concrete Drainage Productions</b>                                                                               |
| <b>ASTM C76</b>   | <b>Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe</b>                                                                     |
| <b>ASTM C506</b>  | <b>Standard Specification for Reinforced Concrete Arch Culvert, Storm Drain, and Sewer Pipe</b>                                                                |
| <b>ASTM C507</b>  | <b>Standard Specification for Reinforced Concrete Elliptical Culvert, Storm Drain, and Sewer Pipe</b>                                                          |
| <b>ASTM C1433</b> | <b>Standard Specification for Precast Reinforced Concrete Monolithic Box Sections for Culverts, Storm Drains, and Sewers</b>                                   |
| <b>ASTM C1479</b> | <b>Standard Practice for Installation of Precast Concrete Sewer, Storm Drain, and Culvert Pipe Using Standard Installations</b>                                |
| <b>ASTM C1577</b> | <b>Standard Specification for Precast Reinforced Concrete Monolithic Box Sections for Culverts, Storm Drains, and Sewers Designed According to AASHTO LRFD</b> |
| <b>ASTM C1786</b> | <b>Standard Specification for Segmental Precast Reinforced Concrete Box Sections for Culverts, Storm Drains, and Sewers Designed According to AASHTO LRFD</b>  |
| <b>ASTM C1840</b> | <b>Standard Practice for Inspection and Acceptance of Installed Reinforced Concrete Culvert, Storm Drain, and Storm Sewer Pipe</b>                             |
| <b>ASTM F2881</b> | <b>Standard Specification for 12 to 60 in. (300 to 1500 mm) Polypropylene (PP) Dual Wall Pipe and Fittings for Non-Pressure Storm Sewer Applications</b>       |

**701-2.3 Concrete.** Concrete for pipe cradles shall have a minimum compressive strength of 2000 psi at 28 days and conform to the requirements of ASTM C94.

**701-2.4 Rubber gaskets.** Rubber gaskets for rigid pipe shall conform to the requirements of ASTM C443. Rubber gaskets for PVC pipe, polyethylene, and polypropylene pipe shall conform to the requirements of ASTM F477. Rubber gaskets for zinc-coated steel pipe and precast galvanized pipe shall conform to the requirements of ASTM D1056, for the “RE” closed cell grades. Rubber gaskets for steel reinforced thermoplastic ribbed pipe shall conform to the requirements of ASTM F477.

**701-2.5 Joint mortar.** Pipe joint mortar shall consist of one part Portland cement and two parts sand. The Portland cement shall conform to the requirements of ASTM C150, Type I. The sand shall conform to the requirements of ASTM C144.

**701-2.6 Joint fillers.** Poured filler for joints shall conform to the requirements of ASTM D6690.

**701-2.7 Plastic gaskets.** Plastic gaskets shall conform to the requirements of ASTM C990.

**701-2.8. Controlled low-strength material (CLSM).** Controlled low-strength material shall conform to the requirements of Item P-153. When CLSM is used, all joints shall have gaskets.

**701-2.9 Precast box culverts.** Manufactured in accordance with and conforming to ASTM C1433.

**701-2.10 Precast concrete pipe.** Precast concrete structures shall be furnished by a plant meeting National Precast Concrete Association Plant Certification Program or American Concrete Pipe Association QCast Plant Certification Program.

## **CONSTRUCTION METHODS**

**701-3.1 Excavation.** The width of the pipe trench shall be sufficient to permit satisfactory jointing of the pipe and thorough tamping of the bedding material under and around the pipe, but it shall not be less than the external diameter of the pipe plus 12 inches (300 mm) on each side. The trench walls shall be approximately vertical.

The Contractor shall comply with all current federal, state and local rules and regulations governing the safety of men and materials during the excavation, installation and backfilling operations. Specifically, the Contractor shall observe that all requirements of the Occupational Safety and Health Administration (OSHA) relating to excavations, trenching and shoring are strictly adhered to. The width of the trench shall be sufficient to permit satisfactorily jointing of the pipe and thorough compaction of the bedding material under the pipe and backfill material around the pipe, but it shall not be greater than the widths shown on the plans trench detail.

Where rock, hardpan, or other unyielding material is encountered, the Contractor shall remove it from below the foundation grade for a depth of at least 8 inch (200 mm) or 1/2 inch (12 mm) for each foot of fill over the top of the pipe (whichever is greater) but for no more than three-quarters of the nominal diameter of the pipe. The excavation below grade should be filled with granular material to form a uniform foundation.

Where a firm foundation is not encountered at the grade established, due to soft, spongy, or other unstable soil, the unstable soil shall be removed and replaced with approved granular material for the full trench width. The RPR shall determine the depth of removal necessary. The granular material shall be compacted to provide adequate support for the pipe.

The excavation for pipes placed in embankment fill shall not be made until the embankment has been completed to a height above the top of the pipe as shown on the plans.

**701-3.2 Bedding.** The bedding surface for the pipe shall provide a foundation of uniform density to support the pipe throughout its entire length.

**a. Rigid pipe.** The pipe bedding shall be constructed uniformly for the full length of the pipe barrel, as required on the plans. The maximum aggregate size shall be 1 in when the bedding thickness is less than 6 inches, and 1-1/2 in when the bedding thickness is greater than 6 inches. Bedding shall be loosely placed uncompacted material under the middle third of the pipe prior to placement of the pipe.

**b. Flexible pipe.** For flexible pipe, the bed shall be roughly shaped to fit the pipe, and a bedding blanket of sand or fine granular material shall be provided as follows:

**Flexible Pipe Bedding**

| Pipe Corrugation Depth |    | Minimum Bedding Depth |    |
|------------------------|----|-----------------------|----|
| inch                   | mm | inch                  | mm |
| 1/2                    | 12 | 1                     | 25 |
| 1                      | 25 | 2                     | 50 |
| 2                      | 50 | 3                     | 75 |
| 2-1/2                  | 60 | 3-1/2                 | 90 |

**c. Other pipe materials.** For PVC, polyethylene, polypropylene, or fiberglass pipe, the bedding material shall consist of coarse sands and gravels with a maximum particle size of 3/4 inches (19 mm). For pipes installed under paved areas, no more than 12% of the material shall pass the No. 200 (0.075 mm) sieve. For all other areas, no more than 50% of the material shall pass the No. 200 (0.075 mm) sieve. The bedding shall have a thickness of at least 6 inches (150 mm) below the bottom of the pipe and extend up around the pipe for a depth of not less than 50% of the pipe's vertical outside diameter.

**701-3.3 Laying pipe.** The pipe laying shall begin at the lowest point of the trench and proceed upgrade. The lower segment of the pipe shall be in contact with the bedding throughout its full length. Bell or groove ends of rigid pipes and outside circumferential laps of flexible pipes shall be placed facing upgrade.

Paved or partially lined pipe shall be placed so that the longitudinal center line of the paved segment coincides with the flow line.

Elliptical and elliptically reinforced concrete pipes shall be placed with the manufacturer's reference lines designating the top of the pipe within five degrees of a vertical plane through the longitudinal axis of the pipe.

**701-3.4 Joining pipe.** Joints shall be made with (1) cement mortar, (2) cement grout, (3) rubber gaskets, (4) plastic gaskets, or (5) coupling bands.

Mortar joints shall be made with an excess of mortar to form a continuous bead around the outside of the pipe and shall be finished smooth on the inside. Molds or runners shall be used for grouted joints to retain the poured grout. Rubber ring gaskets shall be installed to form a flexible watertight seal.

**a. Concrete pipe.** Concrete pipe may be either bell and spigot or tongue and groove. Pipe sections at joints shall be fully seated and the inner surfaces flush and even. **Concrete pipe joints shall be sealed with rubber gaskets meeting ASTM C443 when leak resistant joints are required.**

**b. Metal pipe.** Metal pipe shall be firmly joined by form-fitting bands conforming to the requirements of ASTM A760 for steel pipe and AASHTO M196 for aluminum pipe.

**c. PVC, Polyethylene, or Polypropylene pipe.** Joints for PVC, Polyethylene, or Polypropylene pipe shall conform to the requirements of ASTM D3212 when leak resistant joints are required. Joints for PVC and Polyethylene pipe shall conform to the requirements of AASHTO M304 when soil tight joints are required. Fittings for polyethylene pipe shall conform to the requirements of AASHTO M252 or ASTM M294. Fittings for polypropylene pipe shall conform to ASTM F2881, ASTM F2736, or ASTM F2764.

**701-3.5 Embedment and Overfill.** Pipes shall be inspected before any fill material is placed; any pipes found to be out of alignment, unduly settled, or damaged shall be removed and re-laid or replaced at the Contractor's expense.

#### **701-3.5-1 Embedment Material Requirements**

**a. Concrete Pipe.** Embedment material and compaction requirements shall be in accordance with the applicable Type of Standard Installation (Types 1, 2, 3, or 4) per ASTM C1479. If a concrete cradle or CLSM embedment material is used, it shall conform to the plan details.

**b. Plastic and fiberglass Pipe.** Embedment material shall meet the requirements of ASTM D3282, A-1, A-2-4, A-2-5, or A-3. Embedment material shall be free of organic material, stones larger than 1.5 inches in the greatest dimension, or frozen lumps. Embedment material shall extend to 12 inches above the top of the pipe.

**c. Metal Pipe.** Embedment material shall be granular as specified in the contract document and specifications, and shall be free of organic material, rock fragments larger than 1.5 inches in the greatest dimension and frozen lumps. As a minimum, backfill materials shall meet the requirements of ASTM D3282, A-1, A-2, or A-3. Embedment material shall extend to 12 inches above the top of the pipe.

#### **701-3.5-2 Placement of Embedment Material**

The embedment material shall be compacted in layers not exceeding 6 inches (150 mm) on each side of the pipe and shall be brought up one foot (30 cm) above the top of the pipe or to natural ground level, whichever is greater. Thoroughly compact the embedment material under the haunches of the pipe without displacing the pipe. Material shall be brought up evenly on each side of the pipe for the full length of the pipe.

When the top of the pipe is above the top of the trench, the embedment material shall be compacted in layers not exceeding 6 inches (150 mm) and shall be brought up evenly on each side of the pipe to one foot (30 cm) above the top of the pipe. All embedment material shall be compacted to a density required under Item P-152.

Concrete cradles and flowable fills, such as controlled low strength material (CLSM) or controlled density fill (CDF), may be used for embedment provided adequate flotation resistance can be achieved by restraints, weighing, or placement technique.

It shall be the Contractor's responsibility to protect installed pipes and culverts from damage due to construction equipment operations. The Contractor shall be responsible for installation of any extra strutting or backfill required to protect pipes from the construction equipment.

#### **701-3.6 Overfill**

Pipes shall be inspected before any overfill is in place. Any pipes found to be out of alignment, unduly settled, or damaged shall be removed and relaid or replaced at the Contractor's expense. Evaluation of any damage to RCP shall be evaluated based on AASHTO R73.

Overfill material shall be placed and compacted in layers as required to achieve compaction to at least 95 percent standard proctor per ASTM D1557. The soil shall contain no debris, organic matter, frozen material, or stones with a diameter greater than one half the thickness of the compacted layers being placed.

### 701-3.7 Inspection Requirements

An initial post installation inspection shall be performed by the contractor no sooner than 30 days after completion of installation and final backfill. Clean or flush all lines prior to inspection.

Use a camera with lighting suitable to allow a clear picture of the entire periphery of the pipe interior. Center the camera in the pipe both vertically and horizontally and be able to pan and tilt to a 90 degree angle with the axis of the pipe rotating 360 degrees. Use equipment to move the camera through the pipe that will not obstruct the camera's view or interfere with proper documentation of the pipe's condition. The video image shall be clear, focused, and relatively free from roll, static, or other image distortion qualities that would prevent the reviewer from evaluating the condition of the pipe.

For pipe sizes larger than 48 inches, a walk-through visual inspection shall be performed.

Reinforced concrete pipe shall be inspected, evaluated, and reported on in accordance with ASTM C1840, "Standard Practice for Inspection and Acceptance of Installed Reinforced Concrete Culvert, Storm Drain, and Storm Sewer Pipe." Any issues reported shall include still photo and video documentation. The zoom ratio shall be provided for all still or video images that document any issues of concern by the inspection firm.

### METHOD OF MEASUREMENT

**701-4.1** The length of pipe shall be measured in linear feet of pipe in place, completed, and accepted. It shall be measured along the centerline of the pipe from end or inside face of structure to the end or inside face of structure, whichever is applicable. The various classes, types, and sizes of pipe shall be measured separately. All fittings shall be included in the footage as typical pipe sections in the pipe being measured.

**701-4.2** Precast concrete end sections shall be measured per each in place, completed and approved. The different sizes shall be measured separately.

### BASIS OF PAYMENT

**701-5.0** These prices shall fully compensate the Contractor for furnishing all materials and for all preparation, excavation, installation, and testing of these materials; and for all labor, equipment, tools, and incidentals necessary to complete the item.

**701-5.1** Payment will be made at the contract unit price per linear foot for each class and size of pipe.

**701-5.3** Payment will be made at the contract unit price per each for each class and size of end section.

Payment will be made under:

|            |                     |                   |
|------------|---------------------|-------------------|
| Item D-701 | 18" RCP (Class 3)   | – Per Linear Foot |
| Item D-701 | 24" RCP (Class 3)   | – Per Linear Foot |
| Item D-701 | 60" RCP (Class 3)   | – Per Linear Foot |
| Item D-701 | 24" RCP End Section | – 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 Association of State Highway and Transportation Officials (AASHTO)

|             |                                                                                                                                 |
|-------------|---------------------------------------------------------------------------------------------------------------------------------|
| AASHTO M167 | Standard Specification for Corrugated Steel Structural Plate, Zinc-Coated, for Field-Bolted Pipe, Pipe-Arches, and Arches       |
| AASHTO M190 | Standard Specification for Bituminous-Coated Corrugated Metal Culvert Pipe and Pipe Arches                                      |
| AASHTO M196 | Standard Specification for Corrugated Aluminum Pipe for Sewers and Drains                                                       |
| AASHTO M219 | Standard Specification for Corrugated Aluminum Alloy Structural Plate for Field-Bolted Pipe, Pipe-Arches, and Arches            |
| AASHTO M243 | Standard Specification for Field Applied Coating of Corrugated Metal Structural Plate for Pipe, Pipe-Arches, and Arches         |
| AASHTO M252 | Standard Specification for Corrugated Polyethylene Drainage Pipe                                                                |
| AASHTO M294 | Standard Specification for Corrugated Polyethylene Pipe, 300- to 1500-mm (12- to 60-in.) Diameter                               |
| AASHTO M304 | Standard Specification for Poly (Vinyl Chloride) (PVC) Profile Wall Drain Pipe and Fittings Based on Controlled Inside Diameter |
| AASHTO MP20 | Standard Specification for Steel Reinforced Polyethylene (PE) Ribbed Pipe, 300- to 900-mm (12- to 36-in.) Diameter              |

### ASTM International (ASTM)

|           |                                                                                                                           |
|-----------|---------------------------------------------------------------------------------------------------------------------------|
| ASTM A760 | Standard Specification for Corrugated Steel Pipe, Metallic Coated for Sewers and Drains                                   |
| ASTM A761 | Standard Specification for Corrugated Steel Structural Plate, Zinc Coated, for Field-Bolted Pipe, Pipe-Arches, and Arches |
| ASTM A762 | Standard Specification for Corrugated Steel Pipe, Polymer Precoated for Sewers and Drains                                 |
| ASTM A849 | Standard Specification for Post-Applied Coatings, Pavings, and Linings for Corrugated Steel Sewer and Drainage Pipe       |
| ASTM B745 | Standard Specification for Corrugated Aluminum Pipe for Sewers and Drains                                                 |
| ASTM C14  | Standard Specification for Nonreinforced Concrete Sewer, Storm Drain, and Culvert Pipe                                    |
| ASTM C76  | Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe                                       |
| ASTM C94  | Standard Specification for Ready Mixed Concrete                                                                           |
| ASTM C144 | Standard Specification for Aggregate for Masonry Mortar                                                                   |
| ASTM C150 | Standard Specification for Portland Cement                                                                                |

|            |                                                                                                                                   |
|------------|-----------------------------------------------------------------------------------------------------------------------------------|
| ASTM C443  | Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets                                            |
| ASTM C506  | Standard Specification for Reinforced Concrete Arch Culvert, Storm Drain, and Sewer Pipe                                          |
| ASTM C507  | Standard Specification for Reinforced Concrete Elliptical Culvert, Storm Drain and Sewer Pipe                                     |
| ASTM C655  | Standard Specification for Reinforced Concrete D-Load Culvert, Storm Drain and Sewer Pipe                                         |
| ASTM C990  | Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants   |
| ASTM C1433 | Standard Specification for Precast Reinforced Concrete Monolithic Box Sections for Culverts, Storm Drains, and Sewers             |
| ASTM D1056 | Standard Specification for Flexible Cellular Materials Sponge or Expanded Rubber                                                  |
| ASTM D3034 | Standard Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings                                           |
| ASTM D3212 | Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals                              |
| ASTM D3262 | Standard Specification for "Fiberglass" (Glass-Fiber Reinforced Thermosetting Resin) Sewer Pipe                                   |
| ASTM D3282 | Standard Practice for Classification of Soils and Soil-Aggregate Mixtures for Highway Construction Purposes                       |
| ASTM D4161 | Standard Specification for "Fiberglass" (Glass-Fiber Reinforced Thermosetting Resin) Pipe Joints Using Flexible Elastomeric Seals |
| ASTM D6690 | Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements                              |
| ASTM F477  | Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe                                                   |
| ASTM F667  | Standard Specification for 3 through 24 in. Corrugated Polyethylene Pipe and Fittings                                             |
| ASTM F714  | Standard Specification for Polyethylene (PE) Plastic Pipe (DR PR) Based on Outside Diameter                                       |
| ASTM F794  | Standard Specification for Poly (Vinyl Chloride) (PVC) Profile Gravity Sewer Pipe & Fittings Based on Controlled Inside Diameter  |
| ASTM F894  | Standard Specification for Polyethylene (PE) Large Diameter Profile Wall Sewer and Drain Pipe                                     |
| ASTM F949  | Standard Specification for Poly (Vinyl Chloride) (PVC) Corrugated Sewer Pipe with a Smooth Interior and Fittings                  |
| ASTM F2435 | Standard Specification for Steel Reinforced Polyethylene (PE) Corrugated Pipe                                                     |

|                                             |                                                                                                                                                        |
|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| ASTM F2562                                  | Specification for Steel Reinforced Thermoplastic Ribbed Pipe and Fittings for Non-Pressure Drainage and Sewerage                                       |
| ASTM F2736                                  | Standard Specification for 6 to 30 in. (152 to 762 mm) Polypropylene (PP) Corrugated Single Wall Pipe and Double Wall Pipe                             |
| ASTM F2764                                  | Standard Specification for 30 to 60 in. (750 to 1500 mm) Polypropylene (PP) Triple Wall Pipe and Fittings for Non-Pressure Sanitary Sewer Applications |
| ASTM F2881                                  | Standard Specification for 12 to 60 in. (300 to 1500 mm) Polypropylene (PP) Dual Wall Pipe and Fittings for Non-Pressure Storm Sewer Applications      |
| National Fire Protection Association (NFPA) |                                                                                                                                                        |
| NFPA 415                                    | Standard on Airport Terminal Buildings, Fueling Ramp Drainage, and Loading Walkways                                                                    |

**END ITEM D-701**

## SECTION 12

### ITEM D-751

#### MANHOLES, CATCH BASINS, INLETS AND INSPECTION HOLES

##### DESCRIPTION

**751-1.1** This item shall consist of construction of manholes, catch basins, inlets, and inspection holes, in accordance with these specifications, at the specified locations and conforming to the lines, grades, and dimensions shown on the plans or required by the RPR.

##### MATERIALS

**751-2.1 Brick.** The brick shall conform to the requirements of ASTM C32, Grade MS.

**751-2.2 Mortar.** Mortar shall consist of one part Portland cement and two parts sand. The cement shall conform to the requirements of ASTM C150, Type I. The sand shall conform to the requirements of ASTM C144.

**751-2.3 Concrete.** Plain and reinforced concrete used in structures, connections of pipes with structures, and the support of structures or frames shall conform to the requirements of Item P-610 **or listed on the plans.**

**751-2.4 Precast concrete pipe manhole rings.** Precast concrete pipe manhole rings shall conform to the requirements of ASTM C478. Unless otherwise specified, the risers and offset cone sections shall have an inside diameter of not less than 36 inches (90 cm) nor more than 48 inches (120 cm). There shall be a gasket between individual sections and sections cemented together with mortar on the inside of the manhole. Gaskets shall conform to the requirements of ASTM C443.

**751-2.5 Corrugated metal.** Corrugated metal shall conform to the requirements of American Association of State Highway and Transportation Officials (AASHTO) M36.

**751-2.6 Frames, covers, and grates.** The castings shall conform to one of the following requirements:

- a. ASTM A48, Class 35B: 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, Grade 65-45-12: Ductile iron castings
- f. ASTM A897: Austempered ductile iron castings

All castings or structural steel units shall conform to the dimensions shown on the plans and shall be designed to support the loadings, aircraft gear configuration and/or direct loading, specified.

Each frame and cover or grate 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.

**751-2.7 Steps.** The steps or ladder bars shall be gray or malleable cast iron or galvanized steel. The steps shall be the size, length, and shape shown on the plans and those steps that are not galvanized shall be given a coat of asphalt paint, when directed.

**751-2.8 Precast inlet structures.** Manufactured in accordance with and conforming to ASTM C913.

## CONSTRUCTION METHODS

### 751-3.1 Unclassified excavation.

**a.** The Contractor shall excavate for structures and 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. The elevations of the bottoms of footings, as shown on the plans, shall be considered as approximately only; and the RPR may direct, in writing, changes in dimensions or elevations of footings necessary for a satisfactory foundation.

**b.** Boulders, logs, or any other objectionable material encountered in excavation shall be removed. All rock or 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 or crevices shall be cleaned out and grouted. All loose and disintegrated rock and thin strata shall be removed. Where concrete will rest on a surface other than rock, the bottom of the excavation shall not be disturbed and excavation to final grade shall not be made until immediately before the concrete or reinforcing is placed.

**c.** The Contractor shall do all bracing, sheathing, or shoring necessary to implement and protect the excavation and the structure as required for safety or conformance to governing laws. The cost of bracing, sheathing, or shoring shall be included in the unit price bid for the structure.

**d.** All bracing, sheathing, or shoring involved in the construction of this item shall be removed by the Contractor after the completion of the structure. Removal shall not disturb or damage finished masonry. The cost of removal shall be included in the unit price bid for the structure.

**e.** After excavation is completed for each structure, the Contractor shall notify the RPR. No concrete or reinforcing steel shall be placed until the RPR has approved the depth of the excavation and the character of the foundation material.

### 751-3.2 Brick structures.

**a. Foundations.** A prepared foundation shall be placed for all brick structures after the foundation excavation is completed and accepted. Unless otherwise specified, the base shall consist of reinforced concrete mixed, prepared, and placed in accordance with the requirements of Item P-610.

**b. Laying brick.** All brick shall be clean and thoroughly wet before laying so that they will not absorb any appreciable amount of additional water at the time they are laid. All brick shall be laid in freshly made mortar. Mortar not used within 45 minutes after water has been added shall be discarded. Retempering of mortar shall not be permitted. An ample layer of mortar shall be spread on the beds and a shallow furrow shall be made in it that can be readily closed by the laying of the brick. All bed and head joints shall be filled solid with mortar. End joints of stretchers and side or cross joints of headers shall be fully buttered with mortar and a shoved joint made to squeeze out mortar at the top of the joint. Any bricks that may be loosened after the mortar has taken its set, shall be removed, cleaned, and re-laid with fresh mortar. No broken or chipped brick shall be used in the face, and no spalls or bats shall be used except where necessary to shape around irregular openings or edges; in which case, full bricks shall be placed at ends or corners where possible, and the bats shall be used in the interior of the course. In making closures, no piece of brick shorter than the width of a whole brick shall be used; and wherever practicable, whole brick shall be used and laid as headers.

**c. Joints.** All joints shall be filled with mortar at every course. Exterior faces shall be laid up in advance of backing. Exterior faces shall be plastered or parged with a coat of mortar not less than 3/8 inch (9 mm) thick before the backing is laid up. Prior to parging, all joints on the back of face courses shall be cut flush. Unless otherwise noted, joints shall be not less than 1/4 inch (6 mm) nor more than 1/2 inch (12 mm) wide and the selected joint width shall be maintained uniform throughout the work.

**d. Pointing.** Face joints shall be neatly struck, using the weather-struck joint. All joints shall be finished properly as the laying of the brick progresses. When nails or line pins are used, the holes shall be immediately plugged with mortar and pointed when the nail or pin is removed.

**e. Cleaning.** Upon completion of the work all exterior surfaces shall be thoroughly cleaned by scrubbing and washing with water. If necessary to produce satisfactory results, cleaning shall be done with a 5% solution of muriatic acid which shall then be rinsed off with liberal quantities of water.

**f. Curing and cold weather protection.** The brick masonry shall be protected and kept moist for at least 48 hours after laying the brick. Brick masonry work or pointing shall not be done when there is frost on the brick or when the air temperature is below 50°F (10°C) unless the Contractor has, on the project ready to use, suitable covering and artificial heating devices necessary to keep the atmosphere surrounding the masonry at a temperature of not less than 60°F (16°C) for the duration of the curing period.

**751-3.3 Concrete structures.** Concrete structures which are to be cast-in-place within the project boundaries shall be built on prepared foundations, conforming to the dimensions and shape indicated on the plans. The construction 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.

All invert channels shall be constructed and shaped accurately to be smooth, uniform, and cause minimum resistance to flowing water. The interior bottom shall be sloped to the outlet.

**751-3.4 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. Precast concrete structures shall be constructed on prepared or previously placed slab foundations conforming to the dimensions and locations shown on the plans. All precast concrete sections necessary to build a completed structure shall be furnished. The different sections shall fit together readily. Joints between precast concrete risers and tops shall be full-bedded in cement mortar and shall: (1) be smoothed to a uniform surface on both interior and exterior of the structure or (2) utilize a rubber gasket per ASTM C443. The top of the upper precast concrete section shall be suitably formed and dimensioned to receive the metal frame and cover or grate, or other cap, as required. Provision shall be made for any connections for lateral pipe, including drops and leads that may be installed in the structure. The flow lines shall be smooth, uniform, and cause minimum resistance to flow. The metal or metal encapsulated steps that are embedded or built into the side walls shall be aligned and placed in accordance to ASTM C478. When a metal ladder replaces the steps, it shall be securely fastened into position.

**751-3.5 Corrugated metal structures.** Corrugated metal structures shall be prefabricated. All standard or special fittings shall be furnished to provide pipe connections or branches with the correct dimensions and of sufficient length to accommodate connecting bands. The fittings shall be welded in place to the metal structures. The top of the metal structure shall be designed so that either a concrete slab or metal collar may be attached to allow the fastening of a standard metal frame and grate or cover. Steps or ladders shall be furnished as shown on the plans. Corrugated metal structures shall be constructed on prepared foundations, conforming to the dimensions and locations as shown on the plans. When indicated, the structures shall be placed on a reinforced concrete base.

**751-3.6 Inlet and outlet pipes.** Inlet and outlet pipes shall extend through the walls of the structures a sufficient distance beyond the outside surface to allow for connections. They shall be cut off flush with the wall on the inside surface of the structure, unless otherwise directed. For concrete or brick structures, mortar shall be placed around these pipes to form a tight, neat connection.

**751-3.7 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 elevation. If frames or fittings are to be set in concrete or cement mortar, all anchors or bolts shall be in place before the concrete or mortar is placed. The unit shall not be disturbed until the mortar or concrete has set.

When frames or fittings are placed on previously constructed masonry, the bearing surface of the masonry shall be brought true to line and grade and shall present an even bearing surface so the entire face or back of the unit will come in contact with the masonry. The unit shall be set in mortar beds and anchored to the masonry as indicated on the plans or as directed by the RPR. All units shall set firm and secure.

After the frames or fittings have been set in final position, the concrete or mortar shall be allowed to harden for seven (7) days before the grates or covers are placed and fastened down.

**751-3.8 Installation of steps.** The steps shall be installed as indicated on the plans or as directed by the RPR. When the steps are to be set in concrete, they shall be placed and secured in position before the concrete is placed. When the steps are installed in brick masonry, they shall be placed as the masonry is being built. The steps shall not be disturbed or used until the concrete or mortar has hardened for at least seven (7) days. After seven (7) days, the steps shall be cleaned and painted, unless they have been galvanized.

When steps are required with precast concrete structures they shall meet the requirements of ASTM C478. The steps shall be cast into the side of the sections at the time the sections are manufactured or set in place after the structure is erected by drilling holes in the concrete and cementing the steps in place.

When steps are required with corrugated metal structures, they shall be welded into aligned position at a vertical spacing of 12 inches (300 mm).

Instead of steps, prefabricated ladders may be installed. For brick or concrete structures, the ladder shall be held in place by grouting the supports in drilled holes. For metal structures, the ladder shall be secured by welding the top support to the structure and grouting the bottom support into drilled holes in the foundation or as directed by the RPR.

### **751-3.9 Backfilling.**

**a.** After a structure has been completed, the area around it shall be backfilled with approved material, in horizontal layers not to exceed 8 inches (200 mm) in loose depth, and compacted to the density required in Item P-152. Each layer shall be deposited evenly 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.

**b.** Backfill shall not be placed against any structure until approved by the RPR. For concrete structures, approval shall not be given until the concrete has been in place seven (7) days, or until tests establish that the concrete has attained sufficient strength to withstand any pressure created by the backfill and placing methods.

**c.** Backfill shall not be measured for direct payment. Performance of this work shall be considered an obligation of the Contractor covered under the contract unit price for the structure involved.

**751-3.10 Cleaning and restoration of site.** After the backfill is completed, the Contractor shall dispose of all surplus material, dirt, and rubbish from the site. Surplus dirt may be deposited in embankments, shoulders, or as approved by the RPR. The Contractor shall restore all disturbed areas to their original condition. The Contractor shall remove all tools and equipment, leaving the entire site free, clear, and in good condition.

## **METHOD OF MEASUREMENT**

**751-4.1** Manholes, catch basins, inlets, and inspection holes shall be measured by the unit. Connecting existing pipes to new Grate Inlets or Junction Boxes shall be subsidiary to the bid item.

## **BASIS OF PAYMENT**

**751-5.1** The accepted quantities of manholes, catch basins, inlets, and inspection holes will be paid for at the contract unit price per each in place when completed. 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 such specials and connections to pipes 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.

Payment will be made under:

|                   |                            |                   |
|-------------------|----------------------------|-------------------|
| <b>Item D-751</b> | <b>5' x 5' Grate Inlet</b> | <b>– Per Each</b> |
| <b>Item D-751</b> | <b>9' x 5' Grate Inlet</b> | <b>– Per Each</b> |

## **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 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 A897 | Standard Specification for Austempered Ductile Iron Castings                             |
| ASTM C32  | Standard Specification for Sewer and Manhole Brick (Made from Clay or Shale)             |
| ASTM C144 | Standard Specification for Aggregate for Masonry Mortar                                  |
| ASTM C150 | Standard Specification for Portland Cement                                               |

|                                                                             |                                                                                          |
|-----------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| ASTM C443                                                                   | Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets.  |
| ASTM C478                                                                   | Standard Specification for Precast Reinforced Concrete Manhole Sections                  |
| ASTM C913                                                                   | Standard Specification for Precast Concrete Water and Wastewater Structures.             |
| American Association of State Highway and Transportation Officials (AASHTO) |                                                                                          |
| AASHTO M36                                                                  | Standard Specification for Corrugated Steel Pipe, Metallic-Coated, for Sewers and Drains |

**END OF ITEM D-751**

## SECTION 13

### ITEM T-904

#### SODDING

##### DESCRIPTION

**904-1.1** This item shall consist of furnishing, hauling, and placing approved live sod on prepared areas in accordance with this specification at the locations shown on the plans or as directed by the RPR.

##### MATERIALS

**904-2.1 Sod.** Sod furnished by the Contractor shall have a good cover of living or growing grass. This shall be interpreted to include grass that is seasonally dormant during the cold or dry seasons and capable of renewing growth after the dormant period. All sod shall be obtained from areas where the soil is reasonably fertile and contains a high percentage of loamy topsoil. Sod shall be cut or stripped from living, thickly matted turf relatively free of weeds or other undesirable foreign plants, large stones, roots, or other materials that might be detrimental to the development of the sod or to future maintenance. At least 70% of the plants in the cut sod shall be composed of the species stated in the special provisions, and any vegetation more than 6 inches (150 mm) in height shall be mowed to a height of 3 inches (75 mm) or less before sod is lifted. Sod, including the soil containing the roots and the plant growth showing above, shall be cut uniformly to a thickness not less than that stated in the special provisions.

**904-2.2 Lime.** Not required.

**904-2.3 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 10-20-10 commercial fertilizer and shall be spread at the rate of 8-10 lbs. per 1,000 sq/ft.

**904-2.4 Water.** The water shall be sufficiently free from oil, acid, alkali, salt, or other harmful materials that would inhibit the growth of grass. The Contractor shall be required to water sodded areas regularly until the sod has established. A watering plan shall be submitted to the Engineer and Airport.

**904-2.5 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

**904-3.1 General.** Areas to be solid, strip, or spot sodded shall be shown on the plans. Areas requiring special ground surface preparation such as tilling and those areas in a satisfactory condition that are to remain undisturbed shall also be shown on the plans.

Suitable equipment necessary for proper preparation of the ground surface and for the handling and placing of all required materials shall be on hand, in good condition, and shall be approved by the RPR before the various operations are started. The Contractor shall demonstrate to the RPR before starting the various operations that the application of required materials will be made at the specified rates.

**904-3.2 Preparing the ground surface.** After grading of areas has been completed and before applying fertilizer and limestone, areas to be sodded shall be raked or otherwise cleared of stones larger than 2 inches (50 mm) in any diameter, sticks, stumps, and other debris which might interfere with sodding, growth of grasses, or subsequent maintenance of grass-covered areas. If any damage by erosion or other causes occurs after grading of areas and before beginning the application of fertilizer and ground limestone, the Contractor shall repair such damage. This may include filling gullies, smoothing irregularities, and repairing other incidental damage.

**904-3.3 Applying fertilizer and ground limestone.** Following ground surface preparation, fertilizer shall be uniformly spread at a rate which will provide not less than the minimum quantity of each fertilizer ingredient, as stated in the special provisions. If use of ground limestone is required, it shall then be spread at a rate that will provide not less than the minimum quantity stated in the special provisions. These materials shall be incorporated into the soil to a depth of not less than 2 inches (50 mm) by discing, raking, or other suitable methods. Any stones larger than 2 inches (50 mm) in any diameter, large clods, roots, and other litter brought to the surface by this operation shall be removed.

**904-3.4 Obtaining and delivering sod.** After inspection and approval of the source of sod by the RPR, the sod shall be cut with approved sod cutters to such a thickness that after it has been transported and placed on the prepared bed, but before it has been compacted, it shall have a uniform thickness of not less than 2 inches (50 mm). Sod sections or strips shall be cut in uniform widths, not less than 10 inches (250 mm), and in lengths of not less than 18 inches (0.5 m), but of such length as may be readily lifted without breaking, tearing, or loss of soil. Where strips are required, the sod must be rolled without damage with the grass folded inside. The Contractor may be required to mow high grass before cutting sod.

The sod shall be transplanted within 24 hours from the time it is stripped, unless circumstances beyond the Contractor's control make storing necessary. In such cases, sod shall be stacked, kept moist, and protected from exposure to the air and sun and shall be kept from freezing. Sod shall be cut and moved only when the soil moisture conditions are such that favorable results can be expected. Where the soil is too dry, approval to cut sod may be granted only after it has been watered sufficiently to moisten the soil to the depth the sod is to be cut.

**904-3.5 Laying sod.** Sodding shall be performed only during the seasons when satisfactory results can be expected. Frozen sod shall not be used and sod shall not be placed upon frozen soil. Sod may be transplanted during periods of drought with the approval of the RPR, provided the sod bed is watered to moisten the soil to a depth of at least 4 inches (100 mm) immediately prior to laying the sod.

The sod shall be moist and shall be placed on a moist earth bed. Pitch forks shall not be used to handle sod, and dumping from vehicles shall not be permitted. The sod shall be carefully placed by hand, edge to edge and with staggered joints, in rows at right angles to the slopes, commencing at the base of the area to be sodded and working upward. The sod shall immediately be pressed firmly into contact with the sod bed by tamping or rolling with approved equipment to provide a true and even surface, and ensure knitting without displacement of the sod or deformation of the surfaces of sodded areas. Where the sod may be displaced during sodding operations, the workmen, when replacing it, shall work from ladders or treaded planks to prevent further displacement. Screened soil of good quality shall be used to fill all

cracks between sods. The quantity of the fill soil shall not cause smothering of the grass. Where the grades are such that the flow of water will be from paved surfaces across sodded areas, the surface of the soil in the sod after compaction shall be set approximately one inch (25 mm) below the pavement edge. Where the flow will be over the sodded areas and onto the paved surfaces around manholes and inlets, the surface of the soil in the sod after compaction shall be placed flush with pavement edges.

On slopes steeper than one (1) vertical to 2-1/2 horizontal and in v-shaped or flat-bottom ditches or gutters, the sod shall be pegged with wooden pegs not less than 12 inches (300 mm) in length and have a cross-sectional area of not less than 3/4 sq inch (18 sq mm). The pegs shall be driven flush with the surface of the sod.

**904-3.6 Watering.** Adequate water and watering equipment must be on hand before sodding begins, and sod shall be kept moist until it has become established and its continued growth assured. In all cases, watering shall be done in a manner that will avoid erosion from the application of excessive quantities and will avoid damage to the finished surface.

**904-3.7 Establishing turf.** The Contractor shall provide general care for the sodded areas as soon as the sod has been laid and shall continue until final inspection and acceptance of the work. All sodded areas shall be protected against traffic or other use by warning signs or barricades approved by the RPR. The Contractor shall mow the sodded areas with approved mowing equipment, depending upon climatic and growth conditions and the needs for mowing specific areas. Weeds or other undesirable vegetation shall be mowed and the clippings raked and removed from the area.

**904-3.8 Repairing.** When the surface has become gullied or otherwise damaged during the period covered by this contract, the affected areas shall be repaired to re-establish the grade and the condition of the soil, as directed by the RPR, and shall then be sodded as specified in paragraph 904-3.5.

## METHOD OF MEASUREMENT

**904-4.1** This item shall be measured on the basis of the area in square yards of the surface covered with sod and accepted.

## BASIS OF PAYMENT

**904-5.1** This item will be paid for on the basis of the contract unit price per square yard for sodding, which price shall be full compensation for all labor, equipment, material, staking, and incidentals necessary to satisfactorily complete the items as specified.

Payment will be made under:

|                   |                |                          |
|-------------------|----------------|--------------------------|
| <b>Item T-904</b> | <b>Sodding</b> | <b>– Per Square Yard</b> |
|-------------------|----------------|--------------------------|

## 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 |
|-----------|----------------------------------------------------------|

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-904**

**ADVISORY CIRCULAR**

**150/5370-2**

**OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION**

**INCORPORATED BY REFERENCE**

The Standards for Operational Safety on Airports During Construction AC can be found at [faa.gov](https://www.faa.gov) or at the address below:

[https://www.faa.gov/airports/resources/advisory\\_circulars/index.cfm/go/document.current/documentnumber/150\\_5370-2](https://www.faa.gov/airports/resources/advisory_circulars/index.cfm/go/document.current/documentnumber/150_5370-2)

Page Intentionally Left Blank

## **Stormwater Pollution Prevention Plan**

### **for:**

Shawnee Regional Airport  
Base Bid: Improve Airport Drainage

2202 Airport Dr  
Shawnee, Oklahoma 74804  
405.878.1633

### **Operator(s):**

City of Shawnee, Oklahoma  
Bonnie Wilson  
16 W. 9<sup>th</sup> St  
Shawnee, Oklahoma 74804  
405.878.1625  
[bonnie.wilson@shawneeok.org](mailto:bonnie.wilson@shawneeok.org)

### **SWPPP Contact(s):**

Lochner  
Blake Mason  
701 Cedar Lake Blvd., Suite 230  
Oklahoma City, OK 73114  
405.418.5881  
[bmason@hwlochner.com](mailto:bmason@hwlochner.com)

### **SWPPP Preparation Date:**

April 19, 2023

### **Estimated Project Dates:**

**Starting Date: July 15, 2023**  
**Ending Date: December 15, 2023**

---

**Table of Contents**

---

|                   |                                                                                      |           |
|-------------------|--------------------------------------------------------------------------------------|-----------|
| <b>SECTION 1:</b> | <b>SITE EVALUATION, ASSESSMENT AND PLANNING.....</b>                                 | <b>1</b>  |
| 1.1               | NATURE AND SEQUENCE OF CONSTRUCTION ACTIVITY .....                                   | 1         |
| 1.2               | CONSTRUCTION ACTIVITY .....                                                          | 1         |
| 1.3               | CONSTRUCTION REQUIREMENTS .....                                                      | 1         |
| 1.4               | SOILS, SLOPES, VEGETATION, AND CURRENT DRAINAGE PATTERNS .....                       | 2         |
| 1.5               | CONSTRUCTION SITE ESTIMATES .....                                                    | 3         |
| 1.6               | SITE FEATURES AND UNIQUE FEATURES TO BE PROTECTED.....                               | 3         |
| 1.7               | POTENTIAL SOURCES OF POLLUTION.....                                                  | 3         |
| 1.8               | ENDANGERED SPECIES CERTIFICATION .....                                               | 4         |
| 1.9               | HISTORIC PRESERVATION .....                                                          | 4         |
| 1.10              | MAPS.....                                                                            | 4         |
| <b>SECTION 2:</b> | <b>EROSION AND SEDIMENT CONTROL BMPS .....</b>                                       | <b>5</b>  |
| 2.1               | TEMPORARY SILT FENCES .....                                                          | 5         |
| 2.2               | STRAW WATTLES.....                                                                   | 5         |
| 2.3               | EROSION CONTROL BLANKET.....                                                         | 6         |
| 2.4               | PROJECT INFORMATION: .....                                                           | 6         |
| 2.4.1             | <i>Minimize Disturbed Area and Protect Natural Features and Soil: .....</i>          | <i>6</i>  |
| 2.4.2             | <i>Control of Stormwater Flowing Onto and Through the Project: .....</i>             | <i>6</i>  |
| 2.4.3             | <i>Designate Washout Areas:.....</i>                                                 | <i>6</i>  |
| 2.4.4             | <i>Stabilize Soils:.....</i>                                                         | <i>6</i>  |
| 2.4.5             | <i>Protect Storm Drain Inlets: .....</i>                                             | <i>7</i>  |
| 2.4.6             | <i>Retain Sediment On-Site and Control Dewatering Practices:.....</i>                | <i>7</i>  |
| 2.4.7             | <i>Establish Stabilized Construction Exits:.....</i>                                 | <i>7</i>  |
| 2.4.8             | <i>Additional BMPs: .....</i>                                                        | <i>7</i>  |
| <b>SECTION 3:</b> | <b>HOUSEKEEPING BMPS.....</b>                                                        | <b>8</b>  |
| 3.1               | HOUSEKEEPING BMPS .....                                                              | 8         |
| 3.1.1             | <i>Material Handling and Waste Management:.....</i>                                  | <i>8</i>  |
| 3.1.2             | <i>Building Material Staging Areas:.....</i>                                         | <i>8</i>  |
| 3.1.3             | <i>Designate Washout Areas:.....</i>                                                 | <i>8</i>  |
| 3.1.4             | <i>Establish proper equipment/vehicle fueling and maintenance practices: .....</i>   | <i>9</i>  |
| 3.1.5             | <i>Allowable non-stormwater discharges and control equipment/vehicle washing: ..</i> | <i>9</i>  |
| 3.1.6             | <i>Spill Prevention and Control Plan: .....</i>                                      | <i>9</i>  |
| 3.1.7             | <i>Any Additional BMPs: .....</i>                                                    | <i>9</i>  |
| 3.2               | ALLOWABLE NON-STORMWATER DISCHARGE MANAGEMENT.....                                   | 9         |
| <b>SECTION 4:</b> | <b>POST-CONSTRUCTION BMPS.....</b>                                                   | <b>10</b> |
| <b>SECTION 5:</b> | <b>INSPECTION AND MAINTENANCE .....</b>                                              | <b>11</b> |
| 5.1               | INSPECTIONS .....                                                                    | 11        |
| 5.1.1             | <i>Inspection Personnel: .....</i>                                                   | <i>11</i> |

# STORMWATER POLLUTION PREVENTION PLAN

*Shawnee Regional Airport (SNL)*

*Improve Airport Drainage*

|                   |                                            |           |
|-------------------|--------------------------------------------|-----------|
| 5.1.2             | Inspection Schedule and Procedures:.....   | 11        |
| 5.1.3             | Corrective action: .....                   | 11        |
| 5.1.4             | Inspection Report Form:.....               | 11        |
| 5.2               | MAINTENANCE OF CONTROLS .....              | 11        |
| 5.3               | CORRECTIVE ACTION LOG.....                 | 11        |
| <b>SECTION 6:</b> | <b>RECORD KEEPING AND TRAINING .....</b>   | <b>12</b> |
| 6.1               | RECORDKEEPING.....                         | 12        |
| 6.2               | LOG OF CHANGES TO THE SWPPP.....           | 12        |
| 6.3               | TRAINING .....                             | 12        |
| <b>SECTION 7:</b> | <b>FINAL STABILIZATION.....</b>            | <b>12</b> |
| <b>SECTION 8:</b> | <b>CERTIFICATION AND NOTIFICATION.....</b> | <b>12</b> |

## APPENDICES

|                  |                                                     |
|------------------|-----------------------------------------------------|
| APPENDIX A.....  | General Location Map                                |
| APPENDIX B.....  | Project Site and Topographic Maps, and Grading Plan |
| APPENDIX C.....  | Inspection Report Form                              |
| APPENDIX D.....  | Corrective Action Log                               |
| APPENDIX E ..... | Log of Changes and Updates to SWPPP                 |

## **SECTION 1: SITE EVALUATION, ASSESSMENT AND PLANNING**

### **1.1 Nature and Sequence of Construction Activity**

|                      |                                |
|----------------------|--------------------------------|
| Airport Name         | Shawnee Regional Airport (SNL) |
| Address              | 2202 Airport Dr                |
| City, State, and Zip | Shawnee, Oklahoma 74804        |

### **1.2 Construction Activity**

The construction activity to be covered by this SWPPP is the improvement of airport drainage (Base Bid). Various drainage structures will be removed/replaced. General grading and pipe cleaning will occur to ensure proper drainage patterns throughout the airport property. A total project land disturbance has been calculated to be 87 acres.

Estimated Project Start Date: **07/15/2023**

Estimated Project Completion Date: **12/15/2023**

### **1.3 Construction Requirements**

Provisions of the federal clean water act and related state rules and regulations require stormwater permits where construction activities disturb greater than one acre over the life of a project as part of a common plan or sale. The **City of Shawnee, Oklahoma (City)** has a general permit, obtained from the Oklahoma Department of Environmental Quality (ODEQ), which allows the **City** to accomplish airport construction activities. To fulfill the general permit conditions, the **City** will employ best management practices outlined in this Pollution Prevention Plan and by reference the following documents: “Storm Water Management for Construction Activities: Developing Pollution Prevention Plans and Best Management Practices” (EPA Document 832-R-92-005).

The permit stipulates that the **City** and its contractors will follow certain erosion control guidelines and install temporary erosion control measures. This permit applies only to land disturbance activities associated with the **City’s** airport construction.

The engineer may limit the surface area of erodible earth material exposed by clearing and grubbing, or excavation, borrow, and fill operations, and may direct the contractor to provide immediate permanent or temporary erosion control measures to prevent contamination of adjacent streams or other watercourses, wetlands, lakes, ponds, and other water impoundments. Such work may involve the construction of temporary berms, dikes, dams, sediment basins, slope drains, and the use of temporary seeding and mulching, or other erosion control devices or methods as necessary.

The contractor shall be required to incorporate all permanent erosion control measures into the project at the earliest practicable time. Temporary erosion control measures shall be used to correct conditions that develop during construction that were not foreseen during the design stage. Temporary erosion control shall also be used when needed prior to installation of permanent erosion control measures or when needed temporarily to control erosion that develops during normal construction practices, but are not associated with permanent control measures on the project.

---

## STORMWATER POLLUTION PREVENTION PLAN

---

*Shawnee Regional Airport (SNL)  
Improve Airport Drainage*

The surface area of erodible earth material exposed at one time by clearing and grubbing, by excavating, by fill, or by borrow, shall be minimized to prevent runoff. No more than 435,000 square feet may be exposed within the same subdrainage without installation of erosion controls. The total area cleared at one time for the entire project shall not exceed 750,000 square feet without written approval of the engineer. With written authorization, the engineer may increase or decrease the amount of surface area of erodible earth material to be exposed at one time as determined by an analysis of project conditions.

The engineer will limit the area of clearing and grubbing, excavation, borrow, and embankment operations in progress commensurate with the contractor's ability to keep the finish grading, mulching, seeding, and other erosion control measures current. Should seasonal limitations make such coordination unrealistic, temporary erosion control measures shall be implemented immediately.

Unless otherwise approved, construction operations in rivers, streams, wetlands, and impoundments shall be restricted to those areas, which must be entered for the construction of temporary or permanent structures. Rivers, streams, wetlands, and impoundments shall be promptly cleared of all debris or other obstructions placed therein or caused by the construction operations.

Frequent fording of live streams or wetlands with construction equipment is not permitted. Temporary stream crossings or other structures shall be used wherever an appreciable number of stream crossings are necessary. All temporary fills and structures placed in streams, wetlands, or impoundments will be removed and the site returned to natural or intended contours prior to completion of construction. Unless otherwise approved, mechanized equipment shall not be operated in live streams except as may be required to construct channel changes and temporary or permanent structures. If a Section 404 permit is applicable for a project, its requirements and/or conditions shall be adhered to.

Site-specific erosion controls above and beyond project specifications shall be discussed with the contractor at a preconstruction conference. Special conditions may be developed that can include limitations on the amount of surface area which can remain unprotected at one time or special water quality or stream protections requirements.

In the event of a 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.

### **1.4 Soils, Slopes, Vegetation, and Current Drainage Patterns**

Soil type(s):

- Soils present at the airport consist of Aydelotte loam, 3 to 5 percent slopes, eroded.

Slopes :

- Existing slopes range from 3 to 5 percent; minor changes in slope are anticipated to occur as a result of the proposed project.

---

## STORMWATER POLLUTION PREVENTION PLAN

---

*Shawnee Regional Airport (SNL)  
Improve Airport Drainage*

### Drainage Patterns:

The following is a **legal description of the outfalls** that relate to this project:

|                         |                                                                                                                         |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------|
| <b>Outfall 001</b>      | NW ¼ SW ¼ NW ¼ Section 12 Township 10, Range 3E, Pottawatomie County.                                                   |
| <b>Outfall 002</b>      | NW ¼ SW ¼ NW ¼ Section 12 Township 10, Range 3E, Pottawatomie County.                                                   |
| <b>Outfall 003</b>      | NW ¼ SW ¼ NW ¼ Section 12 Township 10, Range 3E, Pottawatomie County.                                                   |
| <b>Receiving Stream</b> | Unnamed intermittent tributary to North Canadian River, located approximately 1.19 miles southeast of the project area. |

### Vegetation:

- The area of land disturbance will be seeded at the conclusion of construction.

## 1.5 Construction Site Estimates

The following are estimates of the construction site:

|                                                 |           |
|-------------------------------------------------|-----------|
| Construction Site Area to be disturbed:         | 3 acres   |
| Total Project Area:                             | 520 acres |
| Percentage impervious area before construction: | 16%       |
| Runoff coefficient before construction:         | 0.12      |
| Percentage impervious area after construction:  | 16%       |
| Runoff coefficient after construction:          | 0.12      |

## 1.6 Site Features and Unique Features to be Protected

An unnamed intermittent tributary to North Canadian River is located within the proposed project area. This unnamed intermittent tributary is conveyed beneath the runway via a 60" RCP pipe. This structure will not be modified for this project. This tributary will be protected through the use of straw wattles and silt fence which is further described in Section 2.1

## 1.7 Potential Sources of Pollution

Potentials sources of sediment to stormwater runoff:

- Sediment from site during construction activities.
- Washing of construction equipment.

Potential pollutants and sources, other than sediment, to stormwater runoff:

- Accidental release from vehicles/equipment, fuels, lubricants, other fluids.

## **1.8 Endangered Species Certification**

According to the U.S. Fish and Wildlife Service (USFWS), the following are federally-listed threatened, endangered, or candidate species in Pottawatomie County:

- American burying beetle (*Nicrophorus americanus*) - Endangered
- Least tern (*Sterna antillarum*) - Endangered
- Piping plover (*Charadrius melodus*) - Threatened
- Whooping crane (*Grus americana*) - Endangered
- Red knot (*Calidris canutus rufa*) – Proposed Threatened

The American burying beetle is not likely to be located within the project area, as it located in an area that is regularly mowed and sprayed with pesticides. The least tern, piping plover, and whooping crane utilize sparsely vegetated sandbars for foraging and nesting; this habitat is not present in the vicinity of the project area. The red knot forages in water bodies rich with food sources, which are not located within the vicinity of the proposed project.

## **1.9 Historic Preservation**

There are no historic structures or sites within the project area; the project site is entirely within airport property boundaries.

## **1.10 Maps**

- General Location Map is attached as Appendix A.
- A Site Map and Topographic Map showing the project area and its outfalls are attached as Appendix B.

## **SECTION 2: EROSION AND SEDIMENT CONTROL BMPs**

### **2.1 Temporary Silt Fences**

Temporary silt fences can be used as a means of controlling pollution and erosion by obstructing the flow of water allowing deposition of sediment and/or diversion of water. Temporary silt fences are typically used at the bottom of embankment slopes to divert runoff from sheet flow and trap sediment, and on the lower side of the cleared areas to catch sediment from sheet flow. Temporary silt fences are most effective in areas where there is overland flow (runoff that flows over the surface of the ground as a thin, even layer). It is not effective in areas where there is a large volume of runoff.

Sediment deposits shall be removed and disposed of when the deposit approaches one-half the height of the fence or sooner. Silt fences shall be inspected immediately after each rainfall and at least daily during prolonged rainfall. Any deficiencies shall be immediately corrected. A daily review of the location of the temporary silt fence should be made in areas where construction activities have changed the natural contour and drainage runoff to ensure that the silt fences are properly located for effectiveness. Where deficiencies exist, additional fences shall be installed as approved or directed by the engineer.

Temporary silt fences shall remain in place until the engineer directs that they be removed. Upon removal, the contractor shall remove and dispose of any excess silt accumulations, grade and dress the area to the satisfaction of the engineer, and establish vegetation on all bare areas.

Use of a geotextile barrier fence as a temporary silt fence consists of furnishing, installing, maintaining, and removing a geotextile barrier fence designed to remove suspended particles from water passing through the fence.

There are several construction requirements to use geotextile barrier fabric for silt fences. Fence construction shall be adequate to handle the stress from hydraulic and sediment loading. Twelve inches of geotextile fabric shall be buried at the bottom of the fence. The trench shall be backfilled and the soil compacted over of the buried geotextile fabric. The geotextile fabric shall be spliced together as indicated on the standard drawings.

Post spacing shall not exceed 10 feet for wire support fence installations or 5 feet for self-supported installations. Posts shall be driven a minimum of 24 inches into the ground. Where rock is encountered, posts shall be installed in a manner approved by the engineer. Closer spacing, greater embedment depth and/or wider posts shall be used as necessary in low areas and soft or swampy ground to ensure adequate resistance to applied loads.

When support fence is used, the mesh shall be fastened securely to the up-slope side of the post. The mesh shall extend into the trench a minimum of 2 inches and extend a maximum of 36 inches above the original ground surface. When self-supported fence is used, the geotextile fabric shall be securely fastened to fence posts.

### **2.2 Straw Wattles**

According to the USDA, straw wattles, also known as straw worms, bio-logs, straw noodles, or straw tubes are man-made cylinders of compressed, weed free straw (wheat or rice), 8 to 12 inches in diameter and 20 to 25 feet long. They are encased in jute, nylon, or other photo degradable materials, and have an average weight of 35 pounds. They are installed in a shallow trench forming a continuous barrier along the contour (across the slope) to intercept water running down a slope.

Straw wattles are used on slopes that have less than 30% of the original ground cover remaining and/or are at risk for increased erosion. They can be installed on slopes up to 70 percent; however, their effect diminishes greatly on slopes steeper than 50 percent. Soils can be shallow, but not less than about 8 inches. Straw wattles increase infiltration, add roughness, reduce erosion, and help retain eroded soil on the slope. Straw wattles should be effective for a period of one to two years, providing short-term protection on slopes where permanent vegetation will be established to provide long term erosion control. Contour straw wattles accomplish the same treatment as log terraces, but require less skilled labor to install and can be placed on the slope more effectively. Straw wattles should not be placed across drainage swales and channels with more than 2 acres of contributing drainage area because they are not sturdy enough to resist the forces of concentrated flows.

### **2.3 Erosion Control Blanket**

Erosion control blankets are usually woven from a chosen material and are meant to slow down the speed at which water moves across the surface. Erosion control blankets are designed to hold seed and soil in place, protecting emerging seedlings and accelerating vegetation growth until it become robust enough to maintain long-term erosion protection by itself.

### **2.4 Project Information:**

#### ***2.4.1 Minimize Disturbed Area and Protect Natural Features and Soil:***

Disturbance will be limited to the area identified in the project plans and specifications. Silt fence will be installed to control sediment in stormwater discharges originating from the construction site and/or staging area. Please reference the project plans and specifications for detailed depictions of the following Best Management Practices (BMPs).

#### ***2.4.2 Control of Stormwater Flowing Onto and Through the Project:***

- **BMP Description:** Silt fence will be utilized for erosion control during construction.
- **Installation Schedule:** BMPs will be in place before construction operations begin.
- **Maintenance and Inspection:** Inspection to verify proper maintenance and repair of erosion control measures. Additionally, inspection of these BMPs will occur weekly and within 24 hours after a ½ inch or greater storm event.
- **Responsible Staff:** Contractor Personnel.

#### ***2.4.3 Designate Washout Areas:***

- **BMP Description:** No activities of this nature are necessary, or allowed on this site.
- **Responsible Staff:** (Ensure no activities) Contractor Personnel.

#### ***2.4.4 Stabilize Soils:***

- **BMP Description:** Permanent re-seeding or sodding of disturbed areas. Stabilize areas where construction activities are complete or work has ceased (or is expected to cease) for more than 14 days.
- **Installation Schedule:** Within 7 days of completion.
- **Maintenance and Inspection:** Verify seed application and water seed and sod until established.
- **Responsible Staff:** Contractor Personnel.

### ***2.4.5 Protect Storm Drain Inlets:***

- **BMP Description:** Temporary silt fences will be utilized for erosion control during construction.

### ***2.4.6 Retain Sediment On-Site and Control Dewatering Practices:***

- **BMP Description:** Dewatering shall not be performed. Standing water will be allowed to infiltrate/evaporate before resuming work.
- **Installation Schedule:** Not applicable.
- **Maintenance and Inspection:** Weekly formal inspection and daily inspection after disturbance activities.
- **Responsible Staff:** Contractor Personnel.

### ***2.4.7 Establish Stabilized Construction Exits:***

- **BMP Description:** Entry and exit of the project site will be through a contractor haul route as shown in the project plans.
- **Installation Schedule:** Onset of construction activities.
- **Maintenance and Inspection:** Administrative Control, enforced
- **Responsible Staff:** Contractor Personnel.

### ***2.4.8 Additional BMPs:***

- **BMP Description: Vehicle Track-out:** strategies to control fugitive dust emissions from vehicle track-out onto paved public roadways include, but not limited to: prompt removal of mud, dirt, or similar debris from the affected surface of the paved public roadway; water flush, and/or vacuum sweep the affected surface; runoff shall be controlled so it does not saturate the surface of the adjacent unpaved road; if runoff is not, or cannot be controlled, gravel shall be applied to the surface of any adjacent unpaved road over an area sufficient to control track-out.

- **Installation Schedule:** Onset of construction activities.
- **Maintenance and Inspection:** Inspection to verify proper maintenance and repair of vehicle track-out control measures.
- **Responsible Staff:** Contractor Personnel.

## SECTION 3: HOUSEKEEPING BMPs

### 3.1 Housekeeping BMPs

#### *3.1.1 Material Handling and Waste Management:*

- **BMP Description:** Restrict materials. No hazardous wastes will be generated or stored on site. No materials handling will occur on site except for sand, mulch and grass seed. All removed material to be hauled off-site, unless otherwise directed by the Authority. The contractor is responsible for disposing of all solid waste from the site in accordance with County and State law. Dumpsters or other collection facilities must be provided as needed. Solid waste may not be buried on the site.
- **Installation Schedule:** Existing, continuous.
- **Maintenance and Inspection:** Daily after work, weekly with site formal inspection.
- **Responsible Staff:** Contractor Personnel.

#### *3.1.2 Building Material Staging Areas:*

- **BMP Description:** Staging of construction equipment and bulk materials will occur north of the project area. Any bulk materials in the staging area shall be covered to minimize exposure of the materials to stormwater.
- **Installation Schedule:** Before construction activities begin.
- **Maintenance and Inspection:** Perimeter controls, containment structures, covers, and liners, as needed, will be installed, repaired or replaced when necessary to maintain proper function.
- **Responsible Staff:** Contractor Personnel.

#### *3.1.3 Designate Washout Areas:*

- **BMP Description:** No wash out on site.
- **Installation Schedule:** Existing.

- **Maintenance and Inspection:** Daily enforcement.
- **Responsible Staff:** Contractor Personnel.

***3.1.4 Establish proper equipment/vehicle fueling and maintenance practices:***

- **BMP Description:** Fueling and vehicle maintenance will not be conducted in the disturbance area.
- **Installation Schedule:** Not Applicable.
- **Maintenance and Inspection:** Enforcement Daily.
- **Responsible Staff:** Contractor Personnel.

***3.1.5 Allowable non-stormwater discharges and control equipment/vehicle washing:***

- **BMP Description:** No allowable non-stormwater discharges anticipated.
- **Installation Schedule:** Not Applicable.
- **Maintenance and Inspection:** Not Applicable.
- **Responsible Staff:** Not Applicable.

***3.1.6 Spill Prevention and Control Plan:***

Refer to existing Shawnee Regional Airport Spill Reporting and Response procedures.

***3.1.7 Any Additional BMPs:***

- **BMP Description: Sanitary waste:** temporary sanitation facilities (portable toilets) will be provided at the site throughout the construction phase.
- **Installation Schedule:** Prior to construction
- **Maintenance and Inspection:** As needed.
- **Responsible Staff:** Contractor.

**3.2 Allowable Non-Stormwater Discharge Management**

No allowable non-stormwater discharges are anticipated on this project site.

**SECTION 4: POST-CONSTRUCTION BMPs**

- **BMP Description:** Permanent seeding or sodding
- **Installation Schedule:** Upon completion of construction activities.
- **Maintenance and Inspection:** Formal weekly inspection until completion.
- **Responsible Staff:** Contractor Personnel.

## SECTION 5: INSPECTION AND MAINTENANCE

### 5.1 Inspections

#### ***5.1.1 Inspection Personnel:***

- Contractor Personnel.

#### ***5.1.2 Inspection Schedule and Procedures:***

- Inspections shall be conducted weekly using formal inspection form. In addition, a formal inspection shall be conducted not later than 24 hours after any significant rainfall event (0.50 inch or more in 24 hour period). A rainfall initiated inspection may satisfy the weekly formal inspection requirement.

#### ***5.1.3 Corrective action:***

- Corrective actions for deficiencies shall be implemented as soon as practicable following identification. Any corrective action that cannot be accomplished immediately (day of discovery) shall be described on the "Corrective Action Log" to include why the corrective action was delayed.

#### ***5.1.4 Inspection Report Form:***

- The inspection report form is attached as Appendix C.

### 5.2 Maintenance of Controls

- **Maintenance Procedures:** No planned maintenance of BMPs other than as indicated in the Erosion and Sediment Control BMPs descriptions are scheduled.

### 5.3 Corrective Action Log

All corrective actions for any condition not in compliance with this Plan and identified during inspections or during work activities shall be entered into the "Corrective Action Log" attached as Appendix D to this document.

## **SECTION 6: RECORD KEEPING AND TRAINING**

### **6.1 Recordkeeping**

The following list of records shall be available for inspectors to review:

- Dates of construction activity.
- This Storm Water Pollution Prevention Plan, including formal inspection reports.

### **6.2 Log of Changes to the SWPPP**

- All changes to the SWPPP shall be listed in the "SWPPP Change Log" attached to this Plan as Appendix E.

### **6.3 Training**

Training to be conducted:

- Detailed training for contractor personnel with specific stormwater responsibilities under this plan.

## **SECTION 7: FINAL STABILIZATION**

- Final Stabilization shall be accomplished by reseeding and establishment of vegetation within the disturbed areas at the project site. Determination of this status will be documented and added to this Plan in addition to notification of termination of the Permit.

## **SECTION 8: CERTIFICATION AND NOTIFICATION**

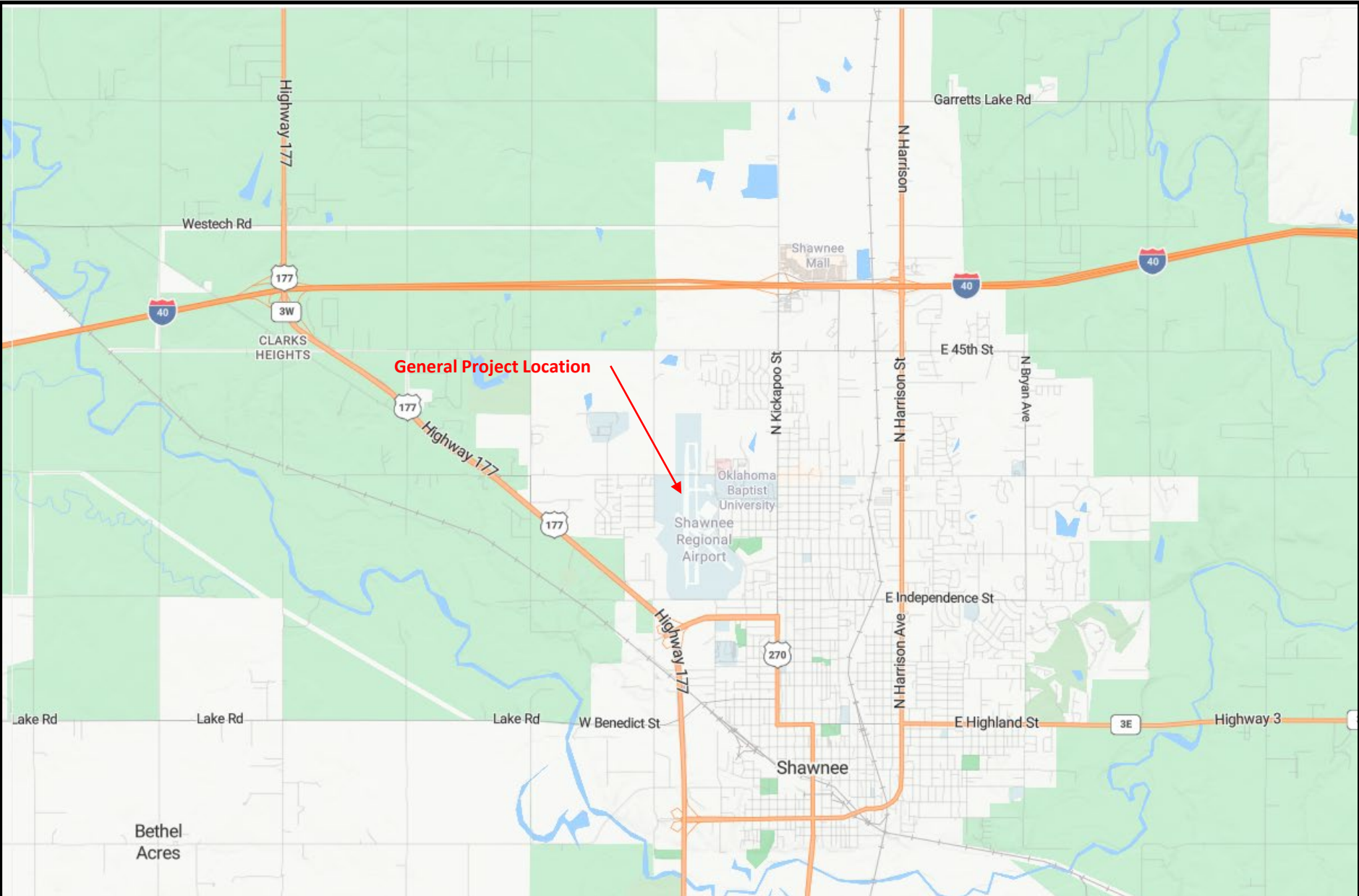
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name: Patrick Barnas Title: Project Manager

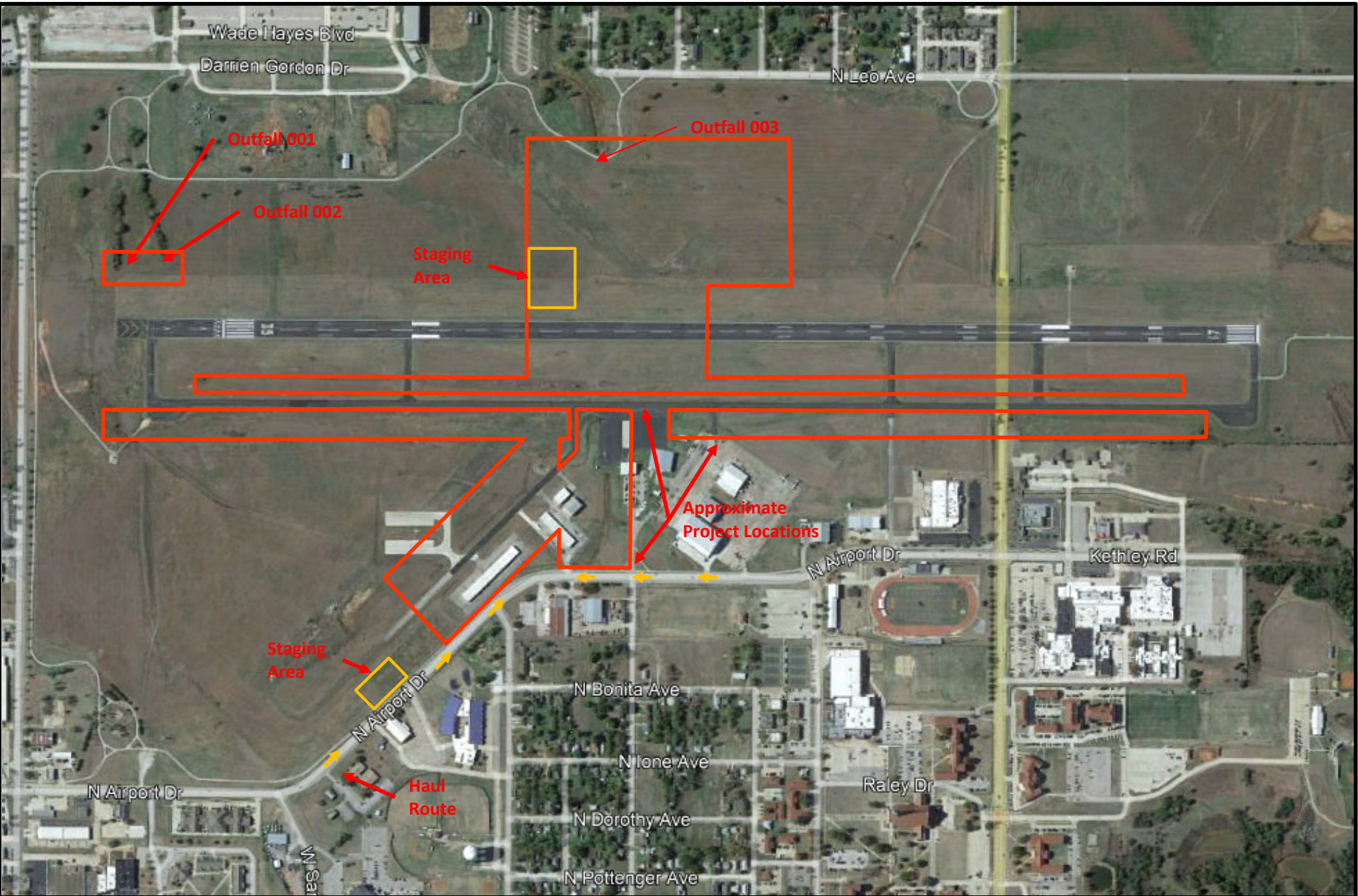
Signature: \_\_\_\_\_ Date: April 19, 2023

## **APPENDICES**

**APPENDIX A: GENERAL LOCATION MAP**



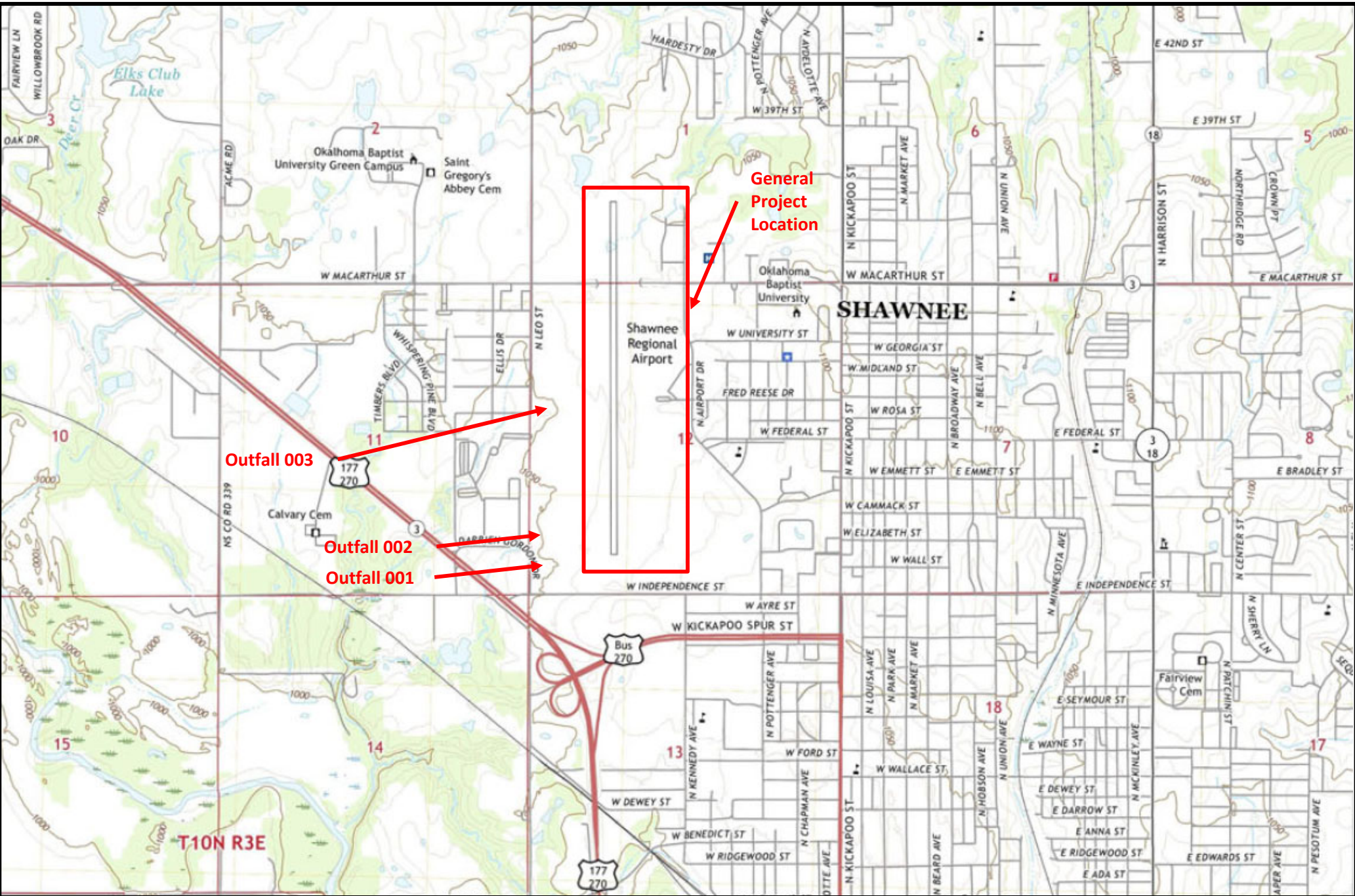
**APPENDIX B: PROJECT SITE AND TOPOGRAPHIC MAPS, AND  
GRADING PLAN**



**Project Site Map**  
**Shawnee Regional Airport (SNL)**  
**Stormwater Pollution Prevention Plan (SWPPP)**  
**Source: Bing Maps. Not to Scale.**

**LOCHNER**



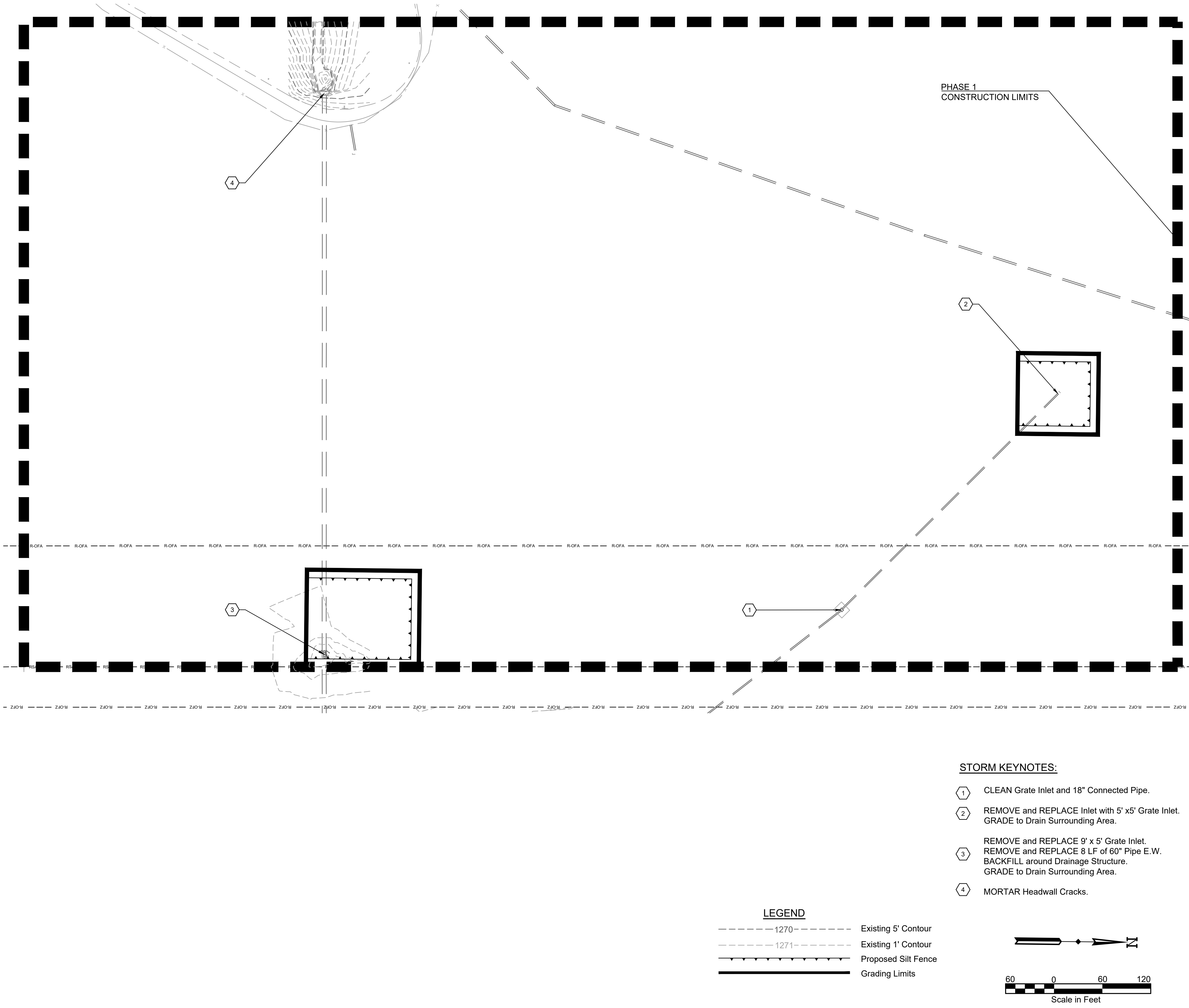


**LOCHNER**

USGS Topographic Map  
Shawnee Regional Airport (SNL)  
Stormwater Pollution Prevention Plan (SWPPP)  
Source: 2022 7.5-Minute USGS Map, Shawnee Quad Scale: 1:24,000



Drawing Name: C:\Users\bmason\OneDrive - hwlochner.com\Desktop\Shawnee\03 - ACAD\PRODUCTION DRAWINGS\15710 - STORM.dwg Apr 16, 2023 - 5:48pm  
Plot Style: ae.ctb  
Last Saved By: bmason 2023/04/16



| Runway 17-35 Safety Dimensions     |                 |
|------------------------------------|-----------------|
| Runway Safety Area (RSA):          | 7,999.5' x 500' |
| Runway Object Free Area (R-OFA):   | 7,999.5' x 800' |
| Runway Obstacle Free Zone (R-OFZ): | 6,399.5' x 400' |
| Taxiway Safety Dimension           |                 |
| Taxiway Safety Area (TSA):         | 79' Wide        |
| Taxiway Object Free Area (T-OFA):  | 124' Wide       |

PHASE 1  
CONSTRUCTION LIMITS

#### STORM SEWER NOTES

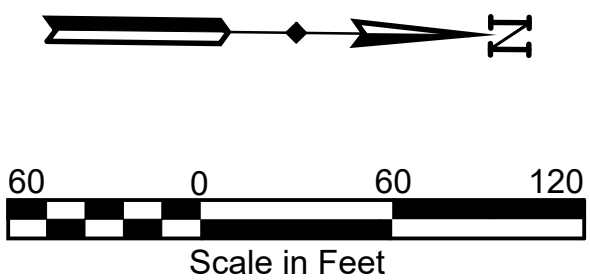
1. All pipes and drainage structures that require cleaning are identified in the plans.
2. They shall be cleaned by flushing, rodding, or whatever means are necessary to provide unobstructed drainage.
3. All catch basin sumps, manholes, inlet and outlet Structures, and debris racks shall also be freed of all dirt, rock, and debris.
4. Existing drainage facilities shall be cleaned as a first order of Work to enhance natural drainage off and through the project.
5. They shall be kept clean throughout the life of the project and be clean upon final acceptance of the Work.
6. Structures specifically noted in the Contract that are suspected to contain contaminated sediment shall be disposed of at a licensed disposal facility.
7. While performing the Work, if drainage water and/or soil appear oily, exhibit an unusual color or odor, or if staining or corrosion is observed, the Contractor shall stop work and immediately notify the Engineer.
8. If sediment and water from structures does not meet the conditions described in 6 or 7 above, material may be placed in an upland area with no possibility of surface runoff to waters of the State, including wetlands.
9. To prevent future blockages and damage, storm pipes require regular maintenance. This includes activities such as removing debris and sediment from inlets, ensuring that stormwater flows into the pipes freely, and inspecting the pipes periodically to identify any potential problems.

#### STORM KEYNOTES:

- 1 CLEAN Grate Inlet and 18" Connected Pipe.
- 2 REMOVE and REPLACE Inlet with 5' x 5' Grate Inlet. GRADE to Drain Surrounding Area.
- 3 REMOVE and REPLACE 9' x 5' Grate Inlet. REMOVE and REPLACE 8 LF of 60" Pipe E.W. BACKFILL around Drainage Structure. GRADE to Drain Surrounding Area.
- 4 MORTAR Headwall Cracks.

#### LEGEND

- 1270 ----- Existing 5' Contour
- 1271 ----- Existing 1' Contour
- Proposed Silt Fence
- Grading Limits



This document is preliminary in nature and is not a final signed and sealed document.

**LOCHNER**

701 Cedar Lake Blvd. | Suite 230 | Oklahoma City, Oklahoma 73114  
P 405.748.6651 | www.hwlochner.com

CITY OF SHAWNEE, OKLAHOMA

SHAWNEE REGIONAL AIRPORT

SHAWNEE, OKLAHOMA

|                             |                    |
|-----------------------------|--------------------|
| PROJECT NO.<br>15710 - TO#3 |                    |
| DRAWN BY<br>AM              | DATE<br>12/20/2022 |
| CHECKED BY<br>PJB           | DATE<br>1/31/2023  |
| DESIGNED BY<br>BM           | DATE<br>3/31/2023  |
| REVISIONS                   | DATE               |

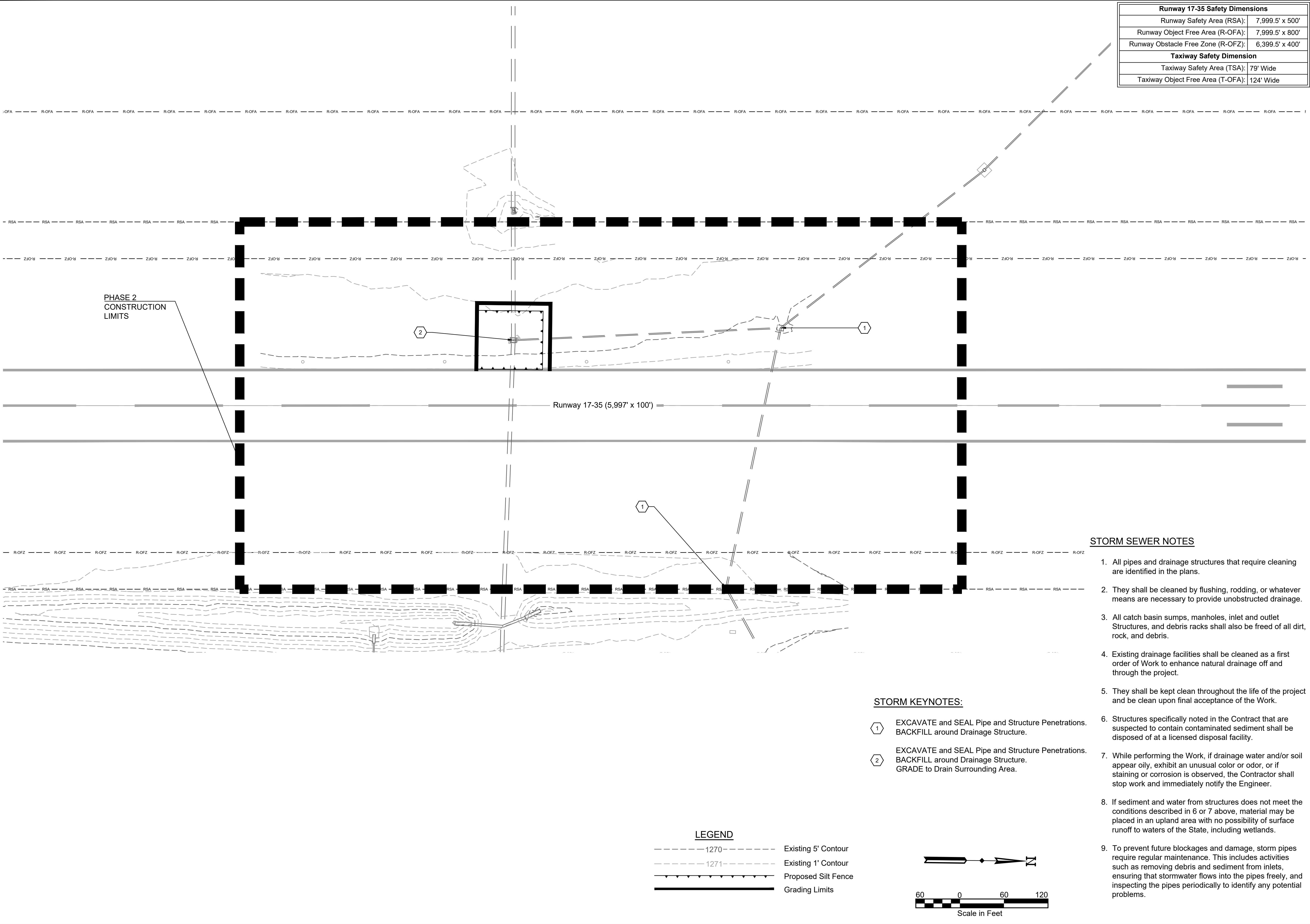
STORM AND GRADING PLAN  
(PHASE 1)

14

Plot Style: ae.ctb

Last Saved By: brason 2023/04/16

Drawing Name: C:\Users\brason\OneDrive - hwlochner.com\Desktop\Shawnee\03 - ACAD\PRODUCTION DRAWINGS\15710 - STORM.dwg Apr 16, 2023 - 5:48pm

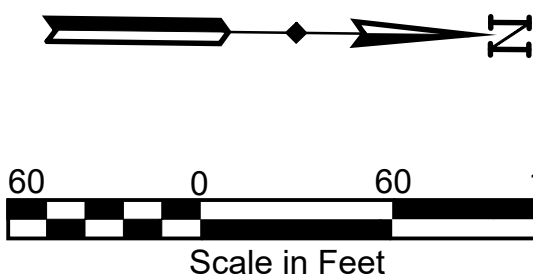


PHASE 2  
CONSTRUCTION  
LIMITS

Runway 17-35 (5,997' x 100')

LEGEND

- Existing 5' Contour
- Existing 1' Contour
- Proposed Silt Fence
- Grading Limits



STORM SEWER NOTES

- All pipes and drainage structures that require cleaning are identified in the plans.
- They shall be cleaned by flushing, rodding, or whatever means are necessary to provide unobstructed drainage.
- All catch basin sumps, manholes, inlet and outlet Structures, and debris racks shall also be freed of all dirt, rock, and debris.
- Existing drainage facilities shall be cleaned as a first order of Work to enhance natural drainage off and through the project.
- They shall be kept clean throughout the life of the project and be clean upon final acceptance of the Work.
- Structures specifically noted in the Contract that are suspected to contain contaminated sediment shall be disposed of at a licensed disposal facility.
- While performing the Work, if drainage water and/or soil appear oily, exhibit an unusual color or odor, or if staining or corrosion is observed, the Contractor shall stop work and immediately notify the Engineer.
- If sediment and water from structures does not meet the conditions described in 6 or 7 above, material may be placed in an upland area with no possibility of surface runoff to waters of the State, including wetlands.
- To prevent future blockages and damage, storm pipes require regular maintenance. This includes activities such as removing debris and sediment from inlets, ensuring that stormwater flows into the pipes freely, and inspecting the pipes periodically to identify any potential problems.

| Runway 17-35 Safety Dimensions    |                 |
|-----------------------------------|-----------------|
| Runway Safety Area (RSA):         | 7,999.5' x 500' |
| Runway Object Free Area (ROFA):   | 7,999.5' x 800' |
| Runway Obstacle Free Zone (ROFZ): | 6,399.5' x 400' |
| Taxiway Safety Dimension          |                 |
| Taxiway Safety Area (TSA):        | 79' Wide        |
| Taxiway Object Free Area (TOFA):  | 124' Wide       |

This document is preliminary in nature and is not a final signed and sealed document.

LOCHNER

701 Cedar Lake Blvd. | Suite 230 | Oklahoma City, Oklahoma 73114  
P 405.748.6651 | www.hwlochner.com

CITY OF SHAWNEE, OKLAHOMA

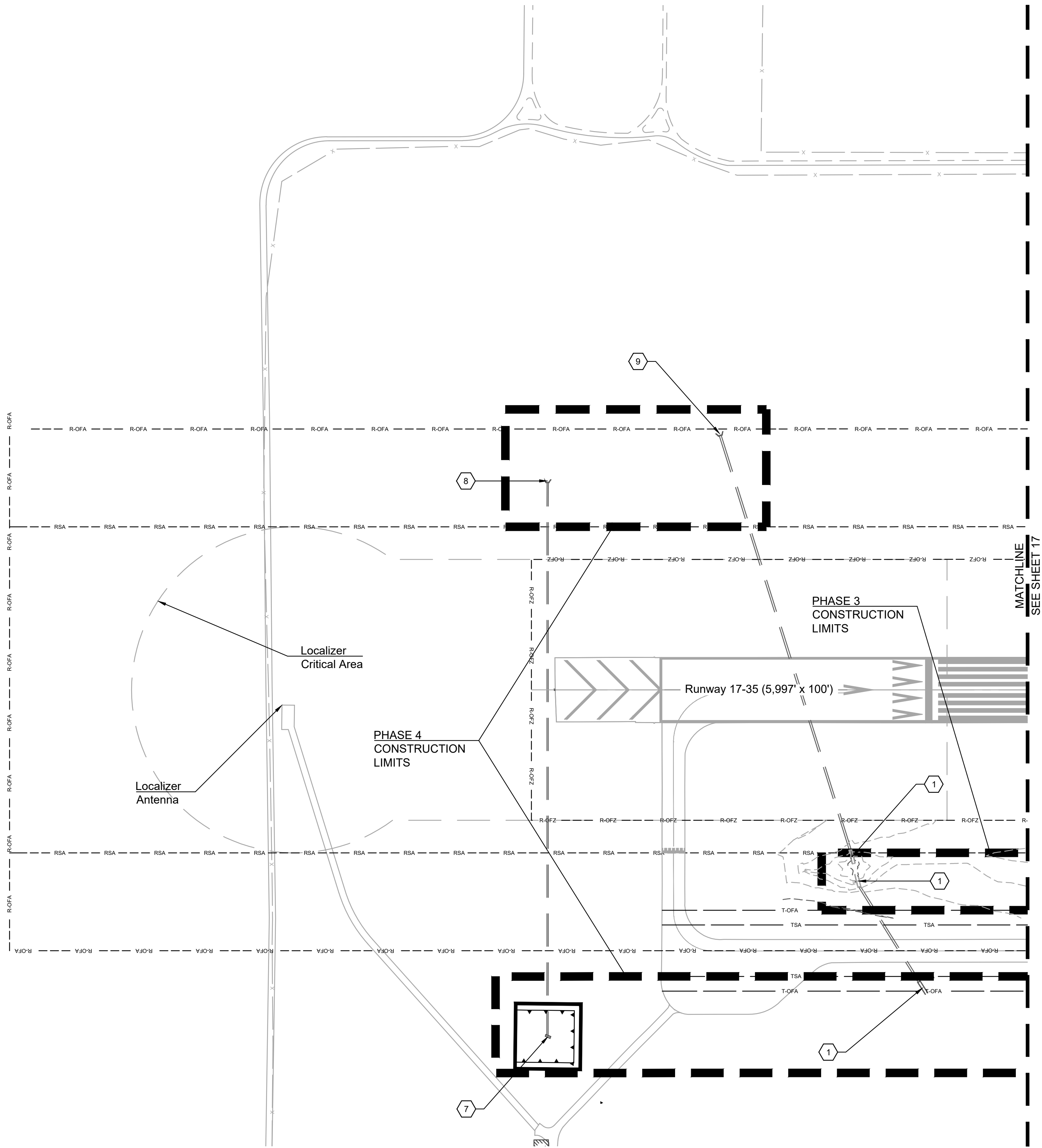
SHAWNEE REGIONAL AIRPORT

SHAWNEE, OKLAHOMA

|                             |                    |
|-----------------------------|--------------------|
| PROJECT NO.<br>15710 - TO#3 |                    |
| DRAWN BY<br>AM              | DATE<br>12/20/2022 |
| CHECKED BY<br>PJB           | DATE<br>1/31/2023  |
| DESIGNED BY<br>BM           | DATE<br>3/31/2023  |
| REVISIONS                   | DATE               |

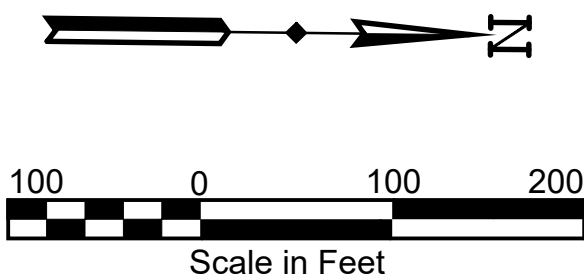
STORM AND GRADING PLAN  
(PHASE 2)

15



LEGEND

- 1270 --- Existing 5' Contour
- 1271 --- Existing 1' Contour
- Proposed Silt Fence
- Grading Limits



| Runway 17-35 Safety Dimensions     |                 |
|------------------------------------|-----------------|
| Runway Safety Area (RSA):          | 7,999.5' x 500' |
| Runway Object Free Area (R-OFA):   | 7,999.5' x 800' |
| Runway Obstacle Free Zone (R-OFZ): | 6,399.5' x 400' |
| Taxiway Safety Dimension           |                 |
| Taxiway Safety Area (TSA):         | 79' Wide        |
| Taxiway Object Free Area (T-OFA):  | 124' Wide       |

STORM KEYNOTES :

- 1 CLEAN End Section and 36" Connected Pipe.
- 2 SEAL 8" Pipe with 50 LF of Flowable Fill.
- 3 CLEAN End Section and 30" Connected Pipe.
- 4 CLEAN End Section and 18" Connected Pipe.
- 5 CLEAN End Section and 24" Connected Pipe.
- 6 CLEAN Grate Inlet and 30" Connected Pipe.
- 7 REMOVE and REPLACE Inlet with 24" RCP End Section. CLEAR and GRUB Surrounding Area. GRADE to Drain Surrounding Area.
- 8 CLEAN Headwall Structure and 24" Connected Pipe.
- 9 CLEAN Headwall Structure and 36" Connected Pipe.
- 10 CLEAN Grate Inlet and 18" Connected Pipe.

STORM SEWER NOTES

- All pipes and drainage structures that require cleaning are identified in the plans.
- They shall be cleaned by flushing, rodding, or whatever means are necessary to provide unobstructed drainage.
- All catch basin sumps, manholes, inlet and outlet Structures, and debris racks shall also be freed of all dirt, rock, and debris.
- Existing drainage facilities shall be cleaned as a first order of Work to enhance natural drainage off and through the project.
- They shall be kept clean throughout the life of the project and be clean upon final acceptance of the Work.
- Structures specifically noted in the Contract that are suspected to contain contaminated sediment shall be disposed of at a licensed disposal facility.
- While performing the Work, if drainage water and/or soil appear oily, exhibit an unusual color or odor, or if staining or corrosion is observed, the Contractor shall stop work and immediately notify the Engineer.
- If sediment and water from structures does not meet the conditions described in 6 or 7 above, material may be placed in an upland area with no possibility of surface runoff to waters of the State, including wetlands.
- To prevent future blockages and damage, storm pipes require regular maintenance. This includes activities such as removing debris and sediment from inlets, ensuring that stormwater flows into the pipes freely, and inspecting the pipes periodically to identify any potential problems.

This document is preliminary in nature and is not a final signed and sealed document.

LOCHNER

701 Cedar Lake Blvd. | Suite 230 | Oklahoma City, Oklahoma 73114  
P 405.748.6651 | www.hwlochner.com

CITY OF SHAWNEE, OKLAHOMA

SHAWNEE REGIONAL AIRPORT

SHAWNEE, OKLAHOMA

|                             |                    |
|-----------------------------|--------------------|
| PROJECT NO.<br>15710 - TO#3 |                    |
| DRAWN BY<br>AM              | DATE<br>12/20/2022 |
| CHECKED BY<br>PJB           | DATE<br>1/31/2023  |
| DESIGNED BY<br>BM           | DATE<br>3/31/2023  |
| REVISIONS                   | DATE               |

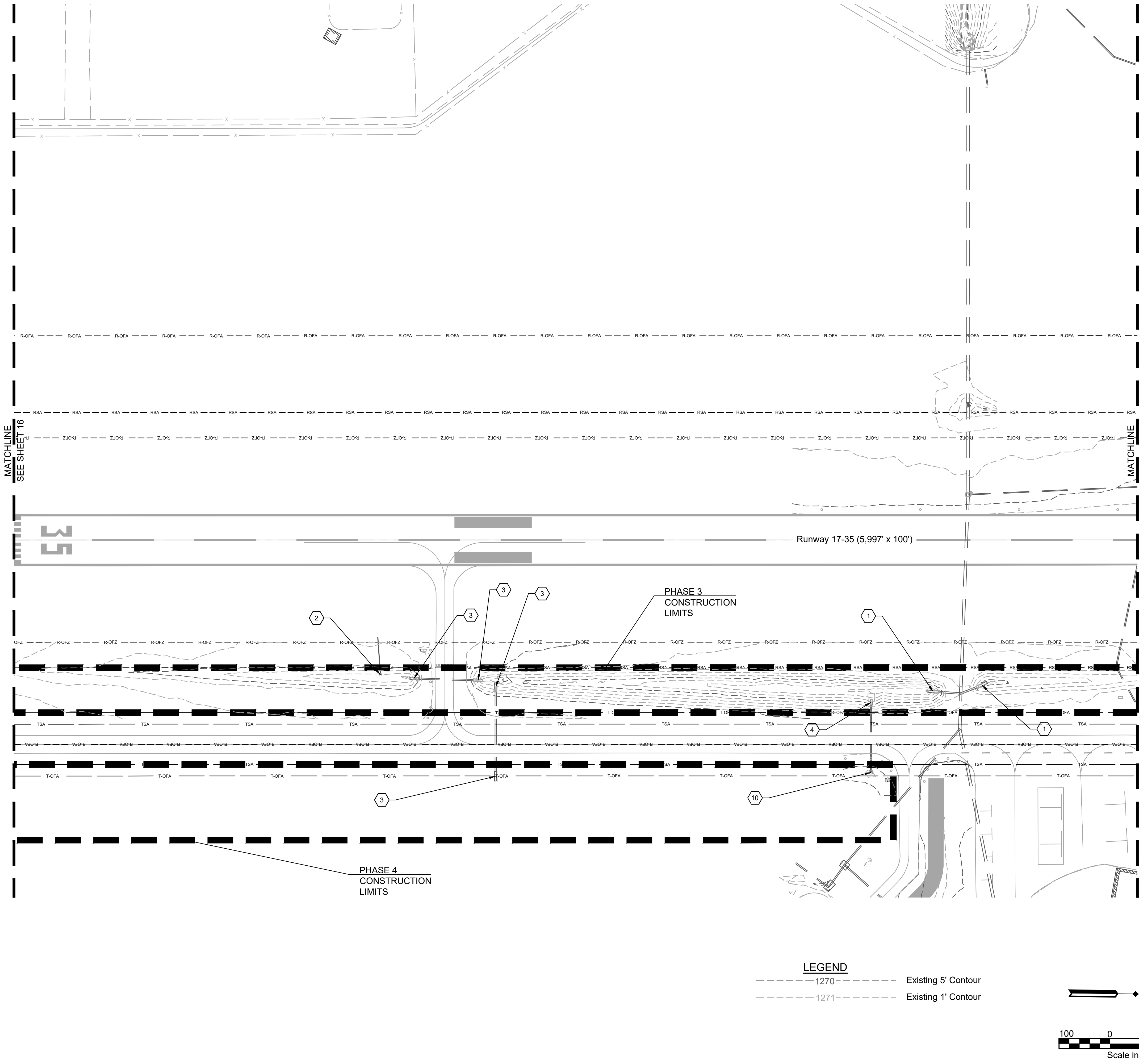
STORM AND GRADING PLAN  
(PHASE 3 & 4)

16

Drawing Name: C:\Users\bmason\OneDrive - hwlochner.com\Desktop\Shawnee\03 - ACAD\PRODUCTION DRAWINGS\15710 - STORM.dwg Apr 16, 2023 - 5:48pm

Last Saved By: bmason 2023/04/16

Plot Style: ae.ctb



| Runway 17-35 Safety Dimensions     |                 |
|------------------------------------|-----------------|
| Runway Safety Area (RSA):          | 7,999.5' x 500' |
| Runway Object Free Area (R-OFA):   | 7,999.5' x 800' |
| Runway Obstacle Free Zone (R-OFZ): | 6,399.5' x 400' |
| Taxiway Safety Dimension           |                 |
| Taxiway Safety Area (TSA):         | 79' Wide        |
| Taxiway Object Free Area (T-OFA):  | 124' Wide       |

STORM KEYNOTES :

- 1
- CLEAN End Section and 36" Connected Pipe.
- 2
- SEAL 8" Pipe with 50 LF of Flowable Fill.
- 3
- CLEAN End Section and 30" Connected Pipe.
- 4
- CLEAN End Section and 18" Connected Pipe.
- 5
- CLEAN End Section and 24" Connected Pipe.
- 6
- CLEAN Grate Inlet and 30" Connected Pipe.
- 7
- REMOVE and REPLACE Inlet with 24" RCP End Section.  
CLEAR and GRUB Surrounding Area.  
GRADE to Drain Surrounding Area.
- 8
- CLEAN Headwall Structure and 24" Connected Pipe.
- 9
- CLEAN Headwall Structure and 36" Connected Pipe.
- 10
- CLEAN Grate Inlet and 18" Connected Pipe.

STORM SEWER NOTES

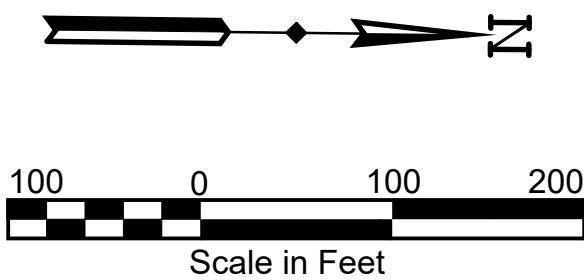
1. All pipes and drainage structures that require cleaning are identified in the plans.
2. They shall be cleaned by flushing, rodding, or whatever means are necessary to provide unobstructed drainage.
3. All catch basin sumps, manholes, inlet and outlet Structures, and debris racks shall also be freed of all dirt, rock, and debris.
4. Existing drainage facilities shall be cleaned as a first order of Work to enhance natural drainage off and through the project.
5. They shall be kept clean throughout the life of the project and be clean upon final acceptance of the Work.
6. Structures specifically noted in the Contract that are suspected to contain contaminated sediment shall be disposed of at a licensed disposal facility.
7. While performing the Work, if drainage water and/or soil appear oily, exhibit an unusual color or odor, or if staining or corrosion is observed, the Contractor shall stop work and immediately notify the Engineer.
8. If sediment and water from structures does not meet the conditions described in 6 or 7 above, material may be placed in an upland area with no possibility of surface runoff to waters of the State, including wetlands.
9. To prevent future blockages and damage, storm pipes require regular maintenance. This includes activities such as removing debris and sediment from inlets, ensuring that stormwater flows into the pipes freely, and inspecting the pipes periodically to identify any potential problems.

LEGEND

- 1270

Existing 5' Contour
- 1271

Existing 1' Contour



This document is preliminary in nature and is not a final signed and sealed document.

LOCHNER

701 Cedar Lake Blvd. | Suite 230 | Oklahoma City, Oklahoma 73114  
P 405.748.6651 | www.hwlochner.com

CITY OF SHAWNEE, OKLAHOMA

SHAWNEE REGIONAL AIRPORT

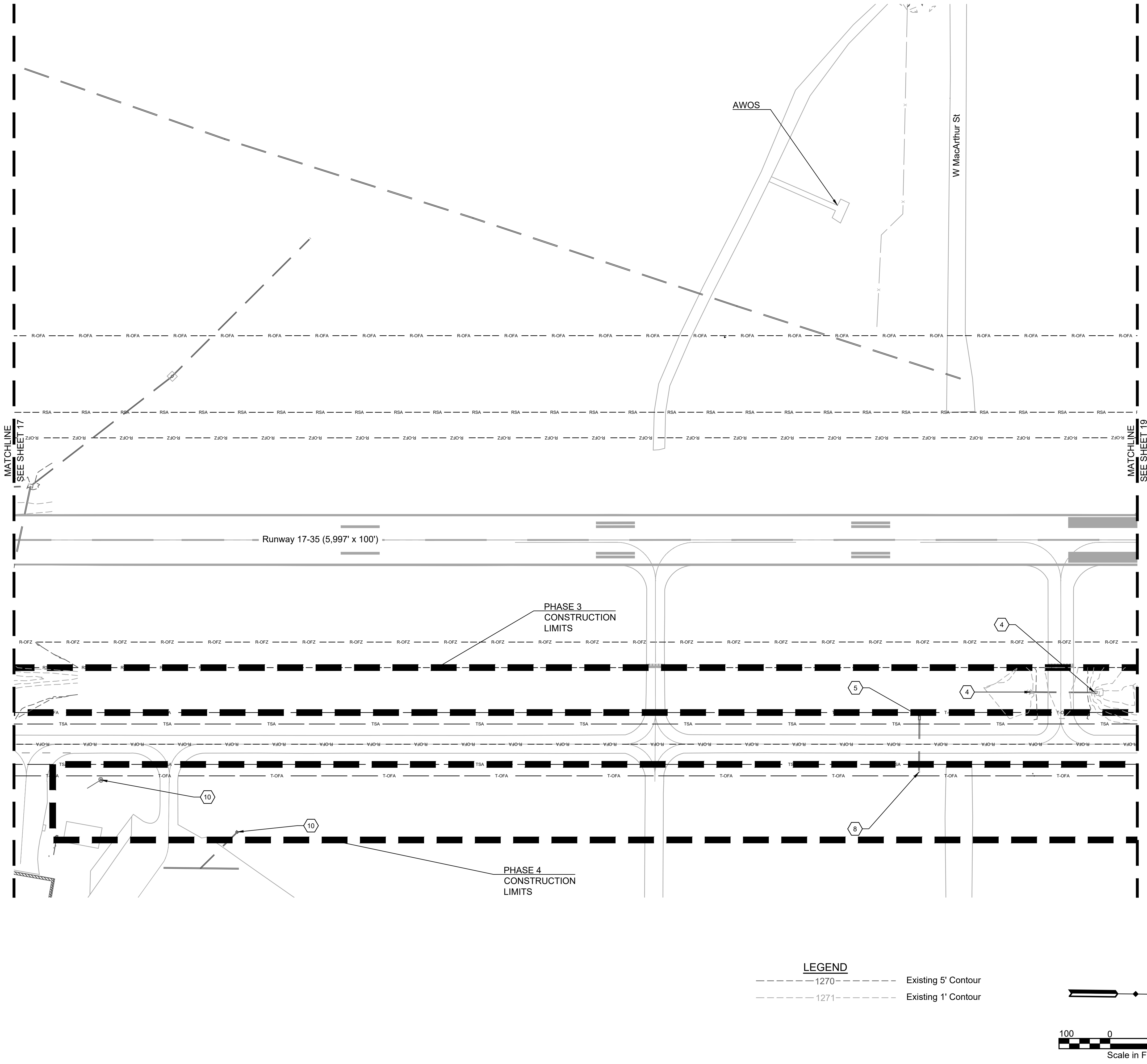
SHAWNEE, OKLAHOMA

|                             |                    |
|-----------------------------|--------------------|
| PROJECT NO.<br>15710 - TO#3 |                    |
| DRAWN BY<br>AM              | DATE<br>12/20/2022 |
| CHECKED BY<br>PJB           | DATE<br>1/31/2023  |
| DESIGNED BY<br>BM           | DATE<br>3/31/2023  |
| REVISIONS                   | DATE               |

STORM AND GRADING PLAN  
(PHASE 3 & 4)

17

Plot Style: ae.ctb  
Last Saved By: bmaison 2023/04/16  
Drawing Name: C:\Users\bmason\OneDrive - hwlochner.com\Desktop\Shawnee\03 - ACAD\PRODUCTION DRAWINGS\15710 - STORM.dwg Apr 16, 2023 - 5:48pm



| Runway 17-35 Safety Dimensions     |                 |
|------------------------------------|-----------------|
| Runway Safety Area (RSA):          | 7,999.5' x 500' |
| Runway Object Free Area (R-OFA):   | 7,999.5' x 800' |
| Runway Obstacle Free Zone (R-OFZ): | 6,399.5' x 400' |
| Taxiway Safety Dimension           |                 |
| Taxiway Safety Area (TSA):         | 79' Wide        |
| Taxiway Object Free Area (T-OFA):  | 124' Wide       |

STORM KEYNOTES :

- 1 CLEAN End Section and 36" Connected Pipe.
- 2 SEAL 8" Pipe with 50 LF of Flowable Fill.
- 3 CLEAN End Section and 30" Connected Pipe.
- 4 CLEAN End Section and 18" Connected Pipe.
- 5 CLEAN End Section and 24" Connected Pipe.
- 6 CLEAN Grate Inlet and 30" Connected Pipe.
- 7 REMOVE and REPLACE Inlet with 24" RCP End Section. CLEAR and GRUB Surrounding Area. GRADE to Drain Surrounding Area.
- 8 CLEAN Headwall Structure and 24" Connected Pipe.
- 9 CLEAN Headwall Structure and 36" Connected Pipe.
- 10 CLEAN Grate Inlet and 18" Connected Pipe.

STORM SEWER NOTES

- 1. All pipes and drainage structures that require cleaning are identified in the plans.
- 2. They shall be cleaned by flushing, rodding, or whatever means are necessary to provide unobstructed drainage.
- 3. All catch basin sumps, manholes, inlet and outlet Structures, and debris racks shall also be freed of all dirt, rock, and debris.
- 4. Existing drainage facilities shall be cleaned as a first order of Work to enhance natural drainage off and through the project.
- 5. They shall be kept clean throughout the life of the project and be clean upon final acceptance of the Work.
- 6. Structures specifically noted in the Contract that are suspected to contain contaminated sediment shall be disposed of at a licensed disposal facility.
- 7. While performing the Work, if drainage water and/or soil appear oily, exhibit an unusual color or odor, or if staining or corrosion is observed, the Contractor shall stop work and immediately notify the Engineer.
- 8. If sediment and water from structures does not meet the conditions described in 6 or 7 above, material may be placed in an upland area with no possibility of surface runoff to waters of the State, including wetlands.
- 9. To prevent future blockages and damage, storm pipes require regular maintenance. This includes activities such as removing debris and sediment from inlets, ensuring that stormwater flows into the pipes freely, and inspecting the pipes periodically to identify any potential problems.

This document is preliminary in nature and is not a final signed and sealed document.

LOCHNER

701 Cedar Lake Blvd. | Suite 230 | Oklahoma City, Oklahoma 73114  
P 405.748.6651 | www.hwlochner.com

CITY OF SHAWNEE, OKLAHOMA

SHAWNEE REGIONAL AIRPORT

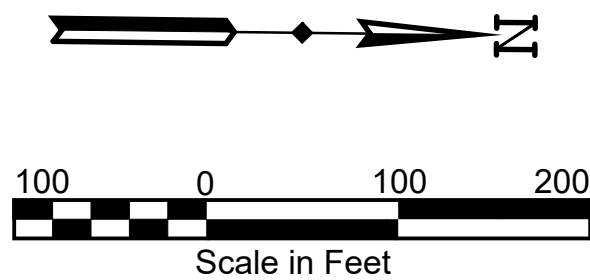
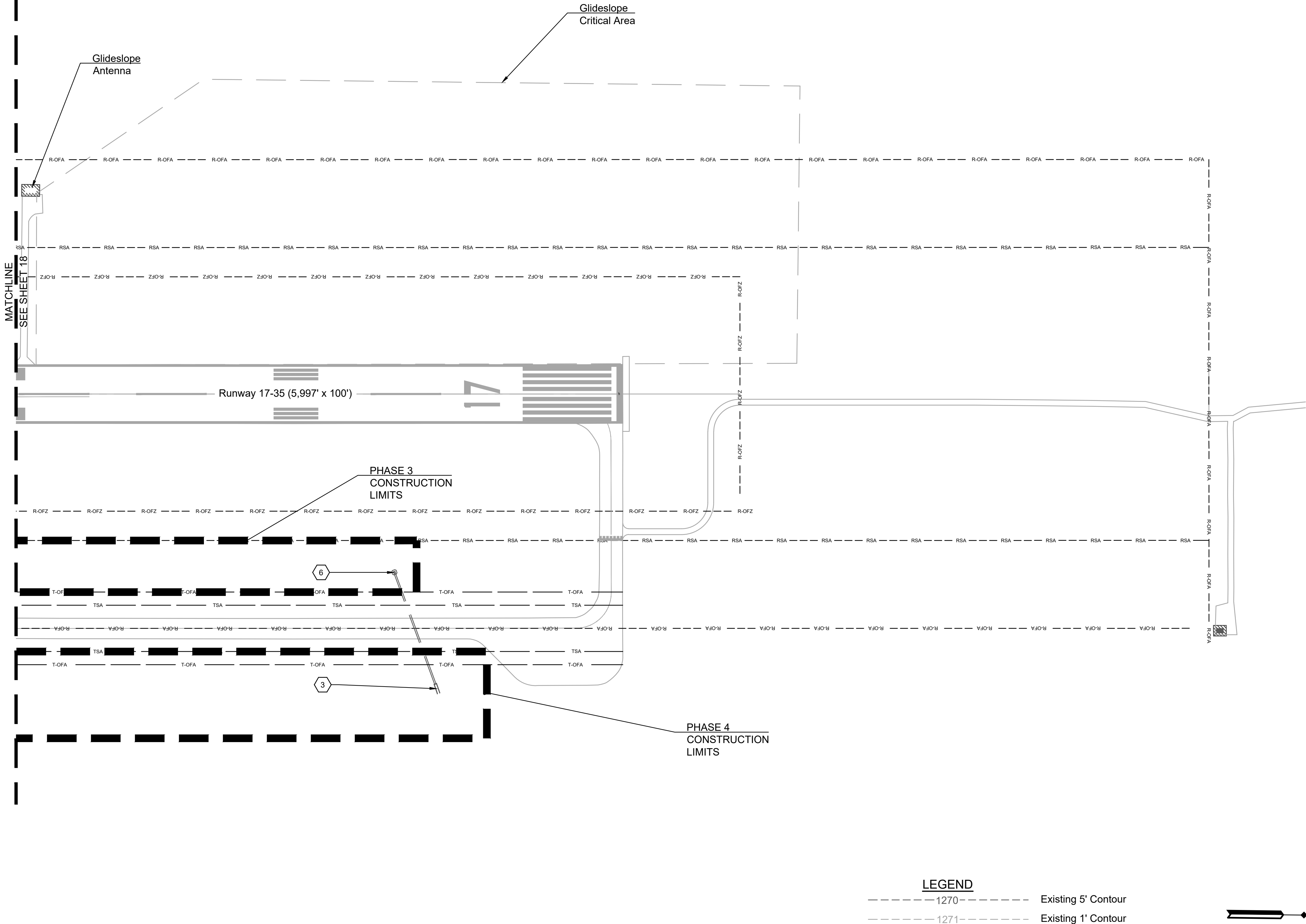
SHAWNEE, OKLAHOMA

|                             |                    |
|-----------------------------|--------------------|
| PROJECT NO.<br>15710 - TO#3 |                    |
| DRAWN BY<br>AM              | DATE<br>12/20/2022 |
| CHECKED BY<br>PJB           | DATE<br>1/31/2023  |
| DESIGNED BY<br>BM           | DATE<br>3/31/2023  |
| REVISIONS                   | DATE               |

STORM AND GRADING PLAN  
(PHASE 3 & 4)

18

Drawing Name: C:\Users\bmason\OneDrive - hwlochner.com\Desktop\Shawnee\03 - ACAD\PRODUCTION DRAWINGS\15710 - STORM.dwg Apr 16, 2023 - 5:48pm  
Plot Style: ae.ctb  
Last Saved By: bmason 2023/04/16



| Runway 17-35 Safety Dimensions     |                 |
|------------------------------------|-----------------|
| Runway Safety Area (RSA):          | 7,999.5' x 500' |
| Runway Object Free Area (R-OFA):   | 7,999.5' x 800' |
| Runway Obstacle Free Zone (R-OFZ): | 6,399.5' x 400' |
| Taxiway Safety Dimension           |                 |
| Taxiway Safety Area (TSA):         | 79' Wide        |
| Taxiway Object Free Area (T-OFA):  | 124' Wide       |

STORM KEYNOTES :

- 1
- CLEAN End Section and 36" Connected Pipe.
- 2
- SEAL 8" Pipe with 50 LF of Flowable Fill.
- 3
- CLEAN End Section and 30" Connected Pipe.
- 4
- CLEAN End Section and 18" Connected Pipe.
- 5
- CLEAN End Section and 24" Connected Pipe.
- 6
- CLEAN Grate Inlet and 30" Connected Pipe.
- 7
- REMOVE and REPLACE Inlet with 24" RCP End Section.  
CLEAR and GRUB Surrounding Area.  
GRADE to Drain Surrounding Area.
- 8
- CLEAN Headwall Structure and 24" Connected Pipe.
- 9
- CLEAN Headwall Structure and 36" Connected Pipe.
- 10
- CLEAN Grate Inlet and 18" Connected Pipe.

STORM SEWER NOTES

1.
- All pipes and drainage structures that require cleaning are identified in the plans.
2.
- They shall be cleaned by flushing, rodding, or whatever means are necessary to provide unobstructed drainage.
3.
- All catch basin sumps, manholes, inlet and outlet Structures, and debris racks shall also be freed of all dirt, rock, and debris.
4.
- Existing drainage facilities shall be cleaned as a first order of Work to enhance natural drainage off and through the project.
5.
- They shall be kept clean throughout the life of the project and be clean upon final acceptance of the Work.
6.
- Structures specifically noted in the Contract that are suspected to contain contaminated sediment shall be disposed of at a licensed disposal facility.
7.
- While performing the Work, if drainage water and/or soil appear oily, exhibit an unusual color or odor, or if staining or corrosion is observed, the Contractor shall stop work and immediately notify the Engineer.
8.
- If sediment and water from structures does not meet the conditions described in 6 or 7 above, material may be placed in an upland area with no possibility of surface runoff to waters of the State, including wetlands.
9.
- To prevent future blockages and damage, storm pipes require regular maintenance. This includes activities such as removing debris and sediment from inlets, ensuring that stormwater flows into the pipes freely, and inspecting the pipes periodically to identify any potential problems.

This document is preliminary in nature and is not a final signed and sealed document.

**LOCHNER**  
701 Cedar Lake Blvd. | Suite 230 | Oklahoma City, Oklahoma 73114  
P 405.748.6651 | www.hwlochner.com

CITY OF SHAWNEE, OKLAHOMA

SHAWNEE REGIONAL AIRPORT  
SHAWNEE, OKLAHOMA

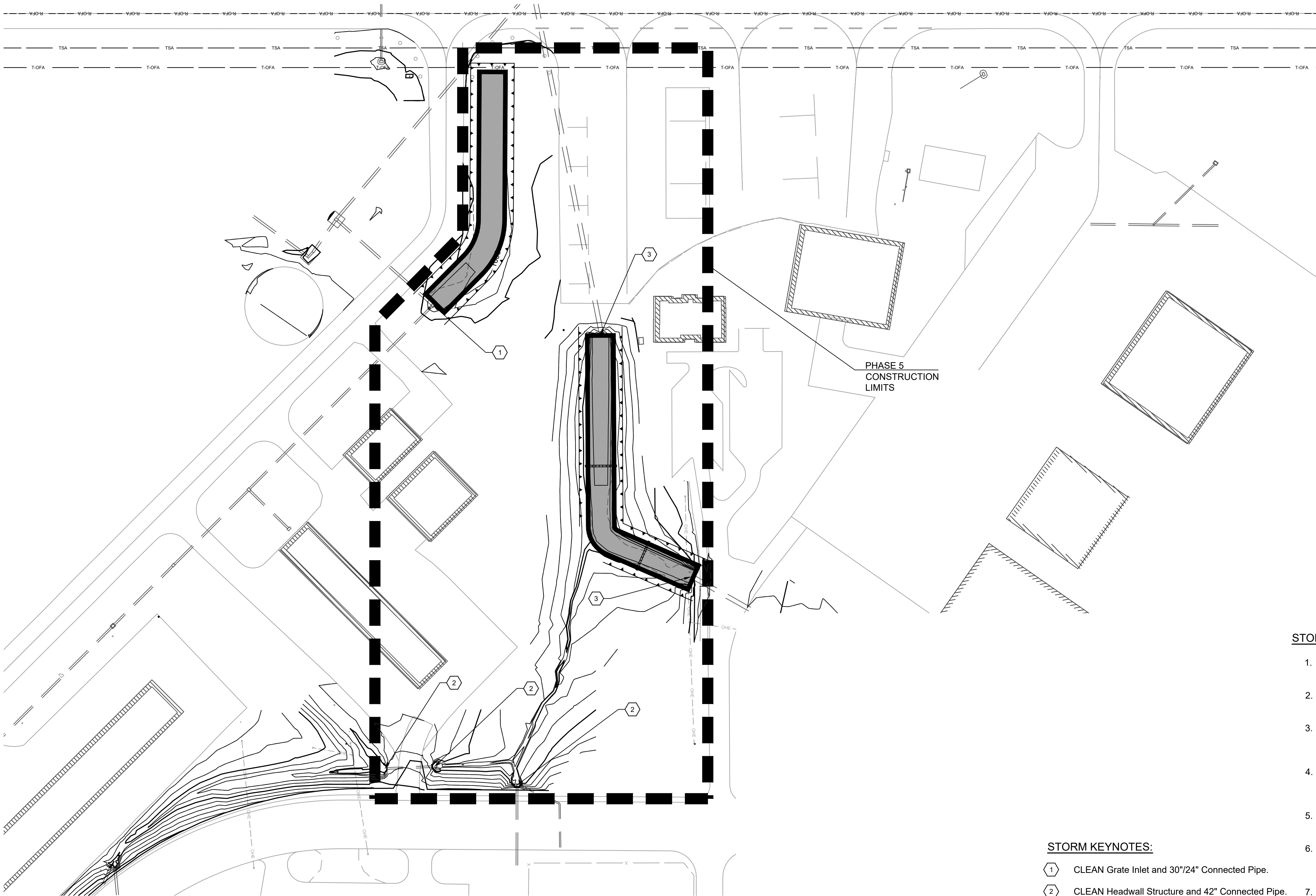
|                             |                    |
|-----------------------------|--------------------|
| PROJECT NO.<br>15710 - TO#3 |                    |
| DRAWN BY<br>AM              | DATE<br>12/20/2022 |
| CHECKED BY<br>PJB           | DATE<br>1/31/2023  |
| DESIGNED BY<br>BM           | DATE<br>3/31/2023  |
| REVISIONS                   | DATE               |

STORM AND GRADING PLAN  
(PHASE 3 & 4)

Drawing Name: C:\Users\bmason\OneDrive - hwlochner.com\Desktop\Shawnee\03 - ACAD\PRODUCTION DRAWINGS\15710 - STORM.dwg Apr 16, 2023 - 5:48pm

Last Saved By: bmason, 2023/04/16

Plot Style: ac.ctb



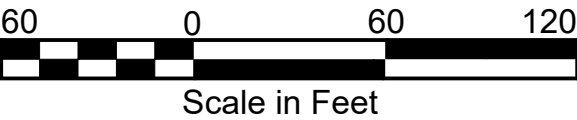
PHASE 5  
CONSTRUCTION  
LIMITS

**STORM KEYNOTES:**

- 1 CLEAN Grate Inlet and 30"/24" Connected Pipe.
- 2 CLEAN Headwall Structure and 42" Connected Pipe.
- 3 CLEAN Headwall Structure and 60" Connected Pipe.

**LEGEND**

- 1270 Proposed 5' Contour
- 1271 Proposed 1' Contour
- 1270 Existing 5' Contour
- 1271 Existing 1' Contour
- Proposed Silt Fence
- Proposed Straw Wattles
- Sodding Limits
- Grading Limits



**STORM SEWER NOTES**

- All pipes and drainage structures that require cleaning are identified in the plans.
- They shall be cleaned by flushing, rodding, or whatever means are necessary to provide unobstructed drainage.
- All catch basin sumps, manholes, inlet and outlet Structures, and debris racks shall also be freed of all dirt, rock, and debris.
- Existing drainage facilities shall be cleaned as a first order of Work to enhance natural drainage off and through the project.
- They shall be kept clean throughout the life of the project and be clean upon final acceptance of the Work.
- Structures specifically noted in the Contract that are suspected to contain contaminated sediment shall be disposed of at a licensed disposal facility.
- While performing the Work, if drainage water and/or soil appear oily, exhibit an unusual color or odor, or if staining or corrosion is observed, the Contractor shall stop work and immediately notify the Engineer.
- If sediment and water from structures does not meet the conditions described in 6 or 7 above, material may be placed in an upland area with no possibility of surface runoff to waters of the State, including wetlands.
- To prevent future blockages and damage, storm pipes require regular maintenance. This includes activities such as removing debris and sediment from inlets, ensuring that stormwater flows into the pipes freely, and inspecting the pipes periodically to identify any potential problems.

| Runway 17-35 Safety Dimensions     |                 |
|------------------------------------|-----------------|
| Runway Safety Area (RSA):          | 7,999.5' x 500' |
| Runway Object Free Area (R-OFA):   | 7,999.5' x 800' |
| Runway Obstacle Free Zone (R-OFZ): | 6,399.5' x 400' |
| Taxiway Safety Dimension           |                 |
| Taxiway Safety Area (TSA):         | 79' Wide        |
| Taxiway Object Free Area (T-OFA):  | 124' Wide       |

This document is preliminary in nature and is not a final signed and sealed document.

**LOCHNER**

701 Cedar Lake Blvd. | Suite 230 | Oklahoma City, Oklahoma 73114  
P 405.748.6651 | www.hwlochner.com

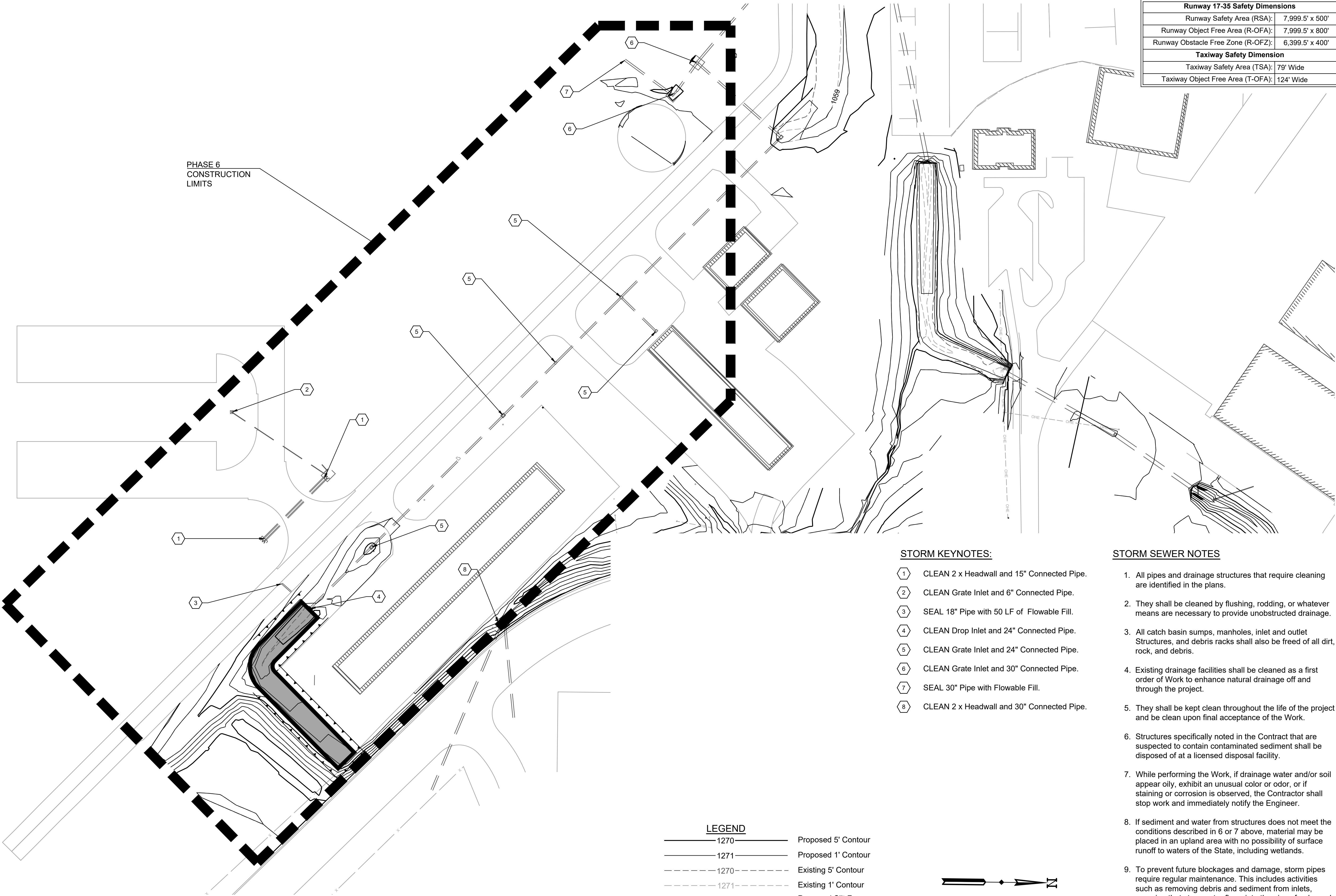
CITY OF SHAWNEE, OKLAHOMA

SHAWNEE REGIONAL AIRPORT  
SHAWNEE, OKLAHOMA

|                             |                    |
|-----------------------------|--------------------|
| PROJECT NO.<br>15710 - TO#3 |                    |
| DRAWN BY<br>AM              | DATE<br>12/20/2022 |
| CHECKED BY<br>PJB           | DATE<br>1/31/2023  |
| DESIGNED BY<br>BM           | DATE<br>3/31/2023  |
| REVISIONS                   | DATE               |

STORM AND GRADING PLAN  
(PHASE 5)

20



PHASE 6  
CONSTRUCTION  
LIMITS

LEGEND

- Proposed 5' Contour
- Proposed 1' Contour
- Existing 5' Contour
- Existing 1' Contour
- Proposed Silt Fence
- Proposed Straw Wattles
- Sodding Limits
- Grading Limits

STORM KEYNOTES:

- CLEAN 2 x Headwall and 15" Connected Pipe.
- CLEAN Grate Inlet and 6" Connected Pipe.
- SEAL 18" Pipe with 50 LF of Flowable Fill.
- CLEAN Drop Inlet and 24" Connected Pipe.
- CLEAN Grate Inlet and 24" Connected Pipe.
- CLEAN Grate Inlet and 30" Connected Pipe.
- SEAL 30" Pipe with Flowable Fill.
- CLEAN 2 x Headwall and 30" Connected Pipe.

STORM SEWER NOTES

- All pipes and drainage structures that require cleaning are identified in the plans.
- They shall be cleaned by flushing, rodding, or whatever means are necessary to provide unobstructed drainage.
- All catch basin sumps, manholes, inlet and outlet Structures, and debris racks shall also be freed of all dirt, rock, and debris.
- Existing drainage facilities shall be cleaned as a first order of Work to enhance natural drainage off and through the project.
- They shall be kept clean throughout the life of the project and be clean upon final acceptance of the Work.
- Structures specifically noted in the Contract that are suspected to contain contaminated sediment shall be disposed of at a licensed disposal facility.
- While performing the Work, if drainage water and/or soil appear oily, exhibit an unusual color or odor, or if staining or corrosion is observed, the Contractor shall stop work and immediately notify the Engineer.
- If sediment and water from structures does not meet the conditions described in 6 or 7 above, material may be placed in an upland area with no possibility of surface runoff to waters of the State, including wetlands.
- To prevent future blockages and damage, storm pipes require regular maintenance. This includes activities such as removing debris and sediment from inlets, ensuring that stormwater flows into the pipes freely, and inspecting the pipes periodically to identify any potential problems.

| Runway 17-35 Safety Dimensions     |                 |
|------------------------------------|-----------------|
| Runway Safety Area (RSA):          | 7,999.5' x 500' |
| Runway Object Free Area (R-OFA):   | 7,999.5' x 800' |
| Runway Obstacle Free Zone (R-OFZ): | 6,399.5' x 400' |
| Taxiway Safety Dimension           |                 |
| Taxiway Safety Area (TSA):         | 79' Wide        |
| Taxiway Object Free Area (T-OFA):  | 124' Wide       |

This document is preliminary in nature and is not a final signed and sealed document.

LOCHNER

701 Cedar Lake Blvd. | Suite 230 | Oklahoma City, Oklahoma 73114  
P 405.748.6651 | www.hwlochner.com

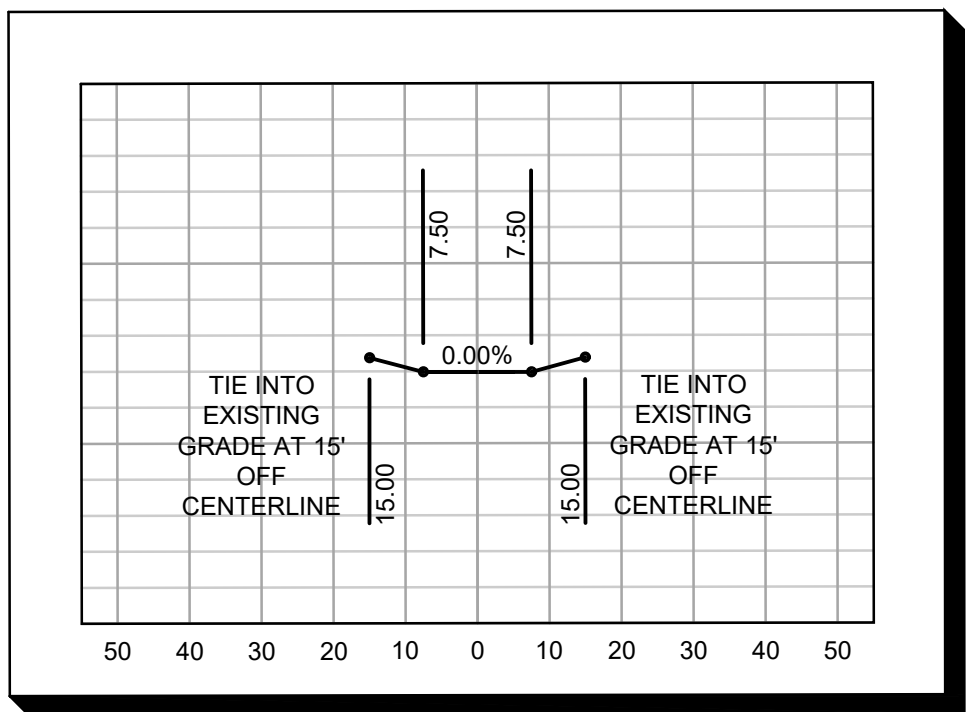
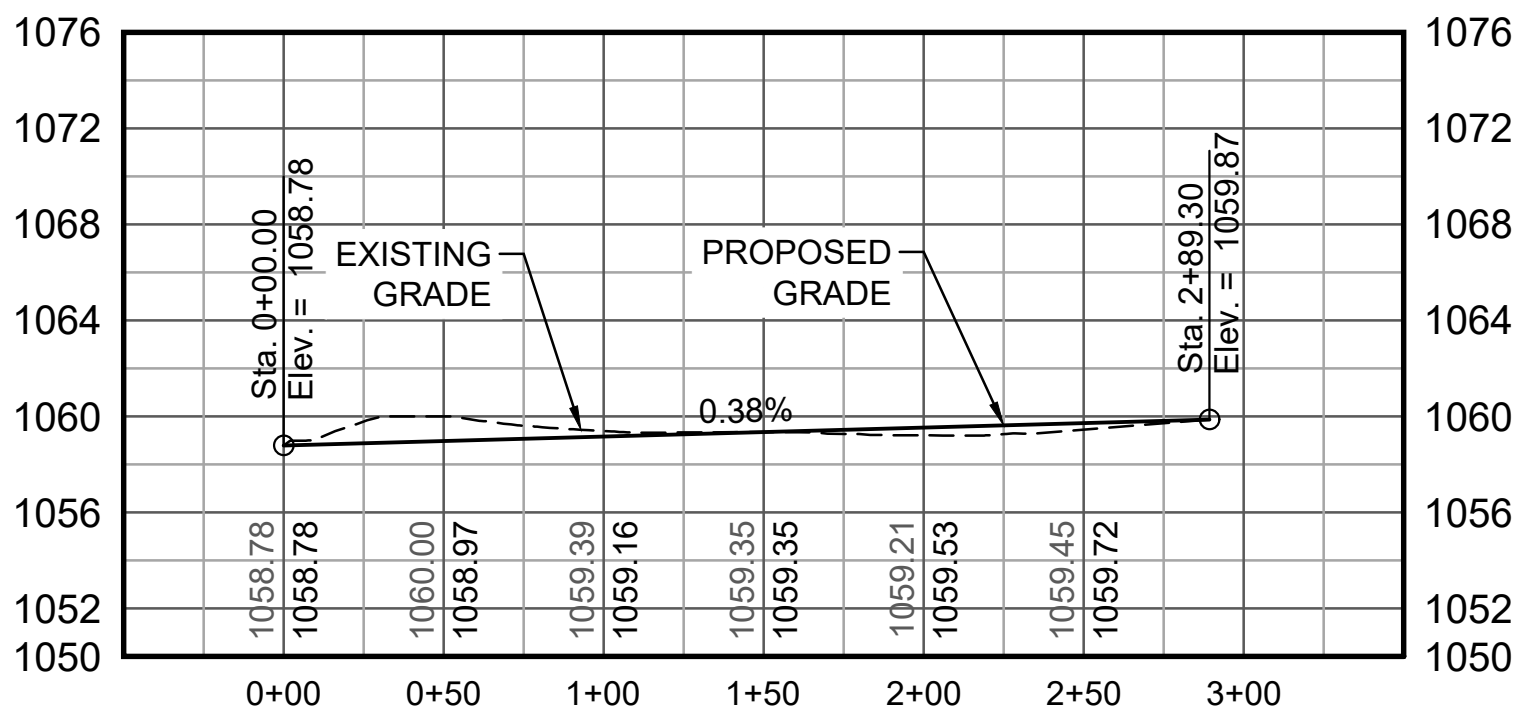
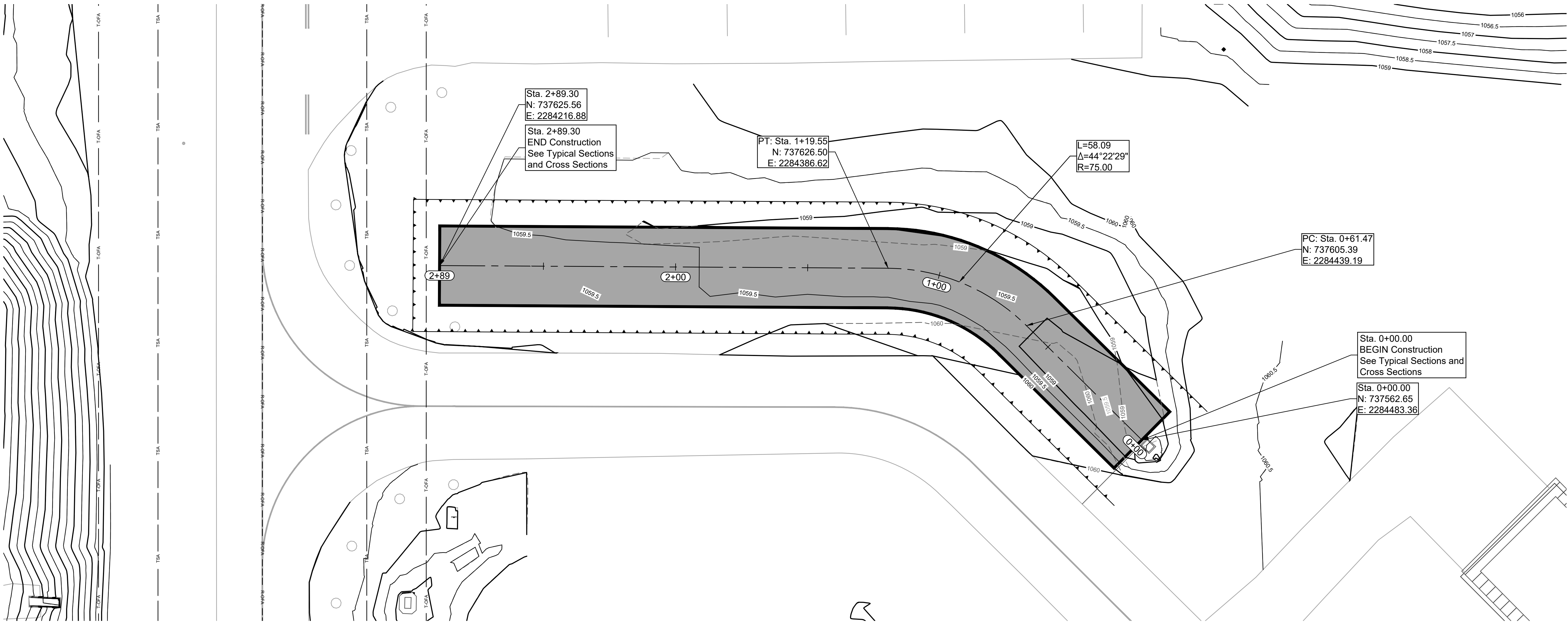
CITY OF SHAWNEE, OKLAHOMA

SHAWNEE REGIONAL AIRPORT

SHAWNEE, OKLAHOMA

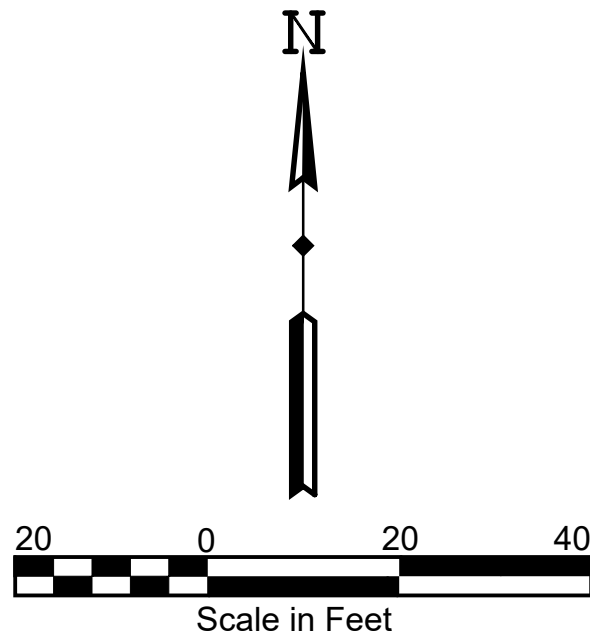
|                             |                    |
|-----------------------------|--------------------|
| PROJECT NO.<br>15710 - TO#3 |                    |
| DRAWN BY<br>AM              | DATE<br>12/20/2022 |
| CHECKED BY<br>PJB           | DATE<br>1/31/2023  |
| DESIGNED BY<br>BM           | DATE<br>3/31/2023  |
| REVISIONS                   | DATE               |

STORM AND GRADING PLAN  
(PHASE 6)



TYPICAL CHANNEL SECTION

- LEGEND**
- 1270 Proposed 5' Contour
  - 1271 Proposed 1' Contour
  - 1270 Existing 5' Contour
  - 1271 Existing 1' Contour
  - Proposed Silt Fence
  - Proposed Straw Wattles
  - Sodding Limits
  - Grading Limits



This document is preliminary in nature and is not a final signed and sealed document.

**LOCHNER**

701 Cedar Lake Blvd. | Suite 230 | Oklahoma City, Oklahoma 73114  
P 405.748.6651 | www.hwlochner.com

CITY OF SHAWNEE, OKLAHOMA

SHAWNEE REGIONAL AIRPORT  
SHAWNEE, OKLAHOMA

|                             |                    |
|-----------------------------|--------------------|
| PROJECT NO.<br>15710 - TO#3 |                    |
| DRAWN BY<br>AM              | DATE<br>12/20/2022 |
| CHECKED BY<br>PJB           | DATE<br>1/31/2023  |
| DESIGNED BY<br>BM           | DATE<br>3/31/2023  |
| REVISIONS                   | DATE               |

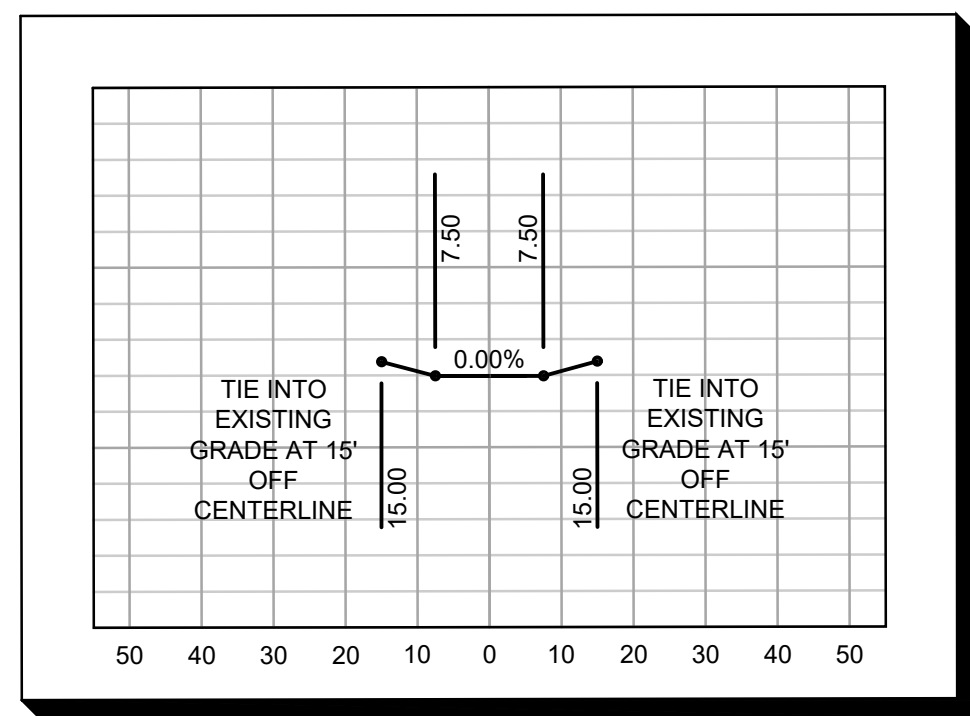
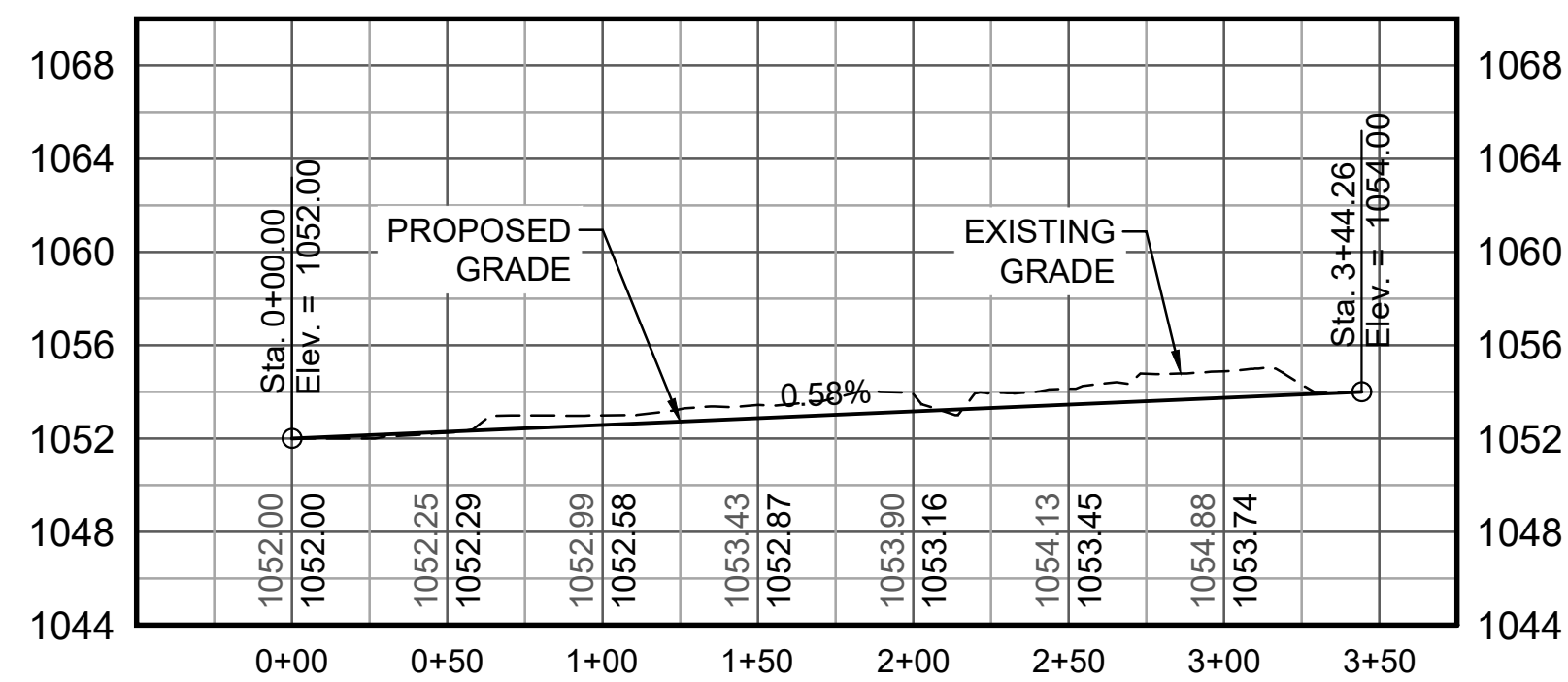
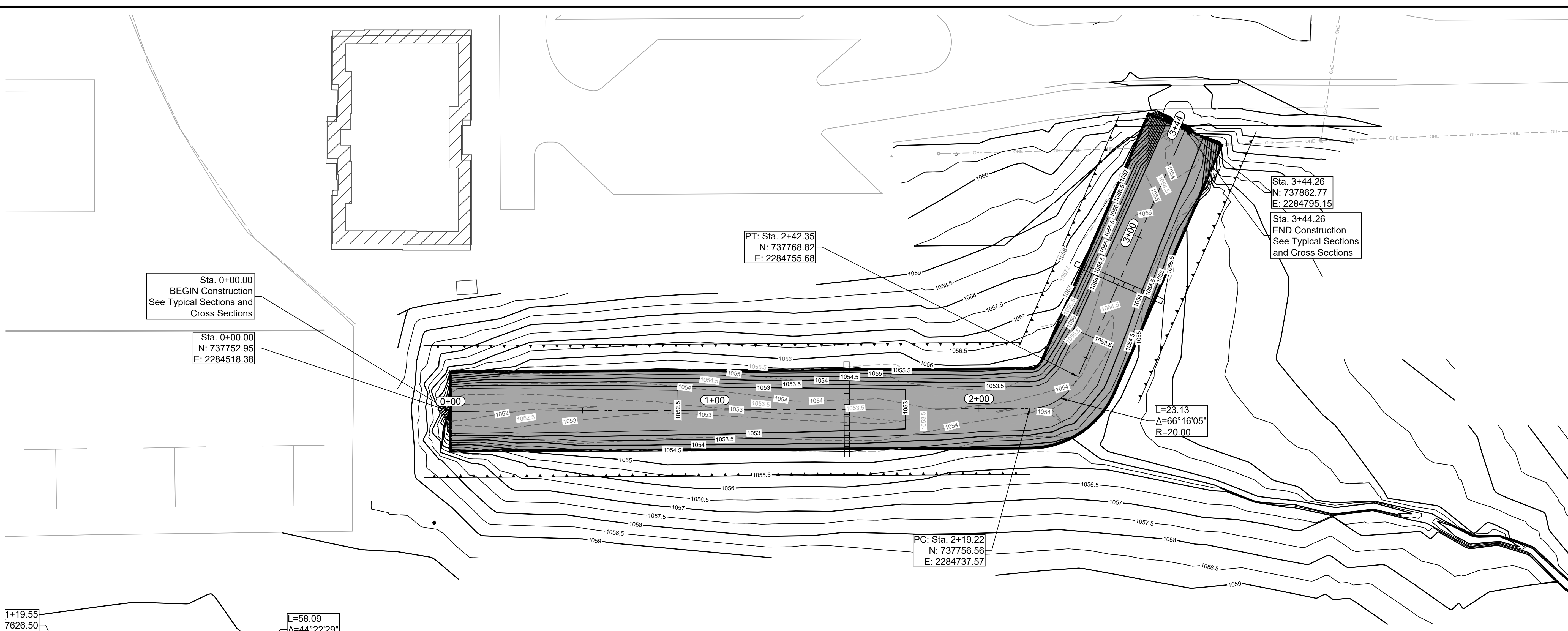
PHASE 5 PLAN AND PROFILE

22

Drawing Name: C:\Users\bmason\OneDrive - hwlochner.com\Desktop\Shawnee\03 - ACAD\PRODUCTION DRAWINGS\15710 - GRADING.dwg Apr 16, 2023 - 5:48pm

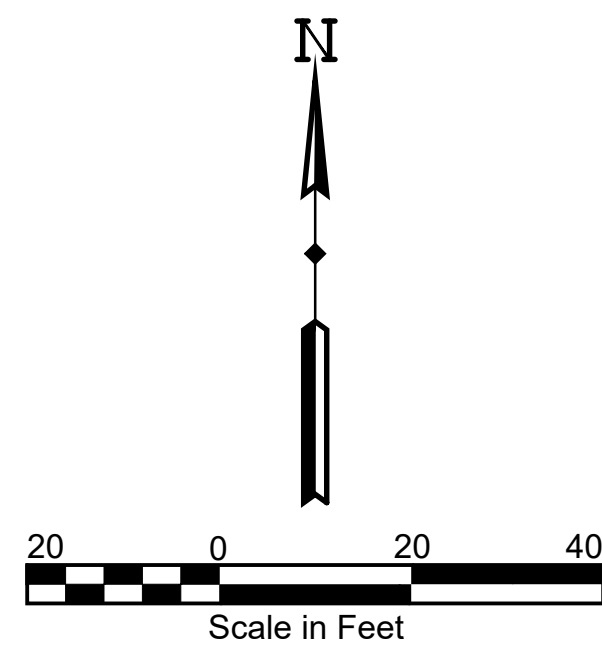
Last Saved By: bmason, 2023/04/16

Plot Style: ae.ctb



TYPICAL CHANNEL SECTION

- LEGEND**
- 1270 Proposed 5' Contour
  - 1271 Proposed 1' Contour
  - 1270 Existing 5' Contour
  - 1271 Existing 1' Contour
  - Proposed Silt Fence
  - Proposed Straw Wattles
  - Sodding Limits
  - Grading Limits



This document is preliminary in nature and is not a final signed and sealed document.

**LOCHNER**

701 Cedar Lake Blvd. | Suite 230 | Oklahoma City, Oklahoma 73114  
P 405.748.6651 | www.hwlochner.com

CITY OF SHAWNEE, OKLAHOMA

SHAWNEE REGIONAL AIRPORT  
SHAWNEE, OKLAHOMA

|                             |                    |
|-----------------------------|--------------------|
| PROJECT NO.<br>15710 - TO#3 |                    |
| DRAWN BY<br>AM              | DATE<br>12/20/2022 |
| CHECKED BY<br>PJB           | DATE<br>1/31/2023  |
| DESIGNED BY<br>BM           | DATE<br>3/31/2023  |
| REVISIONS                   | DATE               |

PHASE 5 PLAN AND PROFILE

23



**APPENDIX C: INSPECTION REPORT FORM**

## Stormwater Site Inspection Report

| General Information                                                                                                                                                                                                                      |                                                         |                       |                      |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------|-----------------------|----------------------|
| <b>Project Name</b>                                                                                                                                                                                                                      | Shawnee Regional Airport (SNL) Improve Airport Drainage |                       |                      |
| <b>NPDES Tracking No.</b>                                                                                                                                                                                                                |                                                         | <b>Location</b>       | <b>Terminal Area</b> |
| <b>Date of Inspection</b>                                                                                                                                                                                                                |                                                         | <b>Start/End Time</b> |                      |
| <b>Inspector's Name</b>                                                                                                                                                                                                                  |                                                         |                       |                      |
| <b>Describe present phase of construction</b>                                                                                                                                                                                            |                                                         |                       |                      |
| <b>Type of Inspection</b><br><input type="checkbox"/> Weekly <input type="checkbox"/> Pre-storm event <input type="checkbox"/> During storm event <input type="checkbox"/> Post-storm event                                              |                                                         |                       |                      |
| Weather Information                                                                                                                                                                                                                      |                                                         |                       |                      |
| <b>Has it rained since the last inspection?</b><br><input type="checkbox"/> Yes <input type="checkbox"/> No                                                                                                                              |                                                         |                       |                      |
| <b>If yes, provide:</b><br><div style="display: flex; justify-content: space-between;"> <span><b>Storm Start Date &amp; Time:</b></span> <span><b>Storm Duration (hrs):</b></span> <span><b>Approximate Rainfall (in):</b></span> </div> |                                                         |                       |                      |
| <b>Weather at time of this inspection?</b>                                                                                                                                                                                               |                                                         |                       |                      |
| <b>Do you suspect that discharges may have occurred since the last inspection?</b><br><input type="checkbox"/> Yes <input type="checkbox"/> No                                                                                           |                                                         |                       |                      |
| <b>Are there any discharges at the time of inspection?</b><br><input type="checkbox"/> Yes <input type="checkbox"/> No                                                                                                                   |                                                         |                       |                      |

### Site-specific BMPs

|   | BMP Description        | BMP Installed and Operating Properly?                    | Corrective Action Needed | Date for corrective action/responsible person |
|---|------------------------|----------------------------------------------------------|--------------------------|-----------------------------------------------|
| 1 | Sedimentation Basin    | <input type="checkbox"/> Yes <input type="checkbox"/> No |                          |                                               |
| 2 | Straw Wattle Locations | <input type="checkbox"/> Yes <input type="checkbox"/> No |                          |                                               |
| 3 | Reseeding              | <input type="checkbox"/> Yes <input type="checkbox"/> No |                          |                                               |
| 4 | Cellulose Mulch        | <input type="checkbox"/> Yes <input type="checkbox"/> No |                          |                                               |
| 5 | Bulk Materials Staging | <input type="checkbox"/> Yes <input type="checkbox"/> No |                          |                                               |
| 6 | Straw Bales            | <input type="checkbox"/> Yes <input type="checkbox"/> No |                          |                                               |
| 7 | Rip-Rap                | <input type="checkbox"/> Yes <input type="checkbox"/> No |                          |                                               |

**Overall Site Issues**

|    | <b>BMP/activity</b>                                                                                      | <b>Implemented?</b>                                      | <b>Maintained?</b>                                       | <b>Corrective Action</b> | <b>Date for corrective action/responsible person</b> |
|----|----------------------------------------------------------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------------|--------------------------|------------------------------------------------------|
| 1  | Are disturbed areas not actively being worked properly stabilized?                                       | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No |                          |                                                      |
| 2  | Are perimeter controls and sediment barriers adequately installed (keyed into substrate) and maintained? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No |                          |                                                      |
| 3  | Are discharge points and receiving waters free of sediment deposits?                                     | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No |                          |                                                      |
| 4  | Is there evidence of sediment being tracked into the street?                                             | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No |                          |                                                      |
| 5  | Is trash/litter from work areas collected and placed in covered dumpsters?                               | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No |                          |                                                      |
| 6  | Are materials that are potential stormwater contaminants stored inside or under cover?                   | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No |                          |                                                      |
| 17 | Are non-stormwater discharges (e.g., wash water, dewatering) properly controlled?                        | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Yes <input type="checkbox"/> No |                          |                                                      |

**Certification statement:**

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

Print name: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

**APPENDIX D: CORRECTIVE ACTION LOG**

**SWPPP Corrective Action Log**  
**Shawnee Regional Airport (SNL)**  
*Improve Airport Drainage*

**Please list and describe corrective actions implemented to comply with the Storm Water Pollution Prevention Plan:**

| Date | Description | Signature |
|------|-------------|-----------|
|      |             |           |
|      |             |           |
|      |             |           |
|      |             |           |
|      |             |           |
|      |             |           |

**APPENDIX E: LOG OF CHANGES AND UPDATES TO SWPPP**

## SWPPP Change/Update Log

List all changes and updates to this SWPPP by date, description, and signature of responsible person.

| Date | Description of Change/Update | Signature |
|------|------------------------------|-----------|
|      |                              |           |
|      |                              |           |
|      |                              |           |
|      |                              |           |
|      |                              |           |
|      |                              |           |
|      |                              |           |
|      |                              |           |
|      |                              |           |

## PROPOSAL FORM

**A.I.P. PROJECT NO. 3-40-0088-025-2023**

**TO: City Clerk**  
**16 West 9<sup>th</sup> St.**  
**City of Shawnee, Oklahoma 74802**

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

### Base Bid: Improve Airport Drainage

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 project manual, project drawings and issued Addenda within the specified time of performance for the following prices:

| Item No.                           | Spec. | Description                                                       | Approximat |      | Unit Price | Extension |
|------------------------------------|-------|-------------------------------------------------------------------|------------|------|------------|-----------|
|                                    |       |                                                                   | Qty.       | Unit |            |           |
| FAA PROJECT NO. 3-40-0088-025-2023 |       |                                                                   |            |      |            |           |
| BASE BID                           |       |                                                                   |            |      |            |           |
| IMPROVE AIRPORT DRAINAGE           |       |                                                                   |            |      |            |           |
| 1                                  | TEMP  | Temporary Marking, Lighting & Barricades<br>Unit Price in Words   | 1          | L.S. |            |           |
| 2                                  | C-102 | Temporary Erosion Control<br>Unit Price in Words                  | 1          | L.S. |            |           |
| 3                                  | C-105 | Mobilization (NTE 10% of Total Bid Amount)<br>Unit Price in Words | 1          | L.S. |            |           |
| 4                                  | P-101 | Remove Inlets/Manholes<br>Unit Price in Words                     | 3          | EA.  |            |           |
| 5                                  | P-101 | Remove 18" Storm Pipe<br>Unit Price in Words                      | 8          | L.F. |            |           |
| 6                                  | P-101 | Remove 24" Storm Pipe<br>Unit Price in Words                      | 8          | L.F. |            |           |
| 7                                  | P-101 | Remove 60" Storm Pipe<br>Unit Price in Words                      | 16         | L.F. |            |           |
| 8                                  | P-101 | Plug 8" Storm Sewer Pipe<br>Unit Price in Words                   | 75         | L.F. |            |           |
| 9                                  | P-101 | Plug 18" Storm Sewer Pipe<br>Unit Price in Words                  | 100        | L.F. |            |           |
| 10                                 | P-101 | Plug 30" Storm Sewer Pipe<br>Unit Price in Words                  | 50         | L.F. |            |           |
| 11                                 | P-101 | Clean End Section<br>Unit Price in Words                          | 16         | EA.  |            |           |
| 12                                 | P-101 | Clean Headwall<br>Unit Price in Words                             | 7          | EA.  |            |           |
| 13                                 | P-101 | Flush and Clean Storm Sewer Pipe<br>Unit Price in Words           | 5,720      | L.F. |            |           |

**PF-1**

|                                                  |       |                                                                                                        |       |      |  |  |
|--------------------------------------------------|-------|--------------------------------------------------------------------------------------------------------|-------|------|--|--|
| 14                                               | P-101 | Rehabilitate Storm Structure<br>Unit Price in Words                                                    | 17    | EA.  |  |  |
| 15                                               | P-151 | Clearing and Grubbing<br>Unit Price in Words                                                           | 2.2   | AC   |  |  |
| 16                                               | P-152 | Unclassified Excavation<br>Unit Price in Words                                                         | 735   | C.Y. |  |  |
| 17                                               | D-701 | 18" RCP (Class 3)<br>Unit Price in Words                                                               | 8     | L.F. |  |  |
| 18                                               | D-701 | 24" RCP (Class 3)<br>Unit Price in Words                                                               | 8     | L.F. |  |  |
| 19                                               | D-701 | 60" RCP (Class 3)<br>Unit Price in Words                                                               | 16    | L.F. |  |  |
| 20                                               | D-701 | 24" RCP End Section<br>Unit Price in Words                                                             | 1     | EA.  |  |  |
| 21                                               | D-751 | 5' x 5' Grate Inlet<br>Unit Price in Words                                                             | 1     | EA.  |  |  |
| 22                                               | D-751 | 9' x 5' Grate Inlet<br>Unit Price in Words                                                             | 1     | EA.  |  |  |
| 23                                               | T-904 | Sodding<br>Unit Price in Words                                                                         | 3,975 | S.Y. |  |  |
| 24                                               | --    | Furnish and Install Solar Powered LED Taxiway Centerline Light (FAA Ineligible)<br>Unit Price in Words | 242   | EA.  |  |  |
| 25                                               | --    | Furnish Solar Powered LED Taxiway Centerline Light (FAA Ineligible)<br>Unit Price in Words             | 25    | EA.  |  |  |
| <b>BASE BID TOTAL</b><br>Base Bid Total In Words |       |                                                                                                        |       |      |  |  |

### **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 documents identified within the Instructions to Bidders. The BIDDER further acknowledges that each of the individual documents that comprise the Bid Documents are complementary to one another and together establishes 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 bid price. The BIDDER acknowledges and accepts that refusal or failure to accept award and execute a contract within the terms and conditions established herein will result in forfeiture of the bid guaranty to the owner as a liquidated damage.
- 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 **ninety (90)** 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 within **fifteen (15) calendar days** of the Notice-of-Award and furthermore will provide executed payment and performance bonds simultaneously with delivery of executed contract. The undersigned accepts that failure to execute the contract and provide the required bonds within the stated timeframe shall 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 further agrees to complete the Project within **sixty-six (66) calendar days for Base Bid** from the commencement date specified in the Notice-to-Proceed.
- h. The undersigned acknowledges and accepts that for each and every Calendar day the project remains incomplete beyond the contract time of performance, the Contractor shall pay the non-penal amount of **\$1,500** per Calendar day as a liquidated damage to the OWNER.
- i. The BIDDER acknowledges that the OWNER has established a contract Disadvantaged Business Enterprise goal of **5.63%** 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 attached forms, "Utilization Statement" and "Letter of Intent". **The bidder shall complete the Disadvantaged Business Enterprise forms (DBE-1 to DBE-4) regardless of the DBE goal if a DBE firm is to be utilized on the project.**
- 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 proceeding 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

The undersigned acknowledges receipt of the following addenda:

|                       |             |                |
|-----------------------|-------------|----------------|
| Addendum Number _____ | dated _____ | Received _____ |
| Addendum Number _____ | dated _____ | Received _____ |
| Addendum Number _____ | dated _____ | 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 Nonsegregated Facilities:** (41 CFR § 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 in this contract.

As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms, and washrooms, 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 which are segregated by explicit directives or are, in fact, 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 CFR Part 30)

The Bidder, by submission of an offer certifies that it:

- a. 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 published by the Office of the United States Trade Representative (USTR);
  - b. 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 on said list, or is owned or controlled directly or indirectly by one or more citizens or nationals of a foreign country on said list;
  - c. has not procured any product nor subcontracted for the supply of any product for use on the project that is produced in a foreign country on said list.
- d. **Certification Regarding Debarment and Suspension:** (2 CFR Part 180 (Subpart C), 2 CFR Part 1200, DOT Order 4200.5 DOT Suspension & Debarment Procedures & Ineligibility)  
By submitting a bid/proposal under this solicitation, the bidder or offeror certifies that at the time the bidder or offeror submits its proposal that neither it nor its principals are presently debarred or suspended by any Federal department or agency from participation in this transaction.

The successful bidder, by administering each lower tier subcontract that exceeds \$25,000 as a “covered transaction”, must verify 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.

If the FAA later determines that a lower tier participant failed to tell a higher tier that it was excluded or disqualified at the time it entered the covered transaction, the FAA may pursue any available remedy, including suspension and debarment.

Where the Bidder or any lower tier participant is unable to certify to this statement, it shall attach an explanation to this solicitation/proposal.

#### **ATTACHMENTS TO THIS BID**

The following documents are attached to and made a part of this Bid:

1. Bid Guaranty in the form of \_\_\_\_\_;
2. Completed DBE form “Utilization Statement”.
3. Completed DBE form “Letter of Intent”. **The DBE affirmation on the “Letter of Intent” shall be submitted within three (3) working days of the bid opening.**
4. Evidence of good faith efforts required by 49 CFR Part 26, Appendix A. If proposed DBE goal is met, submittal of evidence of good faith efforts is not required.
5. Completed “Buy American Certification”.
6. Completed “Business Relationships Affidavit”
7. Completed “Non-Collusion Statement”
8. Evidence of BIDDER’S qualifications per the requirements of the Instructions-to-Bidders.

**SIGNATURE OF BIDDER**

**IF AN INDIVIDUAL:**

Name: \_\_\_\_\_  
By: \_\_\_\_\_  
*(Signature of Individual)*  
Doing Business as: \_\_\_\_\_  
Business Address: \_\_\_\_\_  
\_\_\_\_\_  
Telephone Number: \_\_\_\_\_

**IF A PARTNERSHIP:**

Partnership Name: \_\_\_\_\_  
By: \_\_\_\_\_  
*(Authorized Signature)*  
*(Attach Evidence of Authority to sign as a Partnership)*  
Name and Title: \_\_\_\_\_  
Business Address: \_\_\_\_\_  
\_\_\_\_\_  
Telephone Number: \_\_\_\_\_

**IF A CORPORATION:**

Corporation Name: \_\_\_\_\_  
By: \_\_\_\_\_  
*(Authorized Signature)*  
*(Attach Evidence of Authority to sign)*  
Name and Title: \_\_\_\_\_  
Business Address: \_\_\_\_\_ (CORPORATE SEAL)  
\_\_\_\_\_  
Telephone Number: \_\_\_\_\_

**ATTEST:**

By: \_\_\_\_\_  
*(Authorized Signature)*  
Name and Title: \_\_\_\_\_

**PF-6**

**IF A JOINT VENTURE:** *(Attach copy of Joint Venture Agreement)*

Joint Venture Name: \_\_\_\_\_

By: \_\_\_\_\_

*(Authorized Signature)*  
*(Attach Evidence of Authority to sign)*

Name and Title: \_\_\_\_\_

Business Address: \_\_\_\_\_

\_\_\_\_\_

Telephone Number: \_\_\_\_\_

Joint Venture Name: \_\_\_\_\_

By: \_\_\_\_\_

*(Authorized Signature)*  
*(Attach Evidence of Authority to sign)*

Name and Title: \_\_\_\_\_

Business Address: \_\_\_\_\_

\_\_\_\_\_

Telephone Number: \_\_\_\_\_

## UTILIZATION STATEMENT

### Disadvantaged 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 assumes 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/Offeror's Firm Name

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

### 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, Bidder must provide written documentation of the good faith efforts as required by 49 CFR Part 26.

DBE-1

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

**Bidder/Offeror**

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

**DBE Firm:**

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

**DBE Contact Person:**

Name: \_\_\_\_\_ Phone: (\_\_\_\_) \_\_\_\_\_

**DBE Certification Agency:**

Name: \_\_\_\_\_ Expiration Date: \_\_\_\_\_

*Each DBE Firm shall submit evidence (such as a photocopy) of their certification status.*

**Classification:**

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

| Work Item(s) to be performed by DBE | Description of Work Item | 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.**

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

**Bidder/Offeror**

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

**DBE Firm:**

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

**DBE Contact Person:**

Name: \_\_\_\_\_ Phone: (\_\_\_\_) \_\_\_\_\_

**DBE Certification Agency:**

Name: \_\_\_\_\_ Expiration Date: \_\_\_\_\_

*Each DBE Firm shall submit evidence (such as a photocopy) of their certification status.*

**Classification:**

- ☐ Prime Contractor      ☐ Subcontractor      ☐ Joint Venture  
☐ Manufacturer      ☐ Supplier

| Work Item(s) to be performed by DBE | Description of Work Item | 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.**

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

**Bidder/Offeror**

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

**DBE Firm:**

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

**DBE Contact Person:**

Name: \_\_\_\_\_ Phone: (\_\_\_\_) \_\_\_\_\_

**DBE Certification Agency:**

Name: \_\_\_\_\_ Expiration Date: \_\_\_\_\_

*Each DBE Firm shall submit evidence (such as a photocopy) of their certification status.*

**Classification:**

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

| Work Item(s) to be performed by DBE | Description of Work Item | 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.**

## Buy American Certification

A bidder or offeror must submit the appropriate Buy America certification (below) with all bids or offers on AIP funded projects. Bids or offers that are not accompanied by a completed Buy America certification must be rejected as nonresponsive.

### **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 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

**BA-2**

**BUSINESS RELATIONSHIPS AFFIDAVIT**

**THIS BID WILL NOT BE CONSIDERED UNLESS THIS AFFIDAVIT HAS BEEN FULLY COMPLETED AND SIGNED BY THE BIDDER OR AUTHORIZED AGENT OF BIDDER, AND ACKNOWLEDGED, DATED AND COMPLETED BY A NOTARY PUBLIC.**

STATE OF \_\_\_\_\_ )  
 ) ss:  
COUNTY OF \_\_\_\_\_ )

COMES NOW, the Affiant, and states as follows:

1. I am the \_\_\_\_\_ of \_\_\_\_\_,  
(Owner, Partner, Officer, etc.) (Company Name)  
whose principal place of business is located in \_\_\_\_\_, in the State of \_\_\_\_\_.
2. That I am of lawful age, being first duly sworn, on oath says that (s)he has the lawful authority to execute this affidavit on behalf of the above named company.
3. Affiant further states that the nature of any partnership, joint venture, or other business relationship presently in effect or which existed within one (1) year prior to the date of this statement with the architect, engineer, or other party to the Project is as follows:  
\_\_\_\_\_  
\_\_\_\_\_
4. Affiant further states that any such business relationship presently in effect or which existed within one (1) year prior to the date of this statement between any officer or director of the Bidding company and any officer or director of the architectural or engineering firm or other party to the Project is as follows:  
\_\_\_\_\_  
\_\_\_\_\_
5. Affiant further states that the names of all persons having any such business relationships and the positions they hold with their respective companies or firms are as follows:  
\_\_\_\_\_  
\_\_\_\_\_

\_\_\_\_\_  
Name of Company, Partnership, Corporation, or Individual, herein called "Bidder"

\_\_\_\_\_  
Signature of Bidder or Bidder's Authorized Agent

\_\_\_\_\_  
Type or Print name and title of person who signed above

**BR-1**

## ACKNOWLEDGEMENT

On this \_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_ before me, the undersigned, Notary Public in and for the County and State aforesaid, personally appeared \_\_\_\_\_ to me know to be the identical person who signed the name of the Maker thereof to the within and foregoing affidavit as its authorized agent and acknowledged and swore to me that he/she executed the same as his/her free and voluntary act and deed, and as the free and voluntary act and deed of said Bidder for the uses and purposes therein set forth.

Witness my hand and official seal the day and year above set forth.

\_\_\_\_\_  
Notary Public

(SEAL)

My Commission Expires: \_\_\_\_\_

My Commission Number: \_\_\_\_\_

**NON-COLLUSION STATEMENT**

**THIS BID WILL NOT BE CONSIDERED UNLESS THIS STATEMENT HAS BEEN FULLY COMPLETED AND SIGNED BY THE BIDDER OR AUTHORIZED AGENT OF BIDDER, AND ACKNOWLEDGED, DATED AND COMPLETED BY A NOTARY PUBLIC.**

STATE OF \_\_\_\_\_ )  
 ) ss:  
COUNTY OF \_\_\_\_\_ )

- A. For purposes of competitive bids, I certify:
1. I am the duly authorized agent of \_\_\_\_\_, the bidder submitting the competitive bid which is attached to this statement, for the purpose of certifying the facts pertaining to the existence of collusion among bidders and between bidders and the OWNER, or their, employees, officers and agents as well as facts pertaining to the giving or offering of things of value to government personnel in return for special consideration in the letting of any contract pursuant to the bid to which this statement is attached;
  2. I am fully aware of the facts and circumstances surrounding the making of the bid to which this statement is attached and have been personally and directly involved in the proceedings leading to the submission of such bid; and
  3. Neither the bidder nor anyone subject to the bidder's direction or control has been a party:
    - a. to any collusion among bidders in restraint of freedom of competition by agreement to bid at a fixed price or to refrain from bidding;
    - b. to any collusion with any OWNER official or employee as to quantity, quality or price in the prospective contract, or as to any other terms of such prospective contract; nor
    - c. in any discussions between bidders and any OWNER official concerning exchange of money or other thing of value for special consideration in the letting of a contract.
- B. I certify, if awarded the contract, whether competitively bid or not, neither the contractor nor anyone subject to the contractor's direction or control has paid, given or donated or agreed to pay, give or donate to any officer or employee of the OWNER, any money or other thing of value, either directly or indirectly, in procuring the contract to which this statement is attached.

Certified this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

BIDDER:

BY: \_\_\_\_\_

PRINT NAME: \_\_\_\_\_

TITLE: \_\_\_\_\_

Subscribed and sworn to before me this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_.

SEAL:

\_\_\_\_\_  
Notary Public

My Commission Expires: \_\_\_\_\_  
Commission No. \_\_\_\_\_

Required pursuant to 61 O.S. §115 and §138

**NC-1**

## Shawnee, Oklahoma Small Business Program

**Shawnee, Oklahoma** has adopted a program to encourage and promote the use of small businesses as subcontractors on construction contracts funded by the Federal Aviation Administration's Airport Improvement Program (AIP) and as set forth in the Oklahoma Public Competitive Bidding Act and 49 CFR Part 26. **Shawnee, Oklahoma** Small Business Program shall be fully implemented within nine (9) months of the Federal Aviation Administration's approval.

The successful bidder awarded an AIP construction contract by the **City** must provide an AIP Construction Project Subcontracting Plan & Affidavit. This plan shall set forth the Contractor's efforts and strategies to provide and extend opportunities for small business participation on the performance of subcontracts on AIP projects. The Contractor's plan must be submitted to the **City** before a notice to proceed with work will be issued. The plan must set forth the Contractor's outreach and internal efforts. The Contractor must provide a report on the progress and success of its small business subcontracting plan to the **City** as a condition precedent to final payment and release of retainage. The project will neither be deemed substantially complete nor be accepted for final payment until the Contractor submits an AIP Construction Project Subcontracting Plan Close Out Report that demonstrates the progress and success of its AIP Construction Project Subcontracting Plan. The **City** will utilize this information to identify and encourage those minority and women owned small business firms that are eligible for DBE certification to become certified. The **City** will verify that small businesses reported on the AIP Construction Project Subcontracting Plan Close Out Report are qualified under the Oklahoma Department of Transportation's Small Business Program. Furthermore, the **City** will report the participation of DBE firms, as Race Neutral participation in the Small Business Program, to the FAA.

The **City's** Small Business Program will also assure that AIP projects with an estimated construction cost greater than \$1.5 million dollars and consisting of multiple contractual elements (i.e. paving, earthwork, electrical) will be separated into separate bidding schedules to provide for small firm competition.

The **City's** Small Business Program will also assure that no geographic preferences or limitations imposed on either small businesses or federally assisted procurement. The **City** will impose no limits on the number of contracts awarded to participating firms, and that the **City** will make every effort will be made to avoid creating barriers to the use of new, emerging, or untried businesses.

All DBE firms (including Prime Contractors) are considered eligible for the **City's** Small Business Program. Other eligible small business firms are defined by the Small Business Administration's standards:

(a) SBA's size standards define whether a business entity is small and, thus, eligible for Government programs and preferences reserved for "small business" concerns. Size standards have been established for types of economic activity, or industry, generally under the North American Industry Classification System (NAICS).

(b) NAICS is described in the North American Industry Classification Manual-United States, which is available from the National Technical Information Service, 5285 Port Royal Road, Springfield, VA 22161; by calling 1(800) 553-6847 or 1(703) 605-6000; or via the Internet at <http://www.ntis.gov/products/naics.aspx>. The manual includes definitions for each industry, tables showing relationships between 1997 NAICS and 1987 SICs, and a comprehensive index. NAICS assigns codes to all economic activity within twenty broad sectors. Section 121.201 provides a full table of small business size standards matched to the U.S. NAICS industry codes. A full table matching a size standard with each NAICS Industry or U.S. Industry code is also published annually by SBA in the Federal Register. NAICS Codes and size standards for the current project include, but are not limited to the codes shown in **Figure 1: Sample NAICS Codes**.

| NAICS codes                                                   | NAICS U.S. industry title                                        | Size standards in millions of dollars |
|---------------------------------------------------------------|------------------------------------------------------------------|---------------------------------------|
| <b>Subsector 237—Heavy and Civil Engineering Construction</b> |                                                                  |                                       |
| 237110                                                        | Water and Sewer Line and Related Structures Construction         | \$33.5                                |
| 237120                                                        | Oil and Gas Pipeline and Related Structures Construction         | \$33.5                                |
| 237130                                                        | Power and Communication Line and Related Structures Construction | \$33.5                                |
| 237310                                                        | Highway, Street, and Bridge Construction                         | \$33.5                                |
| 237990                                                        | Other Heavy and Civil Engineering Construction                   | \$33.5                                |

**Figure 1: Sample NAICS Codes**

**THE CITY OF SHAWNEE**  
**AIP CONSTRUCTION PROJECT SUBCONTRACTING PLAN & AFFIDAVIT**

The following Affidavit must be submitted by the successful Bidder, or Bidder's Authorized Agent. A Notice to Proceed will not be issued by the Engineer until the affidavit is received.

The undersigned, of lawful age, being first duly sworn on oath, affirms and states that the Bidder has the authority to execute this Public Construction Project Subcontracting Plan.

**I. AIP Construction Project Subcontracting Plan**

A. Outreach - In the space provided below describe in detail your company's efforts regarding outreach to small, minority, disadvantaged and women owned businesses in an effort to utilize their services in conjunction with Project Number \_\_\_\_\_.

---

---

---

---

---

B. Internal Efforts – In the space provided below describe in detail any initiatives in place within your company directed at establishing policies and procedures to ensure that small, minority, disadvantaged and women owned businesses are made aware of and given the opportunity to submit bids for sub-contracting on publicly funded projects.

---

---

---

---

---

C. A Notice to Proceed for the project listed above will not be issued by the City until this document is completed and returned to the City. The document must be completed and signed by the Contractor, and notarized, dated and completed by the Notary Public.

Submitted for: \_\_\_\_\_ By: \_\_\_\_\_  
Company Name Signature

Subscribed and sworn to before me this \_\_\_\_ day of \_\_\_\_\_, \_\_\_\_\_

Notary Public: \_\_\_\_\_

Commission # / Expiration: \_\_\_\_\_



## PERFORMANCE BOND

Bond Number

PRINCIPAL *(Legal Name and Business Address)*

STATE OF INCORPORATION

SURETY *(Legal Name and Business Address)*

GRANT NO.

CONTRACT DATE

3-40-0088-025-2023

PENAL SUM OF BOND *(Expressed in words and numerals)*

### 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 **the City of Shawnee, 16 West 9<sup>th</sup> St., OK 74801**, 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: **Base Bid: Improve Airport Drainage**

Project Location: **Shawnee Regional Airport**

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.

PB-1

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**

**INDIVIDUAL PRINCIPAL:**

Company Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Name, Title: \_\_\_\_\_

**PB-2**

**CORPORATE PRINCIPAL:**

ATTEST: Corporate Name: \_\_\_\_\_

Signature: \_\_\_\_\_ Signature: \_\_\_\_\_

Name, Title: \_\_\_\_\_ Name, Title: \_\_\_\_\_  
(Affix Corporate Seal)

**SURETY:**

ATTEST: Surety Name: \_\_\_\_\_

Signature: \_\_\_\_\_ Signature: \_\_\_\_\_

Name, Title: \_\_\_\_\_ Name, Title: \_\_\_\_\_  
(Affix Seal) (Attach Power of Attorney)

**OWNER ACCEPTANCE**

The OWNER approves the form of this Performance Bond.

ATTEST:

Signature: \_\_\_\_\_ Signature: \_\_\_\_\_

Name, Title: \_\_\_\_\_ Name, Title: \_\_\_\_\_  
(Affix Seal)

## PAYMENT BOND

Bond Number

PRINCIPAL *(Legal Name and Business Address)*

STATE OF INCORPORATION

SURETY *(Legal Name and Business Address)*

GRANT NO.

CONTRACT DATE

3-40-0088-025-2023

PENAL SUM OF BOND *(Expressed in words and numerals)*

### 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 **the City of Shawnee, 16 West 9<sup>th</sup> St., OK 74801**, 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: **Base Bid: Improve Airport Drainage**

Project Location: **Shawnee Regional Airport**

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

PA-1

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**

**INDIVIDUAL PRINCIPAL:**

Company Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Name, Title: \_\_\_\_\_

**CORPORATE PRINCIPAL:**

ATTEST:

Corporate Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Signature: \_\_\_\_\_

Name, Title: \_\_\_\_\_  
(Affix Corporate Seal)

Name, Title: \_\_\_\_\_

**SURETY:**

ATTEST:

Surety Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Signature: \_\_\_\_\_

Name, Title: \_\_\_\_\_  
(Affix Seal)

Name, Title: \_\_\_\_\_  
(Attach Power of Attorney)

**OWNER ACCEPTANCE**

The OWNER approves the form of this Performance Bond.

ATTEST:

Signature: \_\_\_\_\_

Signature: \_\_\_\_\_

Name, Title: \_\_\_\_\_  
(Affix Seal)

Name, Title: \_\_\_\_\_

## MAINTENANCE BOND

KNOW ALL MEN BY THESE PRESENTS:

That \_\_\_\_\_, as Principal, and \_\_\_\_\_, a corporation organized under the laws of the State of \_\_\_\_\_ and authorized to transact business in the state of Oklahoma, as Surety, are held and firmly bound unto the **City of Shawnee, Oklahoma** and the State of Oklahoma, in the Penal sum of (Words) \_\_\_\_\_ (full amount of contract) (Figures) \$\_\_\_\_\_ in lawful money of the United States of America for the payment of which, well and truly be made, we bind ourselves and each of us, our heirs executors, administrators, trustees, successors, and assigns, jointly and severally, firmly by these presents.

The condition of this obligation is such that:

WHEREAS, said Principal entered into a written contract with the **City of Shawnee, Oklahoma** dated \_\_\_\_\_, \_\_\_\_\_, for all work required in **AIP Project No. 3-40-0088-025-2023** in compliance with the specifications, therefore, made a part of said Contract and on file in the offices of the City Clerk, **Shawnee, Oklahoma**.

NOW, THEREFORE, if said Principal shall pay or cause to be paid to the **City of Shawnee, Oklahoma**, all damage, loss and expense which may result by reason of defective materials and/or workmanship in connection with said work, occurring within a period of one (1) year for all projects, form and after acceptance of said project by the City and if Principal shall pay or cause to be paid all labor and materials, including the prime contractor and all subcontractors; and if principal shall save and hold the City harmless from all damages, loss, and expense occasioned by or resulting from any failure whatsoever of said Principal, then this obligation shall be null and void, otherwise to be and remain in full force and effect.

It is further expressly agreed and understood by the parties hereto that no changes or alterations in said Contract and no deviations from the plan or mode or procedure herein fixed shall have the effect of releasing the sureties, or any of them, from the obligation of this Bond.

IN WITNESS WHEREOF, the said Principal has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its duly authorized officers, and the said Surety has caused these presents to be executed in its name and its corporate seal to be hereunto affixed by its attorney-in-fact, duly authorized so to do, the day and year first above written.

**MB-1**

**CORPORATE PRINCIPAL:**

ATTEST:

Corporate Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Date: \_\_\_\_\_

Name, Title: \_\_\_\_\_

Name, Title: \_\_\_\_\_

(Affix Corporate Seal)

**SURETY:**

ATTEST:

Surety Name: \_\_\_\_\_

Signature: \_\_\_\_\_

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Date \*\*: \_\_\_\_\_

Name, Title: \_\_\_\_\_

Name, Title: \_\_\_\_\_

(Affix Seal)

Attorney in Fact

(Attach Power of Attorney)

\*\*This date shall match the date of the notarized certificate on the Power of Attorney

APPROVED AS TO FORM: \_\_\_\_\_ Date: \_\_\_\_\_

City Attorney

**MB-2**

**CONTRACT AGREEMENT  
CITY OF SHAWNEE, OKLAHOMA  
SHAWNEE REGIONAL AIRPORT  
AIP PROJECT NO. 3-40-0088-025-2023**

**THIS AGREEMENT**, made as of \_\_\_\_\_ is  
*{Insert Effective Date of Agreement}*

**BY AND BETWEEN**

the OWNER:                      **Shawnee Airport Authority on behalf of  
the City of Shawnee, Oklahoma  
16 West 9<sup>th</sup> ST.  
Shawnee, Oklahoma 74801**

And the CONTRACTOR:       **Contractor's Name  
Address  
City, State Zip Code**

**WITNESSETH:**

WHEREAS it is the intent of the Owner to make improvements at **Shawnee Regional Airport** generally described as follows:

**Base Bid: Improve Airport Drainage**

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, General Provisions, Supplementary Provisions, Specifications, 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.

**CA-1**

### 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:

|                                  |                             |
|----------------------------------|-----------------------------|
| _____                            | (\$ _____)                  |
| <i>(Amount in Written Words)</i> | <i>(Amount in Numerals)</i> |

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 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 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 **sixty-six (66) calendar days for Base Bid** 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 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. 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 of \$1,500 per calendar day for each calendar day required in excess of the authorized Contract Time.

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 Nonsegregated Facilities (41 CFR § 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;
- 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:

**Lochner  
701 Cedar Lake Blvd  
Suite 230  
Oklahoma City, OK 73114**

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 five (5) copies of this Agreement on the day and year first noted herein.

**OWNER**

Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

By: \_\_\_\_\_

*Signature*

\_\_\_\_\_  
*Title of Representative*

**ATTEST**

By: \_\_\_\_\_

*Signature*

\_\_\_\_\_  
*Title*

**CONTRACTOR**

Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

By: \_\_\_\_\_

*Signature*

\_\_\_\_\_  
*Title of Representative*

**ATTEST**

By: \_\_\_\_\_

*Signature*

\_\_\_\_\_  
*Title*

**LOCHNER PROJECT: 15710**

**LOCHNER**

701 Cedar Lake Blvd. | Suite 230 | Oklahoma City, OK 73114  
[hwlochner.com](http://hwlochner.com)

**CITY OF SHAWNEE, OKLAHOMA  
SHAWNEE REGIONAL AIRPORT**

**Base Bid:  
Improve Airport Drainage**

**AIP PROJECT NO. 3-40-0088-025-2023**

**LOCHNER PROJECT NO. 15710**

**ADDENDUM NO. 1**

**June 7, 2023**



TO ALL PROSPECTIVE BIDDERS:

1. The following modifications and clarifications to the **Project Plans/Specifications** have been made.
  - A. **Revisions to Contract Documents/Specifications** Bidders shall replace the contract documents/specifications sections named below in their entirety with the attached revised contract documents/specifications.
    - i. Proposal Form
      - a. Updated Pay Items
      - b. **This updated Proposal Form shall be used in submitting a bid. Be sure to acknowledge Addendum No. 1 on the New Proposal Form.**
    - ii. Item P-101 – Preparation/Removal of Existing Pavement
      - a. Pay Item “Storm Pipe Camera Inspection – Per Linear Foot” has been added
  - B. **Revisions to Plan Sheets** Bidders shall replace the Plan sheet(s) named below in their entirety with the attached revised Plan sheet(s).
    - i. Sheet 3 – Summary of Quantities and Pay Item Notes
      - a. Addition of Pay Item Notes
      - b. Modification to Pay Item(s)
        - i. Pay Item “Storm Pipe Camera Inspection – Per Linear Foot” has been added.
2. Additional Information:
  - A. All bidders must acknowledge receipt of Addendum No. 1 in the space provided in the proposal section of the Project Specifications. Failure to acknowledge receipt of an addendum may be cause for rejection of the bid.
  - B. Upon receipt of this addendum, you **must** sign and return the acknowledgement form on Page 2 of this addendum by e-mail to:

LOCHNER  
E-Mail: [OKCBids@hwlochner.com](mailto:OKCBids@hwlochner.com)

**CITY OF SHAWNEE, OKLAHOMA  
SHAWNEE REGIONAL AIRPORT**

**Base Bid:  
Improve Airport Drainage**

**AIP PROJECT NO. 3-40-0088-025-2023**

**LOCHNER PROJECT NO. 15710**

**ADDENDUM NO. 1**

**June 7, 2023**

**ACKNOWLEDGEMENT OF RECEIPT OF ADDENDUM NO. 1**

The undersigned hereby declares that he/she has received Addendum No. 1, dated June 7, 2023, for the subject project. The undersigned will incorporate this Addendum with his/her proposal:

Name of Company: \_\_\_\_\_

Signature: \_\_\_\_\_

Title: \_\_\_\_\_

**PROPOSAL FORM**

**A.I.P. PROJECT NO. 3-40-0088-025-2023**

**TO: City Clerk  
16 West 9<sup>th</sup> St.  
City of Shawnee, Oklahoma 74802**

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

**Base Bid: Improve Airport Drainage**

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 project manual, project drawings and issued Addenda within the specified time of performance for the following prices:

| Item No.                           | Spec. | Description                                                       | Approximat |      | Unit Price | Extension |
|------------------------------------|-------|-------------------------------------------------------------------|------------|------|------------|-----------|
|                                    |       |                                                                   | Qty.       | Unit |            |           |
| FAA PROJECT NO. 3-40-0088-025-2023 |       |                                                                   |            |      |            |           |
| BASE BID                           |       |                                                                   |            |      |            |           |
| IMPROVE AIRPORT DRAINAGE           |       |                                                                   |            |      |            |           |
| 1                                  | TEMP  | Temporary Marking, Lighting & Barricades<br>Unit Price in Words   | 1          | L.S. |            |           |
| 2                                  | C-102 | Temporary Erosion Control<br>Unit Price in Words                  | 1          | L.S. |            |           |
| 3                                  | C-105 | Mobilization (NTE 10% of Total Bid Amount)<br>Unit Price in Words | 1          | L.S. |            |           |
| 4                                  | P-101 | Remove Inlets/Manholes<br>Unit Price in Words                     | 3          | EA.  |            |           |
| 5                                  | P-101 | Remove 18" Storm Pipe<br>Unit Price in Words                      | 8          | L.F. |            |           |
| 6                                  | P-101 | Remove 24" Storm Pipe<br>Unit Price in Words                      | 8          | L.F. |            |           |
| 7                                  | P-101 | Remove 60" Storm Pipe<br>Unit Price in Words                      | 16         | L.F. |            |           |
| 8                                  | P-101 | Plug 8" Storm Sewer Pipe<br>Unit Price in Words                   | 75         | L.F. |            |           |
| 9                                  | P-101 | Plug 18" Storm Sewer Pipe<br>Unit Price in Words                  | 100        | L.F. |            |           |
| 10                                 | P-101 | Plug 30" Storm Sewer Pipe<br>Unit Price in Words                  | 50         | L.F. |            |           |
| 11                                 | P-101 | Clean End Section<br>Unit Price in Words                          | 16         | EA.  |            |           |
| 12                                 | P-101 | Clean Headwall<br>Unit Price in Words                             | 7          | EA.  |            |           |
| 13                                 | P-101 | Flush and Clean Storm Sewer Pipe<br>Unit Price in Words           | 5,720      | L.F. |            |           |

**Incorporates  
Addendum No. 1**

|                         |       |                                                                                                        |       |      |  |  |
|-------------------------|-------|--------------------------------------------------------------------------------------------------------|-------|------|--|--|
| 14                      | P-101 | Rehabilitate Storm Structure<br>Unit Price in Words                                                    | 17    | EA.  |  |  |
| 15                      | P-101 | Storm Pipe Camera Inspection<br>Unit Price in Words                                                    | 2,950 | L.F. |  |  |
| 16                      | P-151 | Clearing and Grubbing<br>Unit Price in Words                                                           | 2.2   | AC   |  |  |
| 17                      | P-152 | Unclassified Excavation<br>Unit Price in Words                                                         | 735   | C.Y. |  |  |
| 18                      | D-701 | 18" RCP (Class 3)<br>Unit Price in Words                                                               | 8     | L.F. |  |  |
| 19                      | D-701 | 24" RCP (Class 3)<br>Unit Price in Words                                                               | 8     | L.F. |  |  |
| 20                      | D-701 | 60" RCP (Class 3)<br>Unit Price in Words                                                               | 16    | L.F. |  |  |
| 21                      | D-701 | 24" RCP End Section<br>Unit Price in Words                                                             | 1     | EA.  |  |  |
| 22                      | D-751 | 5' x 5' Grate Inlet<br>Unit Price in Words                                                             | 1     | EA.  |  |  |
| 23                      | D-751 | 9' x 5' Grate Inlet<br>Unit Price in Words                                                             | 1     | EA.  |  |  |
| 24                      | T-904 | Sodding<br>Unit Price in Words                                                                         | 3,975 | S.Y. |  |  |
| 25                      | --    | Furnish and Install Solar Powered LED Taxiway Centerline Light (FAA Ineligible)<br>Unit Price in Words | 242   | EA.  |  |  |
| 26                      | --    | Furnish Solar Powered LED Taxiway Centerline Light (FAA Ineligible)<br>Unit Price in Words             | 25    | EA.  |  |  |
| <b>BASE BID TOTAL</b>   |       |                                                                                                        |       |      |  |  |
| Base Bid Total In Words |       |                                                                                                        |       |      |  |  |

**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 documents identified within the Instructions to Bidders. The BIDDER further acknowledges that each of the individual documents that comprise the Bid Documents are complementary to one another and together establishes 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 bid price. The BIDDER acknowledges and accepts that refusal or failure to accept award and execute a contract within the terms and conditions established herein will result in forfeiture of the bid guaranty to the owner as a liquidated damage.

**Incorporates  
Addendum No. 1**

- 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 **ninety (90)** 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 within **fifteen (15) calendar days** of the Notice-of-Award and furthermore will provide executed payment and performance bonds simultaneously with delivery of executed contract. The undersigned accepts that failure to execute the contract and provide the required bonds within the stated timeframe shall 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 further agrees to complete the Project within **sixty-six (66) calendar days for Base Bid** from the commencement date specified in the Notice-to-Proceed.
- h. The undersigned acknowledges and accepts that for each and every Calendar day the project remains incomplete beyond the contract time of performance, the Contractor shall pay the non-penal amount of **\$1,500** per Calendar day as a liquidated damage to the OWNER.
- i. The BIDDER acknowledges that the OWNER has established a contract Disadvantaged Business Enterprise goal of **5.63%** 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 attached forms, "Utilization Statement" and "Letter of Intent". **The bidder shall complete the Disadvantaged Business Enterprise forms (DBE-1 to DBE-4) regardless of the DBE goal if a DBE firm is to be utilized on the project.**
- 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 proceeding 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

The undersigned acknowledges receipt of the following addenda:

**PF-3**

Addendum Number \_\_\_\_ dated \_\_\_\_\_  
Addendum Number \_\_\_\_ dated \_\_\_\_\_  
Addendum Number \_\_\_\_ dated \_\_\_\_\_

Received \_\_\_\_\_  
Received \_\_\_\_\_  
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 Nonsegregated Facilities:** (41 CFR § 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 in this contract.

As used in this certification, the term "segregated facilities" means any waiting rooms, work areas, restrooms, and washrooms, 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 which are segregated by explicit directives or are, in fact, 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 CFR Part 30)

The Bidder, by submission of an offer certifies that it:

- a. 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 published by the Office of the United States Trade Representative (USTR);
- b. 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 on said list, or is owned or controlled directly or indirectly by one or more citizens or nationals of a foreign country on said list;
- c. has not procured any product nor subcontracted for the supply of any product for use on the project that is produced in a foreign country on said list.

d. **Certification Regarding Debarment and Suspension:** (2 CFR Part 180 (Subpart C), 2 CFR Part 1200, DOT Order 4200.5 DOT Suspension & Debarment Procedures & Ineligibility)

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

The successful bidder, by administering each lower tier subcontract that exceeds \$25,000 as a “covered transaction”, must verify 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.

If the FAA later determines that a lower tier participant failed to tell a higher tier that it was excluded or disqualified at the time it entered the covered transaction, the FAA may pursue any available remedy, including suspension and debarment.

Where the Bidder or any lower tier participant is unable to certify to this statement, it shall attach an explanation to this solicitation/proposal.

**ATTACHMENTS TO THIS BID**

The following documents are attached to and made a part of this Bid:

1. Bid Guaranty in the form of \_\_\_\_\_;
2. Completed DBE form “Utilization Statement”.
3. Completed DBE form “Letter of Intent”. **The DBE affirmation on the “Letter of Intent” shall be submitted within three (3) working days of the bid opening.**
4. Evidence of good faith efforts required by 49 CFR Part 26, Appendix A. If proposed DBE goal is met, submittal of evidence of good faith efforts is not required.
5. Completed “Buy American Certification”.
6. Completed “Business Relationships Affidavit”
7. Completed “Non-Collusion Statement”
8. Evidence of BIDDER’S qualifications per the requirements of the Instructions-to-Bidders.

**SIGNATURE OF BIDDER**

**IF AN INDIVIDUAL:**

Name: \_\_\_\_\_  
By: \_\_\_\_\_  
*(Signature of Individual)*  
Doing Business as: \_\_\_\_\_  
Business Address: \_\_\_\_\_  
\_\_\_\_\_  
Telephone Number: \_\_\_\_\_

**IF A PARTNERSHIP:**

Partnership Name: \_\_\_\_\_  
By: \_\_\_\_\_  
*(Authorized Signature)*  
*(Attach Evidence of Authority to sign as a Partnership)*  
Name and Title: \_\_\_\_\_  
Business Address: \_\_\_\_\_  
\_\_\_\_\_  
Telephone Number: \_\_\_\_\_

**IF A CORPORATION:**

Corporation Name: \_\_\_\_\_  
By: \_\_\_\_\_  
*(Authorized Signature)*  
*(Attach Evidence of Authority to sign)*  
Name and Title: \_\_\_\_\_  
Business Address: \_\_\_\_\_ (CORPORATE SEAL)  
\_\_\_\_\_  
Telephone Number: \_\_\_\_\_

**ATTEST:**

By: \_\_\_\_\_  
*(Authorized Signature)*  
Name and Title: \_\_\_\_\_

**IF A JOINT VENTURE:** *(Attach copy of Joint Venture Agreement)*

Joint Venture Name: \_\_\_\_\_

By: \_\_\_\_\_

*(Authorized Signature)*  
*(Attach Evidence of Authority to sign)*

Name and Title: \_\_\_\_\_

Business Address: \_\_\_\_\_

\_\_\_\_\_

Telephone Number: \_\_\_\_\_

Joint Venture Name: \_\_\_\_\_

By: \_\_\_\_\_

*(Authorized Signature)*  
*(Attach Evidence of Authority to sign)*

Name and Title: \_\_\_\_\_

Business Address: \_\_\_\_\_

\_\_\_\_\_

Telephone Number: \_\_\_\_\_

## SECTION 8

### ITEM P-101

#### PREPARATION/REMOVAL OF EXISTING PAVEMENT

##### 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. **The material shall be wasted off Airport property, and it shall become the property of the Contractor.** 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 underlying 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 material is to be **wasted off the Airport property**, it shall **become the property of the Contractor**.

**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 1/4 inch (6 mm). Any excess joint or crack sealer shall be removed from the pavement surface.

#### **101-3.3 Removal of Foreign Substances/contaminates prior to overlay, seal-coat, or 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.

**Cold milling and /or rotary grinding** 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 underlying 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**. 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 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 **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.**

**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.**

**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.**

**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 or 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 or random crack saw**. Following **routing or 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**, when outside of paved areas must be compacted to **90% of ASTM D1557**.

**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**. When outside of paved areas must be compacted to **90% of ASTM D1557**.

**c. Removal of Drainage Structures.** Where indicated on the plans or as directed by the RPR, headwalls, wingwalls, and concrete flume 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.** When outside of paved areas must be compacted to **90% of ASTM D1557**.

**d. Plug Existing Storm Sewer Pipe.** Where indicated on the plans or as directed by the RPR, the pipe shall be plugged at each end with Concrete, P-610, and the pipe filled with Controlled Low Strength Material, P-153. End sections associated with each pipe shall be removed and disposed of off airport property. This work shall be subsidiary to plugging.

**101-3.9.5 Cleaning Pipes and Structures.**

**a. Clean End Section.** Where indicated on the plans or as directed by the RPR, end sections shall be cleaned of vegetation, soil, debris, and all foreign material that restricts flow. The removed material shall be legally disposed of offsite in a timely fashion after removal. Removal of material shall be subsidiary to cleaning end sections.

**b. Clean Headwall.** Where indicated on the plans or as directed by the RPR, headwalls shall be cleaned of vegetation, soil, debris, and all foreign material that restricts flow. The removed material shall be legally disposed of offsite in a timely fashion after removal. Removal of material shall be subsidiary to cleaning headwalls.

**c. Flush and Clean Storm Sewer Pipe.** Where indicated on the plans or as directed by the RPR, storm sewer pipes shall be cleaned by removing and disposing of all debris and obstructions. Pipes shall be cleaned by flushing, rodding, or whatever means are necessary to provide unobstructed drainage without damaging the existing pipes. All debris shall be legally disposed of offsite in a timely fashion after removal. Removal of debris shall be subsidiary to cleaning storm pipes.

**d. Storm Pipe Camera Inspection.** At locations noted in the plans or directed by the RPR, use a camera for determination that the pipe is clear of debris. Use a camera with lighting suitable to allow a clear picture of the entire periphery of the pipe interior. Center the camera in the pipe both vertically and horizontally and be able to pan and tilt to a 90 degree angle with the axis of the pipe rotating 360 degrees. Use equipment to move the camera through the pipe that will not obstruct the camera's view or interfere

with proper documentation of the pipe's condition. The video image shall be clear, focused, and relatively free from roll, static, or other image distortion qualities that would prevent the reviewer from evaluating the condition of the pipe. For pipe sizes larger than 48 inches, a walk-through visual inspection shall be performed.

**101-3.9.6 Rehabilitate Storm Structure.** Where indicated on the plans or as directed by the RPR, storm structures (inlets, manholes, junction boxes) shall be rehabilitated by excavating around the structure, sealing penetrations with non-shrink grout, mastic, or other approved sealant material, filling and sealing openings in structures with non-shrink grout, backfilling, and grading the surrounding area to drain. Additionally, this item shall include cleaning the structure of debris, rock, sediment, and any other obstructions. All debris shall be legally disposed of offsite in a timely fashion after removal. Removal of debris shall be subsidiary to rehabilitating storm structures.

## **METHOD OF MEASUREMENT**

**101-4.1 Pavement removal.** The unit of measurement for pavement removal shall be the number of square yards 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 **offset saw cutting as required for protection of pavement scheduled to remain in place.**

**101-4.2 Saw Cut.** The unit of measurement for saw cut shall be the linear foot of saw cut. Saw cutting shall only be measured in conjunction with pavement removal. Any other saw cut shall be considered subsidiary obligation of the Contractor under the other contract items.

**101-4.3 Removal of Pipe.** The unit of measurement for removal of pipe will be **made at the contract unit price per linear foot completed and accepted. 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.**

**101-4.4 Removal of Inlets/Manholes.** The unit of measurement for removal of inlets/manholes will be **made at the contract unit price for each completed and accepted inlet/manhole/storm sewer junction box. 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.**

**101-4.5 Plug Storm Sewer Pipe.** The unit of measurement for plugging existing storm sewer pipes will be **made at the contract unit price per linear foot completed and accepted. 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.**

**101-4.6 Clean End Section.** The unit of measurement for cleaning end sections will be **made at the contract price for each completed and accepted cleaned end section. This price shall be full compensation for all labor, equipment, tools, and incidentals necessary to complete this item in accordance with paragraph 101-3.9.5.**

**101-4.7 Clean Headwall.** The unit of measurement for cleaning headwalls will be **made at the contract price for each completed and accepted cleaned headwall. This price shall be full compensation for all labor, equipment, tools, and incidentals necessary to complete this item in accordance with paragraph 101-3.9.5.**

**101-4.8 Flush and Clean Storm Sewer Pipe.** The unit of measurement for flushing and cleaning storm sewer pipes will be **made at the contract price per linear foot completed and accepted. This price shall be full compensation for all labor, equipment, tools, and incidentals necessary to complete this item in accordance with paragraph 101-3.9.5.**

**101-4.9 Rehabilitate Storm Structure.** The unit of measurement for rehabilitation of storm structures will be made at the contract price for each completed and accepted rehabilitated storm structure. This price shall be full compensation for all labor, equipment, tools, and incidentals necessary to complete this item in accordance with paragraph 101-3.9.6.

**101-4.10 Storm Pipe Camera Inspection.** The unit of measurement for the storm pipe camera inspection will be made the contract price per linear foot completed and electronic files provided to the RPR. This price shall be full compensation for all labor, equipment, tools, and incidentals necessary to complete this Item in accordance with paragraph 101-3.9.5 and the plans.

## **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.

|                   |                                         |                          |
|-------------------|-----------------------------------------|--------------------------|
| <b>Item P-101</b> | <b>Remove Inlets/Manholes</b>           | <b>– Per Each</b>        |
| <b>Item P-101</b> | <b>Remove 18” Storm Pipe</b>            | <b>– Per Linear Foot</b> |
| <b>Item P-101</b> | <b>Remove 24” Storm Pipe</b>            | <b>– Per Linear Foot</b> |
| <b>Item P-101</b> | <b>Remove 60” Storm Pipe</b>            | <b>– Per Linear Foot</b> |
| <b>Item P-101</b> | <b>Plug 8” Storm Sewer Pipe</b>         | <b>– Per Linear Foot</b> |
| <b>Item P-101</b> | <b>Plug 18” Storm Sewer Pipe</b>        | <b>– Per Linear Foot</b> |
| <b>Item P-101</b> | <b>Plug 30” Storm Sewer Pipe</b>        | <b>– Per Linear Foot</b> |
| <b>Item P-101</b> | <b>Clean End Section</b>                | <b>– Per Each</b>        |
| <b>Item P-101</b> | <b>Clean Headwall</b>                   | <b>– Per Each</b>        |
| <b>Item P-101</b> | <b>Flush and Clean Storm Sewer Pipe</b> | <b>– Per Linear Foot</b> |
| <b>Item P-101</b> | <b>Rehabilitate Storm Structure</b>     | <b>– Per Each</b>        |
| <b>Item P-101</b> | <b>Storm Pipe Camera Inspection</b>     | <b>– Per Linear Foot</b> |

## **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**

Plot Style: ae.ctb  
Last Saved By: cblackburn 2023/06/06  
Layout Name: 3  
Drawing Name: I:\OKC\PRJ\000015710\03 - Drainage Improvements\01 - Project\AE\03 - ACAD\PRODUCTION DRAWINGS\15710 - PAY ITEM NOTES & SOQ.dwg, Jun 06 2023 - 1:10pm

PAY ITEM NOTES

1. Phasing

a. Liquidated damages shall be assessed for each phase individually and for the project as a whole.

b. Contractor shall be required to schedule the closure for the Runway with the Airport and the RPR a minimum of 60 days in advance. A Strategic Events Submission form is required to be filed with the FAA a minimum of 45 days prior to the runway shutdown.
2. Testing

a. Contractor shall employ an accredited testing laboratory to complete all QC and QA testing required in the specifications.

b. Contractor shall provide test results to the Engineer for acceptance.
3. Water

a. Contractor shall be responsible for obtaining water for the project and shall coordinate with the City of Shawnee to determine acceptable locations for water access near the jobsite.

b. Contractor shall coordinate with the City to obtain a meter for water access and for determination of the pricing for water. Cost of water shall be incidental to other items bid.

c. Contractor shall install an overhead standpipe at the water access location to enable filling of equipment without a direct connection to the hydrant.

d. Contractor shall be responsible for any damage incurred to existing water source(s) due to improper use and/or protection, and the Contractor shall immediately make any repairs necessary if damage is incurred.
4. Temporary Erosion Control

a. Contractor shall be responsible for installing temporary control devices, at a minimum, as indicated on the Grading Plans.

b. Silt fence shall be installed as detailed on the Grading Plans, and it shall be maintained throughout the project.

c. Silt fence shall remain in place until a stand of grass is established on all disturbed ground.

d. Additional erosion control measures as required to comply with environmental regulations, the SWPPP included in the specifications, and for prevention of soil and stormwater erosion shall be implemented by the Contractor, and it shall be considered subsidiary to this pay item.

e. Removal of temporary erosion control measures shall be subsidiary to the bid item Temporary Erosion Control.
5. Mobilization

a. Prior to beginning any work, the Contractor shall complete a Safety Plan Compliance Document, it shall be approved by the Airport Manager and the Engineer, and the Contractor shall complete closures and place low profile barricades as required in the Construction Safety and Phasing Plan.

b. Contractor is required to document the condition of the haul route and public and airport pavements in the vicinity of the construction limits prior to mobilizing to the jobsite. Video and photo documentation shall be provided to the Engineer and Airport prior to beginning work.

c. Any damage incurred to pavements due to the Contractor's equipment or operations shall be repaired to a condition equal to or better than the condition prior to the beginning of work. All repairs shall be completed to the satisfaction of the Engineer at the Contractor's expense.

d. Survey Control Point Numbers 2, 3 and 4 shown on Sheet 2, are based on NGS data, and their existence and accuracy has not been verified. Contractor shall field verify these points.
6. Temporary Marking, Lighting & Barricades

a. Contractor shall sufficiently weight low profile barricades and closure markings to prevent movement. Contractor shall adjust and provide additional support for these items to prevent movement as required and as directed by the Airport Manager, Engineer, or RPR.

b. This item shall include providing temporary power service as required to maintain lighted edge lights and signs for pavements that are scheduled to remain open and cover or disable lights and signs for closed pavements in each respective phase.
7. Removal of Pipe and other Buried Structures

a. Removal of storm water pipes, inlets, headwalls, wingwalls, and concrete flume shall be as shown on the plans or as directed by the RPR.

b. All removed structures shall be removed and legally disposed of off-site in a timely fashion.

c. Any existing pipe to remain that is damaged shall be replaced by the Contractor, with the approval of the RPR at no cost to the Owner.

d. Storm sewer pipes to be plugged are shown on the plans. Plug each end with P-610 concrete and filled with P-153, controlled low strength material.

e. End sections associated with plugged pipes shall be removed and disposed of off airport property. This work shall be subsidiary to plugging.
8. Unclassified Excavation

a. Contractor shall stockpile existing topsoil material separately during excavation operations. The stockpiled topsoil shall be utilized for topsoil within the grading limits per P-905, Topsoil. The Contractor shall be responsible for ensuring the grading area is of sufficient soil quality to establish a stand of grass.

b. Contractor will not be paid separately for providing top soil to the finished grade.

c. Unclassified Excavation quantities were determined from the difference of the proposed surface from the existing surface before pavement removal. Any excavated material left over after the project shall be disposed of off airport property.

d. Required field densities per Specification P-152 are based on a Modified Proctor (ASTM D-1557).

e. Excess unclassified excavation shall become the property of the Contractor and shall be disposed of offsite and per applicable regulations.

f. Contractor is responsible for providing erosion control and establishing grass on wasted unclassified excavation where soil is disposed.

g. All excavation, regardless of material characteristics shall be paid for as unclassified excavation.

h. Finished elevations shall be based on elevation of ground after placement of sod. Contractor shall be responsible for variations of earthwork quantities due to variations in sod thickness.

i. Clearing and grubbing within grading limits shall be considered subsidiary to unclassified excavation.
9. Storm Sewer System

a. Quantities for this item were calculated from inside wall of structure to inside wall of structure.

b. Connecting underdrain to storm pipe or structure shall be subsidiary to the installation of the underdrain.

c. All grate inlets and junction boxes shall conform to D-751, Manholes, Catch Basins, Inlets and Inspection Holes of the specifications.

d. All grate inlets and junction boxes are intended to be precast structures. Cast in-place may be substituted with approval of the engineer.

e. The locations and elevations for each inlet or junction box is indicated on the plans and profiles.

f. All pipe flowline elevations are indicated on the plans and profiles.

g. Where a proposed storm structure is connected to an existing storm pipe remove and replace existing pipe to the nearest joint or to 8' whichever is less. Connect new pipe to existing pipe with a concrete collar. Concrete collar and connections to be subsidiary to installation of the storm structure.

h. Connecting existing pipes to new grate inlets or junction boxes shall be subsidiary to the bid item.
10. Sodding

a. All disturbed ground shall be sodded immediately following grading operations.

b. Pay for this item will only be made for the area within the grading limits as depicted on the Plans.

c. Contractor shall be required to water all seeded and sodded areas as required to establish grass growth and a stand of grass. A grass stand shall be considered adequate when bare spots are one square foot or less, randomly dispersed, and do not exceed 3% of the area.
11. Utilities

a. Extreme caution shall be used when working near existing light fixtures, underground electrical ducts, underground electrical cable, and any other airport fixtures. The Contractor shall notify Oklahoma One Call at 1-800-522-OKIE a minimum of 48 hours prior to any construction activities to allow One Call sufficient time to locate and mark any existing field cables or utility which might be affected by this project.

b. Contractor shall provide the One Call report/case information to the Engineer and Airport Personnel prior to beginning excavation.

c. Should damage occur to any of these items, they will be replaced immediately at the Contractor's expense to the satisfaction of the Engineer. Airport utilities not located by Oklahoma One Call shall be located by the Contractor at no cost to the owner.

12. Rehabilitate Storm Structure

a. This item shall include excavating around the structure, sealing penetrations with non-shrink grout, mastic, or other approved sealant material, filling and sealing openings in structures with non-shrink grout, backfilling, and grading the surrounding area to drain. Additionally, this item shall include cleaning the structure of debris, rock, sediment, and any other obstructions. All debris shall be legally disposed of offsite in a timely fashion after removal. Removal of debris shall be subsidiary to rehabilitating storm structures.
13. Clearing and Grubbing

a. Areas of clearing and grubbing shall receive Bermuda seeding to establish grass growth and a stand of grass. A grass stand shall be considered adequate when bare spots are one square foot or less, randomly dispersed, and do not exceed 3% of the area. This work shall be considered subsidiary to Pay Item.
14. Flush and Clean Storm Sewer Pipe

a. Debris shall be removed at each storm structure prior to flushing next section of storm pipe.

b. Contractor shall protect against flushing debris into storm pipes not scheduled for flushing and cleaning. If debris is flushed into pipes not scheduled for flushing and cleaning. Contractor shall restore pipe to original condition at the contractor's expense.

c. If debris is observed after the initial flushing and cleaning operations. Contractor shall perform additional flushing and cleaning to remove all debris. This work shall be at the contractor's expense.
15. Storm Pipe Camera Inspection

a. Contractor shall verify after flushing and cleaning operations that storm pipes are clear of debris with the use of camera operations. Pipes to be inspected via camera operations shall be pipes between great inlets/junction structures scheduled for flushing and cleaning. Pipes between end sections shall be visual inspected.

b. Contractor shall provide a copy of the camera inspection to the RPR.

c. If debris is observed after the initial flushing and cleaning operations. Contractor shall perform additional flushing and cleaning to remove all debris. Pipe shall be re-inspected for verification of debris removal. Operations necessary for re-inspection shall be at the contractor's expense.

| SUMMARY OF QUANTITIES    |       |                                                                                 |      |           |           |
|--------------------------|-------|---------------------------------------------------------------------------------|------|-----------|-----------|
| ITEM NO.                 | SPEC  | ITEM DESCRIPTION                                                                | UNIT | QUANTITY  |           |
|                          |       |                                                                                 |      | ESTIMATED | AS-CONST. |
| BASE BID                 |       |                                                                                 |      |           |           |
| IMPROVE AIRPORT DRAINAGE |       |                                                                                 |      |           |           |
| 1                        | TEMP  | Temporary Marking, Lighting & Barricades                                        | L.S. | 1         |           |
| 2                        | C-102 | Temporary Erosion Control                                                       | L.S. | 1         |           |
| 3                        | C-105 | Mobilization (NTE 10% of Total Bid Amount)                                      | L.S. | 1         |           |
| 4                        | P-101 | Remove Inlets/Manholes                                                          | EA.  | 3         |           |
| 5                        | P-101 | Remove 18" Storm Pipe                                                           | L.F. | 8         |           |
| 6                        | P-101 | Remove 24" Storm Pipe                                                           | L.F. | 8         |           |
| 7                        | P-101 | Remove 60" Storm Pipe                                                           | L.F. | 16        |           |
| 8                        | P-101 | Plug 8" Storm Sewer Pipe                                                        | L.F. | 75        |           |
| 9                        | P-101 | Plug 18" Storm Sewer Pipe                                                       | L.F. | 100       |           |
| 10                       | P-101 | Plug 30" Storm Sewer Pipe                                                       | L.F. | 50        |           |
| 11                       | P-101 | Clean End Section                                                               | EA.  | 16        |           |
| 12                       | P-101 | Clean Headwall                                                                  | EA.  | 7         |           |
| 13                       | P-101 | Flush and Clean Storm Sewer Pipe                                                | L.F. | 5,720     |           |
| 14                       | P-101 | Rehabilitate Storm Structure                                                    | EA.  | 17        |           |
| 15                       | P-101 | Storm Pipe Camera Inspection                                                    | L.F. | 2,950     |           |
| 16                       | P-151 | Clearing and Grubbing                                                           | AC   | 2.2       |           |
| 17                       | P-152 | Unclassified Excavation                                                         | C.Y. | 735       |           |
| 18                       | D-701 | 18" RCP (Class 3)                                                               | L.F. | 8         |           |
| 19                       | D-701 | 24" RCP (Class 3)                                                               | L.F. | 8         |           |
| 20                       | D-701 | 60" RCP (Class 3)                                                               | L.F. | 16        |           |
| 21                       | D-701 | 24" RCP End Section                                                             | EA.  | 1         |           |
| 22                       | D-751 | 5' x 5' Grate Inlet                                                             | EA.  | 1         |           |
| 23                       | D-751 | 9' x 5' Grate Inlet                                                             | EA.  | 1         |           |
| 24                       | T-904 | Sodding                                                                         | S.Y. | 3,975     |           |
| 25                       | --    | Furnish and Install Solar Powered LED Taxiway Centerline Light (FAA Ineligible) | EA.  | 242       |           |
| 26                       | --    | Furnish Solar Powered LED Taxiway Centerline Light (FAA Ineligible)             | EA.  | 25        |           |

| EARTHWORK      |                           |         |                              |         |
|----------------|---------------------------|---------|------------------------------|---------|
| AREA           | ON-SITE EXCAVATION (C.Y.) |         | COMPACTED EMBANKMENT* (C.Y.) |         |
|                | UNCLASSIFIED EXCAVATION   | REVISED | COMMON                       | REVISED |
| Grading Limits | 735                       |         | 2                            |         |
| Total          | 735                       |         | 2                            |         |

\*No shrinkage allowance is included in this quantity.



LOCHNER

701 Cedar Lake Blvd. | Suite 230 | Oklahoma City, Oklahoma 73114  
P 405.748.6651 | www.hwlochner.com

CITY OF SHAWNEE, OKLAHOMA

SHAWNEE REGIONAL AIRPORT  
SHAWNEE, OKLAHOMA

|             |              |
|-------------|--------------|
| PROJECT NO. | 15710 - T003 |
| DRAWN BY    | AM           |
| CHECKED BY  | PJB          |
| DESIGNED BY | BM           |
| REVISIONS   |              |
| ADDENDUM 1  |              |

SUMMARY OF QUANTITIES  
AND PAY ITEM NOTES

**CITY OF SHAWNEE, OKLAHOMA  
SHAWNEE REGIONAL AIRPORT**

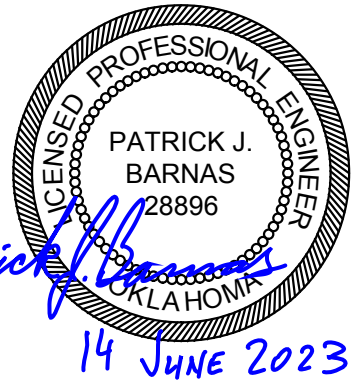
**Base Bid:  
Improve Airport Drainage**

**AIP PROJECT NO. 3-40-0088-025-2023**

**LOCHNER PROJECT NO. 15710**

**ADDENDUM NO. 2**

**June 14, 2023**



TO ALL PROSPECTIVE BIDDERS:

1. The following modifications and clarifications to the **Project Plans/Specifications** have been made.

- A. The following items are points of clarification and/or additional information provided.
- i. The Solar-powered LED lights will not be funded through the FAA. Therefore, these items will not be required to meet Buy American Preferences. However, lights used shall be listed in the Addendum to AC 150/5345-53D. The Addendum to AC 150/5345-53D is attached to this Addendum No. 2 and shall be incorporated into the contract documents.
  - ii. Clean, unclassified excavated material and clean, excavated materials removed during clearing and grubbing shall be disposed of on airport property.
  - iii. Supplemental Site Photographs are included in this Addendum No. 2.

2. Additional Information:

- A. The pre-bid minutes and sign-in sheet are included in this Addendum No. 2.
- B. All bidders must acknowledge receipt of Addendum No. 1 & 2 in the space provided in the proposal section of the Project Specifications. Failure to acknowledge receipt of an addendum may be cause for rejection of the bid.
- C. Upon receipt of this addendum, you **must** sign and return the acknowledgement form on Page 2 of this addendum by e-mail to:

LOCHNER  
E-Mail: [OKCBids@hwlochner.com](mailto:OKCBids@hwlochner.com)

**CITY OF SHAWNEE, OKLAHOMA  
SHAWNEE REGIONAL AIRPORT**

**Base Bid:  
Improve Airport Drainage**

**AIP PROJECT NO. 3-40-0088-025-2023**

**LOCHNER PROJECT NO. 15710**

**ADDENDUM NO. 2**

**June 14, 2023**

**ACKNOWLEDGEMENT OF RECEIPT OF ADDENDUM NO. 2**

The undersigned hereby declares that he/she has received Addendum No. 2, dated June 14, 2023, for the subject project. The undersigned will incorporate this Addendum with his/her proposal:

Name of Company: \_\_\_\_\_

Signature: \_\_\_\_\_

Title: \_\_\_\_\_

June 14, 2023

Shawnee Regional Airport  
Improve Airport Drainage Project  
Supplemental Site Photographs

T 405.748.6651  
F 405.748.6641

hwlochner.com

Due to airport traffic, runway access not available during the Pre-Bid Meeting site visit on June 13, 2023. As discussed during this time, the Engineer is providing available photographs to potential bidders of the areas not available for in-person viewing during the visit.

The first set of photographs below are of the grate inlet referenced on Plan Sheet 14 and also circled in red on below **Figure 1: Plan Sheet 14**

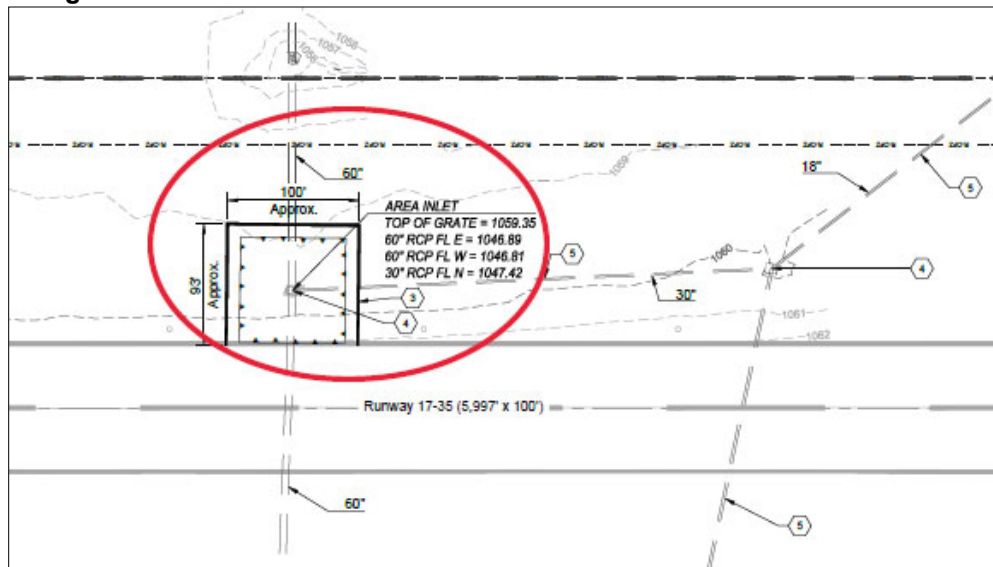


Figure 1: Plan Sheet 14 Reference



Figure 2: Grate Inlet



*Figure 3: Inside of Grate Inlet Showing Void Requiring Filling*



*Figure 4: Inside of Grate Inlet*

# LOCHNER

The second set of photographs below are examples of outlets areas and the typical clearing required in those areas as referenced on Plan Sheet 15 and also circled in red on below

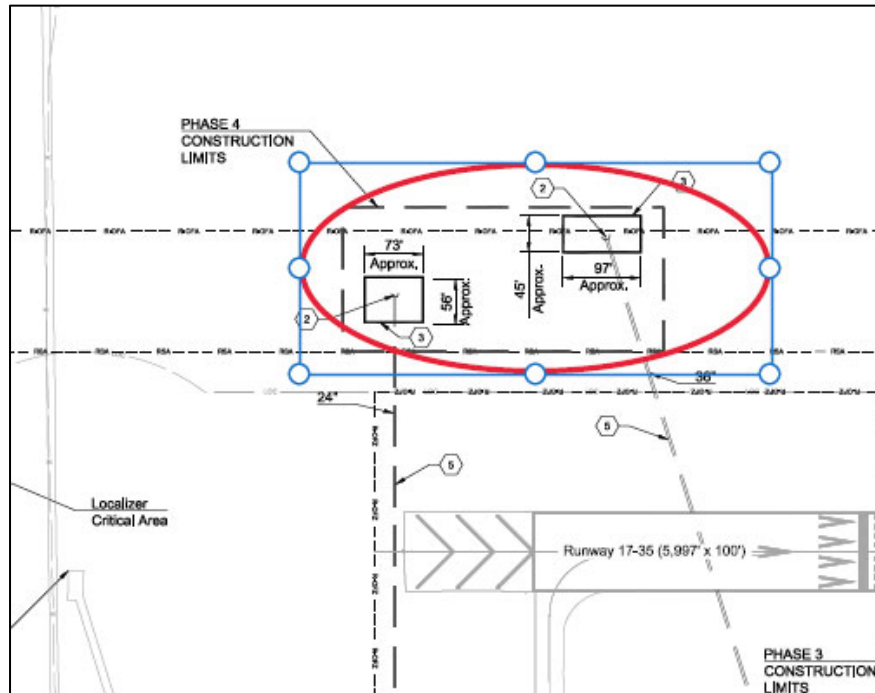


Figure 5: Plan Sheet 15 Reference



Figure 6: Satellite Image of Reference Areas



*Figure 7: Typical Clearing Expected in Areas*



*Figure 8: Typical Outlet at Clearing Area*

**CITY OF SHAWNEE, OKLAHOMA  
SHAWNEE REGIONAL AIRPORT**

**Base Bid:  
Improve Airport Drainage**

**FAA PROJECT NO. 3-40-0088-025-2023**

**LOCHNER PROJECT NO. 15710**

**PRE-BID MEETING MINUTES  
Tuesday, June 13, 2023, at 1:30 PM**

***\*\*\*Items added during the Pre-Bid Meeting are included in bold and italics\*\*\****

**I. Introduction of Attendees:**

• **Bidding Process:**

A. Receipt and Opening of Bids:

1. Proposals will be received until **4:00 pm local time, Tuesday, June 20, 2023**, at the Location below:

**Shawnee City Hall  
City Clerk's Office  
16 West 9<sup>th</sup> St.  
Shawnee, Oklahoma 74801**

Bids received after this time will not be considered.

**Bidders are reminded that bids not received before 4:00 pm local time, Tuesday, June 20, 2023, will be rejected, even if delivery is late due to a failure of third-party guaranteed delivery times.**

**Bids will be opened and read at the Shawnee Airport Authority meeting held at 6:00 pm local time at Shawnee City Hall, 16 West 9<sup>th</sup> St., Shawnee, Oklahoma 74801.**

2. Bids may be held by the **City of Shawnee, OK** for a period not to exceed **ninety (90)** calendar days from the date of the bid opening. **Award of contract is contingent upon the City of Shawnee, OK receiving Federal and State funding assistance from the Federal Aviation Administration and Oklahoma Aeronautics Commission.**
3. Envelopes containing bids must be sealed and addressed as shown in the Instructions To Bidders (Section 2) of the Contract Documents/Specifications.

B. Contract Provisions:

1. Mandatory contract provisions are identified in General Provisions (Section 3) and Supplementary Provisions (Section 4) of the Contract Documents.
2. The EEO goals for this contract are in the Notice To Bidders (Section 1), **10.2%** minority participation and **6.9%** female participation in each trade.

3. The DBE goal for this project, as described in the Notice To Bidders (Section 1) and the Instructions To Bidders (Section 2), is to **have a total goal of 5.63%** of the dollar value of the prime contract to DBEs. It is the responsibility of the Contractor to meet this goal for any Alternate scenario. If the DBE goal is not met, there needs to be substantial documentation of good faith effort in attempts to attain the DBE goal. The DBE Forms are located after the Proposal Section. **Bidders are reminded that DBE goal is 5.63%. Letters of Intent, if not submitted with the bid, will need to be submitted within 3 working days of the bid opening.**
4. Sixty percent (60%) of the cost of materials or supplies purchased from a DBE regular dealer may be counted. If the materials or supplies are obtained from a DBE manufacturer, 100% of the cost may be counted toward the goal.
5. This contract is subject to the “Buy American Preferences” of **49 USC §50101**. Prospective Bidders are required to certify that steel and manufactured products have been produced in the United States per the certification statement included in the Proposal Section of the Project Manual. **Bidders are reminded that the American Recovery and Reinvestment Act does not necessarily meet 49 USC §50101 for FAA Buy American.**
6. The Contractor and all Subcontractors will be required to pay minimum wage rates as established by the United State Department of Labor. Minimum wage requirements are identified on the current Davis Bacon Act wage rates included at the end of the Supplementary Provisions (Section 4).
7. Proposers shall provide a statement of qualifications with their proposal of past similar work, a financial statement, and a statement of plant and equipment proposed for use on the project. In lieu of the financial statement, Contractors may provide evidence that they are pre-qualified with ODOT for similar work and are on the current ODOT bidders list.
8. The Contractor and his/her Subcontractors will be required to provide certificates of insurance for at least the minimum amounts specified in the Special Provisions.
9. Prior to procurement of equipment and **upon the request of the Contractor, The City of Shawnee**, Oklahoma will issue a State sales tax exemption certificate to the successful Bidder and the successful Bidder will not be required to pay State sales tax on materials and supplies purchased for use on this project. The successful Bidder will be responsible for payment of all other taxes. **It is suggested that the successful bidder request a state sale tax exemption as soon as possible to allow enough time for the city to process the request. The successful bidder is responsible for all other required taxes.**

C. Contract Proposal Forms:

1. Proposals must be submitted on the Proposal Form (Section PF) in the Contract Documents/Specifications.
2. When completing the Proposal Form, the unit price needs to be written/typed in words in the table under “Unit Price in Words” and in numerical form in the column under the header “Unit Price”. The extension (quantity x unit price) needs to be written/typed in numerical form. All bidders submitting proposals must acknowledge receipt of all addendums issued in the space provided in the Proposal (Section PF). Page PF-6 or PF-7 of the proposal form needs to be completed and signed. **If for any reason the pages of the Proposal Form are changed by addendum, an entirely new Proposal Form will be issued. Bids that are not submitted on the most current proposal forms will be considered non-responsive and may be subject to**

**automatic rejection. It is not anticipated that a change to the proposal form will be made. The Proposal Form has been changed via Addendum 1.**

3. The bidder shall submit all required DBE information as contained on the DBE forms located at the end of the Proposal Form with their bid. However, written confirmation from the DBE may be submitted within three (3) working days following the bid opening.
4. The successful bidder will be required to submit evidence of when and by whom each DBE was last certified after the bid opening. DBE's must be approved through the Oklahoma Department of Transportation.
5. A Bid Bond guarantee will be required with each bid as a certified check or a bid bond in the amount of five (5) percent of the total amount of the bid, made payable to the **City of Shawnee, OK.**
6. The bidder shall submit a completed Buy American Certification (Section BA), a completed Business Relationships Affidavit (Section BR), and a completed Non-Collusion Statement (Section NC).
7. When submitting bids, please make sure all items required with the bid are included. These items are listed on page PF-5 of the Proposal.
8. The successful bidder will be required to execute the Contract Agreement, Performance Bond, Payment Bond, one (1) year maintenance bond, and Subcontracting Plan & Affidavit. The bonds shall be in the amount of 100% of the contract price.

- **Project Description:**

- A. The project consists of:

**Base Bid: Improve Airport Drainage.**

- B. The contract period for construction from the commencement date specified in the Notice-to-Proceed is **sixty-six (66) calendar days for Base Bid. Liquidated damages are set at \$1,500 per calendar day per each Phase of construction.** Delays due to weather and other factors out of the control of the Contractor that are above and beyond a typical season may be requested in writing as a reason for contract period extension.
- C. Lochner will provide Construction Observation through the project. The Contractor shall provide Quality Control Measures as outlined in the Contract Documents / Specifications.
- D. Contractor's access roads, haul roads, and staging areas are shown on the Construction Safety & Phasing Plan (CSPP) sheets.
- E. All bidders should carefully review the safety notes and details on the CSPP sheets. Contractor will be responsible for maintaining and checking the operation of the low profile barricades throughout the duration of the project. **Vehicle beacons must be amber in color and top-mounted on vehicles.**
- F. The contractor will be required to have a full-time project superintendent onsite throughout the duration of the project. **If there is a need for switching the full-time, onsite superintendent, the Contractor will need to submit a request to the Engineer for the change, and it may be approved by the Engineer.**

- G. Contractor is required to document the condition of the haul route, public and airport pavements in the vicinity of the construction limits prior to mobilizing to the jobsite. Video and photo documentation shall be provided to the Engineer and Airport prior to beginning work. Any damage incurred to pavements due to the Contractor's equipment or operations shall be repaired to a condition equal to or better than the condition prior to the beginning of work. All repairs shall be completed to the satisfaction of the Engineer at the Contractor's expense.
- H. Bidders are encouraged to thoroughly read the Pay Items Notes on Plan Sheet 3.
- I. Contractor shall schedule the closure for Runway 17-35 for Phase 2 with the Airport and Engineer a minimum of 60 days in advance. A Strategic Events Submission form is required to be filed with the FAA a minimum of 45 days prior to the runway shutdown.
- J. Contractor and employees will not be required to be badged prior to gaining access to the airfield.
- K. Contractor will be responsible for providing their own communications that do not interfere with air traffic or equipment.
- L. Contractor is responsible for providing their own air band radios to monitor air traffic as required in the CSPP.
- M. The Solar-powered LED lights will not be funded through the FAA. Therefore, these items will not be required to meet Buy American Preferences. However, lights used shall be listed in the Addendum to AC 150/5345-53D. **Addendum 2 will incorporate the referenced AC. *The only known approved supplier for these lights are on the plan holders list: Bright Portal Resources, LLC.***
- N. Storm Pipe Camera Inspection
  - a. Contractor shall verify after flushing and cleaning operations that storm pipes are clear of debris with the use of camera operations. Pipes to be inspected via camera operations shall be pipes between grate inlets/junction structures scheduled for flushing and cleaning. Pipes between end sections shall be visual inspected.
  - b. Contractor shall provide a copy of the camera inspection to the RPR.
  - c. If debris is observed after the initial flushing and cleaning operations. Contractor shall perform additional flushing and cleaning to remove all debris. Pipe shall be re-inspected for verification of debris removal. Operations necessary for re-inspection shall be at the contractor's expense.

- **Questions from Attendees.**

- **Site Visit for Attendees.**

# CITY OF SHAWNEE, OKLAHOMA SHAWNEE REGIONAL AIRPORT

**Base Bid: Improve Airport Drainage**

**FAA AIP PROJECT NO. 3-40-0088-025-2023**

**LOCHNER PROJECT NO. 15710**

**PRE-BID MEETING  
Tuesday, June 13<sup>th</sup> at 1:30 PM**

*PBARNAS@HWLOCHNER.COM*

## ATTENDEES LIST

|    | <u>NAME</u>                | <u>COMPANY</u>                | <u>TELEPHONE</u>                | <u>EMAIL</u>                                          |
|----|----------------------------|-------------------------------|---------------------------------|-------------------------------------------------------|
| 1  | Patrick Barnas             | Lochner                       | 405-418-5881                    | okcbids@hwlochner.com                                 |
| 2  | <i>PAUL PRIEGE</i>         | <i>LOCHNER</i>                | <i>405-418-5881</i>             | <i>okcbids@hwlochner.com</i>                          |
| 3  | <i>DAVID VALGHAN</i>       | <i>DOWNEY</i>                 | <i>405-625-2944</i>             | <i>BIDS@DOWNYCONTRACTING.COM</i>                      |
| 4  | <i>Kirk Herrick</i>        | <i>Tri City, Seal</i>         | <i>405-982-0026</i>             | <i>cherrick,tes@gmail.com</i>                         |
| 5  | <i>Bryce Barfield</i>      | <i>True North Contracting</i> | <i>405-443-8880</i>             | <i>bryce@truenorthcontracting.com</i>                 |
| 6  | <i>Richard Hull</i>        | <i>Federal Constructors</i>   | <i>Ext 211<br/>405-528-8693</i> | <i>Bids and marketing<br/>@cooleyconstruction.com</i> |
| 7  | <i>Samer Alchami</i>       | <i>PBW</i>                    | <i>918-855-5388</i>             | <i>Perigoboysewelking@gmail.com</i>                   |
| 8  | <i>James Harley Perigo</i> | <i>Perigo/PBW</i>             | <i>918-627-6008</i>             | <i>Perigoboysewelking@gmail.com</i>                   |
| 9  |                            |                               |                                 |                                                       |
| 10 |                            |                               |                                 |                                                       |
| 11 |                            |                               |                                 |                                                       |
| 12 |                            |                               |                                 |                                                       |
| 13 |                            |                               |                                 |                                                       |
| 14 |                            |                               |                                 |                                                       |

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.

|                                                                                                                                                                    |                                                                                                                        |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|
| <b>Intertek Testing Services</b><br>(Formerly ETL Testing Laboratories, Inc.<br>3933 U.S. Route 11<br>Cortland, New York 13045<br>(607) 753-6711 or (800) 345-3851 | <b>Elite Electronic<br/>Engineering, Inc.</b> 1516<br>Centre Circle<br>Downers Grove, Illinois<br>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(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)                                                       |
| 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)                                                                 |
| L-802 High Intensity Beacons (FAA AC 150/5345-12F)   |             |       |             |      |      |        |                                                                                 |
| HALI-BRITE INC.                                      | L-802M      | 1     |             |      |      |        | L802M6116 (629)                                                                 |
| HALI-BRITE INC.                                      | L-802M      | 2     |             |      |      |        | L802M6216 (629)                                                                 |
| 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)                                                            |
| 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-1-1-X-0 (669)                                                            |
| HUGHEY & PHILLIPS, LLC                               | L-804 (L)   |       |             | 2    |      |        | L804-L-1-3-X-0 (669); L804-L-1-4-X-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)    |             |       |             |      |      |        |                                                                                 |
| 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)          |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                                                       | FAA type                 | CLASS | STYLE       | MODE | SIZE | RATING | CAT NO.                                                                                                                                                                                                                                                                                                               |
|-----------------------------------------------------------|--------------------------|-------|-------------|------|------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| FLASH TECHNOLOGY LLC                                      | L-810(L);<br>L-810(L)(F) |       | Single Unit |      |      |        | FTS 371 AC (894);<br>FTS 371 AC (894);<br>FTS 371 DC 24V (894);<br>FTS 371 DC 24V (894);<br>FTS 371 DC 48V (894);<br>FTS 371 DC 48V (894)                                                                                                                                                                             |
| FLASH TECHNOLOGY LLC                                      | L-810(L);<br>L-810(L)(F) |       | Double Unit |      |      |        | FTS 371 AC (894);<br>FTS 371 AC (894);<br>FTS 371 DC 24V (894);<br>FTS 371 DC 24V (894);<br>FTS 371 DC 48V (894);<br>FTS 371 DC 48V (894)                                                                                                                                                                             |
| FLASH TECHNOLOGY LLC                                      | L-810(L);<br>L-810(L)(F) |       | Single Unit |      |      |        | FTS 371 SMART AC (894);<br>FTS 371 SMART AC (894);<br>FTS 371 SMART DC 24V (894);<br>FTS 371 SMART DC 24V (894);<br>FTS 371 SMART DC (-)24V (894);<br>FTS 371 SMART DC (-)24V (894);<br>FTS 371 SMART DC 48V (894);<br>FTS 371 SMART DC 48V (894);<br>FTS 371 SMART DC (-)48V (894);<br>FTS 371 SMART DC (-)48V (894) |
| FLASH TECHNOLOGY LLC                                      | L-810(L);<br>L-810(L)(F) |       | Double Unit |      |      |        | FTS 371 SMART AC (894);<br>FTS 371 SMART AC (894);<br>FTS 371 SMART DC 24V (894);<br>FTS 371 SMART DC 24V (894);<br>FTS 371 SMART DC (-)24V (894);<br>FTS 371 SMART DC (-)24V (894);<br>FTS 371 SMART DC 48V (894);<br>FTS 371 SMART DC 48V (894);<br>FTS 371 SMART DC (-)48V (894);<br>FTS 371 SMART DC (-)48V (894) |
| FLASH TECHNOLOGY LLC                                      | L-810(L)(F)              |       | Single Unit |      |      |        | FTS 370d (894)                                                                                                                                                                                                                                                                                                        |
| FLASH TECHNOLOGY LLC                                      | L-810(L)(F)              |       | Double Unit |      |      |        | FTS 370d (894)                                                                                                                                                                                                                                                                                                        |
| FLASH TECHNOLOGY LLC                                      | L-810(L)                 |       | Single Unit |      |      |        | MKR 372 (894)                                                                                                                                                                                                                                                                                                         |
| FLASH TECHNOLOGY 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 Unit |      |      |        | MKR-LTG1-0IR(910)                                                                                                                                                                                                                                                                                                     |
| INTERNATIONAL TOWER LIGHTING, LLC                         | L-810(L)                 |       | Double Unit |      |      |        | MKR-LTG2-0IR (910)                                                                                                                                                                                                                                                                                                    |
| INTERNATIONAL TOWER LIGHTING, LLC                         | L-810F(L)                |       | Single Unit |      |      |        | ILS-3600-0IR (910)                                                                                                                                                                                                                                                                                                    |
| INTERNATIONAL TOWER LIGHTING, LLC                         | L-810F(L)                |       | Double Unit |      |      |        | ILS-3600-0IR (910)                                                                                                                                                                                                                                                                                                    |
| 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)                                                                                                                                                                                                                                                                                                    |
| OBSTA                                                     | L-810(L)(F)              |       | Single Unit |      |      |        | 113969IR (915)                                                                                                                                                                                                                                                                                                        |
| POINT LIGHTING CORPORATION                                | L-810(L)                 |       | Single Unit |      |      |        | POL-21006-1F-R-10B-S2(912);<br>POL-21006-1F-R-34B-S2(912)                                                                                                                                                                                                                                                             |
| POINT LIGHTING CORPORATION                                | L-810(L)                 |       | Double Unit |      |      |        | POL-21006-1F-R-10B-DXX (912);<br>POL-21006-1F-R-34B-DXX (912)                                                                                                                                                                                                                                                         |
| QUANTEC NETWORKS GMBH                                     | L-810(L)                 |       | Single      |      |      |        | 16814 (976)                                                                                                                                                                                                                                                                                                           |
| QUANTEC NETWORKS GMBH                                     | L-810(F)(L)              |       |             |      |      |        | 16813 (976); 16821 (976)                                                                                                                                                                                                                                                                                              |
| TWR Lighting Inc.                                         | L-810(L)(F)              |       |             |      |      |        | STAR (975)                                                                                                                                                                                                                                                                                                            |
| UNIMAR INC                                                | L-810(L)(F)              |       | Double Unit |      |      |        | U429C-x (898)                                                                                                                                                                                                                                                                                                         |
| L-821 Airport Lighting Control Panel (FAA AC 150/5345-3G) |                          |       |             |      |      |        |                                                                                                                                                                                                                                                                                                                       |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                                          | FAA type | CLASS   | STYLE | MODE | SIZE | RATING | CAT NO.                                                        |
|----------------------------------------------|----------|---------|-------|------|------|--------|----------------------------------------------------------------|
| ADB SAFEGATE AMERICAS, LLC                   | I        | F, S, W | 1     | 1    |      |        | L-821                                                          |
| ADB SAFEGATE AMERICAS, LLC                   | III      | W       | 3     | 1    |      |        | 44A7675/XXXXX2-XX0                                             |
| 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.                          | I        | F, S, W | 1     | 1    |      |        | L-821                                                          |
| RURAL ELECTRIC INC.                          | III      | F, S, W | 3     | 1    |      |        | L-821-III                                                      |
| 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                                                  |
| ADB SAFEGATE BV                              | II       | A       | 6     |      |      |        | 1MC6PAXXX01                                                    |
| ADB SAFEGATE BV                              | II       | A       | 1     |      |      |        | 1458.03.530                                                    |
| ADB SAFEGATE BV                              | I        | A       | 2     |      |      |        | 1458.03.502                                                    |
| ADB SAFEGATE BV                              | II       | A       | 8     |      |      |        | 1458.03.522                                                    |
| ADB SAFEGATE BV                              | I        | A       | 9     |      |      |        | 1458.03.512                                                    |
| EFLA OY                                      | I        | A       | 2     |      |      |        | KDCR510.XX                                                     |
| EFLA OY                                      | I        | A       | 9     |      |      |        | KDCP510.XX                                                     |
| EFLA OY                                      | II       | A       | 8     |      |      |        | KDC508.X.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     |      |      |        | KDCT506.X.XX; KDC506.X.XX;KDCZ506.X.XX                         |
| YOUYANG AIRPORT LIGHTING EQUIPMENT INC.      | II       | A       | 6     |      |      |        | FMC-2-P(N)F-02-06                                              |
| 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                                              |
| L-823 Cable Connectors (FAA AC 150/5345-26E) |          |         |       |      |      |        |                                                                |
| ADB SAFEGATE AMERICAS, LLC                   | II       | A       | 1     |      | 7    |        | 73A0107-XX                                                     |
| ADB SAFEGATE AMERICAS, LLC                   | I        | A       | 2     |      |      |        | 73A0169                                                        |
| ADB SAFEGATE AMERICAS, LLC                   | I        | A       | 9     |      |      |        | 73A0170                                                        |
| ADB SAFEGATE AMERICAS, LLC                   | II       | A       | 8     |      |      |        | 73A0190                                                        |
| ADB SAFEGATE AMERICAS, LLC                   | II       | A       | 6     |      |      |        | 73A0136-XX                                                     |
| 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;<br>BE10R                                                |
| CROUSE HINDS AIRPORT LIGHTING PRODUCTS       | II       | A       | 6     |      |      |        | 21121;<br>21122;<br>40919-X                                    |
| CROUSE HINDS AIRPORT LIGHTING PRODUCTS       | II       | A       | 6     |      |      |        | K3326992                                                       |
| 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     |      |      |        | KDL1; KDL10                                                    |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                                                                                   | FAA type | CLASS | STYLE | MODE | SIZE | RATING | CAT NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|---------------------------------------------------------------------------------------|----------|-------|-------|------|------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EFLA OY                                                                               | I        | B     | 10    |      |      |        | KDL1; KDL10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 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       | 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.                                                                  | II       | A     | 6     |      |      |        | 11155-01-XXX; 11155-03-XXX                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| MONROE INTEGRO, LLC.                                                                  | II       | A     | 1     |      |      |        | 10518-01-XXX; 10518-14-XXX;<br>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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| L-824 Underground Electrical Cable for Airport Lighting Circuits (FAA AC 150/5345-7F) |          |       |       |      |      |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 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<br>A NEXANS COMPANY                                    | L-824C   |       |       |      |      | 5000V  | 5KV FR-TX 1x8AWG FAA-L-824 C (BT);<br>5KV FR-TX 1x8AWG FAA-L-824 C (CT);<br>5KV FR-TX 1x8AWG FAA-L-824 C (CB);<br>5KV UW-FR-TX 1x8AWG FAA-L-824 C (CB)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| KUKDONG ELECTRIC WIRE CO., LTD<br>A NEXANS COMPANY                                    | L-824B   |       |       |      |      | 5000V  | 5KV FR-PP 1x8AWG FAA-L-824 B (BT);<br>5KV FR-PP 1x8AWG FAA-L-824 B (CT);<br>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;<br>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;<br>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;<br>4-19/W SD AIR 5000V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| PRYSMIAN POWER CABLES AND SYSTEMS USA, LLC                                            | L-824B   |       |       |      |      | 5000V  | 388270; 388270-XX; 388271; 388271-XX; 388150; 388150-XX<br>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<br>389201; 389201-XX; 389202; 389202-XX; 389203; 389203-XX<br>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,<br>EXT SEMI-CON/XLPE 389433; EXT SEMI-CON/XLPE 389434;<br>EXT SEMI-CON/XLPE 389435; EXT SEMI-CON/XLPE 389436;<br>EXT SEMI-CON/XLPE 389437; EXT SEMI-CON/XLPE 389438;<br>EXT SEMI-CON/XLPE 389439; EXT SEMI-CON/XLPE 389440;<br>EXT SEMI-CON/XLPE 389441; EXT SEMI-CON/XLPE 389442;<br>EXT SEMI-CON/XLPE 389443; EXT SEMI-CON/XLPE 389444;<br>EXT SEMI-CON/XLPE 389445; EXT SEMI-CON/XLPE 389446;<br>EXT SEMI-CON/XLPE 389447; EXT SEMI-CON/XLPE 389448;<br>EXT SEMI-CON/XLPE 389449; EXT SEMI-CON/XLPE 389450;<br>EXT SEMI-CON/XLPE 389451; EXT SEMI-CON/XLPE 389452;<br>EXT SEMI-CON/XLPE 389453; EXT SEMI-CON/XLPE 389454;<br>EXT SEMI-CON/XLPE 389455; EXT SEMI-CON/XLPE 389456;<br>EXT SEMI-CON/XLPE 389457; EXT SEMI-CON/XLPE 389458;<br>EXT SEMI-CON/XLPE 389459, EXT SEMI-CON/XLPE 389460 |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| 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 |
| 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                   |
| SERVICE WIRE CO.                                                | L-824C   |       |       |      |      | 600V   | USE8; USE6, USE4, USEVW8, USEVW6, USEVW4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| SERVICIOS CONDUMEX S.A. DE C.V.                                 | L-824B   |       |       |      |      | 600V   | Flexanel                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| SERVICIOS CONDUMEX S.A. DE C.V.                                 | L-824C   |       |       |      |      | 5000V  | VULCANEL 2000; VULCANEL 2000 shielded                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 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; 114-24-2430; 114-24-2431; 114-24-2432; 114-24-2418; 114-24-2213; 114-24-2526; 114-24-2527; 114-24-2512; 114-24-2217; 114-24-2531; 114-24-2532; 114-24-2518                                                                                                                                                                                                                                                                                                                         |
| UNIKA UNIVERSAL KABLO SANAYI VE TIC A.S.                        | L-824C   |       |       |      |      | 5000V  | KEXYATP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| UNIKA UNIVERSAL KABLO SANAYI VE TIC A.S.                        | L-824C   |       |       |      |      | 600V   | TAXAY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| UNIKA UNIVERSAL KABLO SANAYI VE TIC A.S.                        | L-824C   |       |       |      |      | 600V   | TAXAP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| UNIKA UNIVERSAL KABLO SANAYI VE TIC A.S.                        | L-824B   |       |       |      |      | 600V   | T5ARAE; T5ARAR                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| UNIKA UNIVERSAL KABLO SANAYI VE TIC A.S.                        | L-824C   |       |       |      |      | 5000V  | KEXAAAP; TEXAAAP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| UNIKA UNIVERSAL KABLO SANAYI VE TIC A.S.                        | L-824C   |       |       |      |      | 5000V  | TEXYBAP; KEXYBAP<br>TEXPAP; KEXYPAP<br>TEXYBAY; KEXYBAY<br>TEXPAY; KEXYPAY                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 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-824C   |       |       |      |      | 5000V  | UNT-AGL UNSCREENED POWER C PRIMARY CABLE;<br>UNT-AGL COPPER POWER PRIMARY CABLE;<br>UNT-AGL BRASS POWER PRIMARY 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-824C   |       |       |      |      | 5kV    | UNT AGL BRAIDING POWER-C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| UNTEL KABLOLARI SAN VE TIC A.S.                                 | L-824B   |       |       |      |      | 5kV    | UNT AGL BRAIDING POWER FLEX-B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| L-827 Constant Current Regulator Monitors (FAA AC 150/5345-10H) |          |       |       |      |      |        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| ADB SAFEGATE AMERICAS, LLC                                      | L-827    |       |       |      |      |        | ACE2™ 44A6602-XXXX20;<br>ACE2™ 44A6505-X0; ACE2™ 44A6507-21X0                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| ADB SAFEGATE AMERICAS, LLC                                      | L-827    |       |       |      |      |        | ACE3-CXXDXX10001                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| HUGHEY & PHILLIPS, LLC                                          | L-827    |       |       |      |      |        | MGML827XB-01                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| HUGHEY & PHILLIPS, LLC                                          | L-827    |       |       |      |      |        | MGML827XB-01                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| HUGHEY & PHILLIPS, LLC                                          | L-827    |       |       |      |      |        | MGML827XB-02                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| HUGHEY & PHILLIPS, LLC                                          | L-827    |       |       |      |      |        | MGML827XB-03                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| HUGHEY & PHILLIPS, LLC                                          | L-827    |       |       |      |      |        | MGML827XB-04                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| HUGHEY & PHILLIPS, LLC                                          | L-827    |       |       |      |      |        | MGML827XB-05                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| HUGHEY & PHILLIPS, LLC                                          | L-827    |       |       |      |      |        | MGML827XB-06                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                                                     | FAA type | CLASS | STYLE | MODE | SIZE | RATING | CAT NO.                                                                            |
|---------------------------------------------------------|----------|-------|-------|------|------|--------|------------------------------------------------------------------------------------|
| HUGHEY & PHILLIPS, LLC                                  | L-827    |       |       |      |      |        | MGML827XB-07                                                                       |
| HUGHEY & PHILLIPS, LLC                                  | L-827    |       |       |      |      |        | MGML827XB-06                                                                       |
| HUGHEY & PHILLIPS, LLC                                  | L-827    |       |       |      |      |        | MGML8275B-07                                                                       |
| HUGHEY & PHILLIPS, LLC                                  | L-827    |       |       |      |      |        | MGML8275B-08                                                                       |
| L-828 Constant Current Regulators (FAA AC 150/5345-10H) |          |       |       |      |      |        |                                                                                    |
| 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    | 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   |      |      | 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 |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                        | FAA type | CLASS | STYLE | MODE | SIZE | RATING | CAT NO.                                                                                  |
|----------------------------|----------|-------|-------|------|------|--------|------------------------------------------------------------------------------------------|
| 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 |
| 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                                                               |
| ADB SAFEGATE AMERICAS, LLC | L-828    | 1, 2  | 1, 2  |      |      | 1 kW   | LF8X01XXXX0XX00                                                                          |
| ADB SAFEGATE AMERICAS, LLC | L-828    | 1, 2  | 1, 2  |      |      | 2 kW   | LF8X02XXXX0XX00                                                                          |
| ADB SAFEGATE AMERICAS, LLC | L-828    | 1, 2  | 1, 2  |      |      | 4 kW   | LF8X04XXXX0XX00                                                                          |
| ADB SAFEGATE AMERICAS, LLC | L-828    | 1, 2  | 1, 2  |      |      | 7.5 kW | LF8X07XXXX0XX00                                                                          |
| ADB SAFEGATE AMERICAS, LLC | L-828    | 1, 2  | 1, 2  |      |      | 10 kW  | LF8X10XXXX0XX00                                                                          |
| ADB SAFEGATE AMERICAS, LLC | L-828    | 1, 2  | 1, 2  |      |      | 15 kW  | LF8X15XXXX0XX00                                                                          |
| ADB SAFEGATE AMERICAS, LLC | L-828    | 1, 2  | 1, 2  |      |      | 20 kW  | LF8X20XXXX0XX00                                                                          |
| ADB SAFEGATE AMERICAS, LLC | L-828    | 1, 2  | 1, 2  |      |      | 25 kW  | LF8X25XXXX0XX00                                                                          |
| ADB SAFEGATE AMERICAS, LLC | L-828    | 1, 2  | 1, 2  |      |      | 30 kW  | LF8X30XXXX0XX00                                                                          |
| 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                                                       |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                                    | FAA type | CLASS | STYLE | MODE | SIZE | RATING | CAT NO.                                                                          |
|----------------------------------------|----------|-------|-------|------|------|--------|----------------------------------------------------------------------------------|
| AIRPORT LIGHTING COMPANY               | L-828    | 1     | 1,2   |      |      | 30 kW  | SRA828-30A3XX-XX; SRA828-30A4XX-XX                                               |
| 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                                                                     |
| AUGIER SAS                             | L-828    | 1     | 1, 2  |      |      | 15 kW  | D41-FAA3-XX02-H010; D41-FAA5-XX02-H010                                           |
| AUGIER SAS                             | L-828    | 1     | 1, 2  |      |      | 2.5 kW | D41-FAA3-XX04-H010; D41-FAA5-XX04-H010                                           |
| AUGIER SAS                             | L-828    | 1     | 1, 2  |      |      | 4 kW   | D41-FAA3-XX05-H010; D41-FAA5-XX05-H010                                           |
| AUGIER SAS                             | L-828    | 1     | 1, 2  |      |      | 5 kW   | D41-FAA3-XX07-H010; D41-FAA5-XX07-H010                                           |
| AUGIER SAS                             | L-828    | 1     | 1, 2  |      |      | 7.5 kW | D41-FAA3-XX10-H010; D41-FAA5-XX10-H010                                           |
| AUGIER SAS                             | L-828    | 1     | 1, 2  |      |      | 10 kW  | D41-FAA3-XX15-H010; D41-FAA5-XX15-H010                                           |
| AUGIER SAS                             | L-828    | 1     | 1, 2  |      |      | 20 kW  | D41-FAA3-XX20-H010; D41-FAA5-XX20-H010                                           |
| AUGIER SAS                             | L-828    | 1     | 1, 2  |      |      | 2.5 kW | D41-FAA3-XX25-H010; D41-FAA5-XX25-H010                                           |
| AUGIER SAS                             | L-828    | 1     | 1, 2  |      |      | 30 kW  | D41-FAA3-XX30-H010; D41-FAA5-XX30-H010                                           |
| 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    | 2     | 2     |      |      | 15KW   | 828SGSGSPR-480-16-5                                                              |
| 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   | 828X0-D-11-X-66-0X                                                               |
| CROUSE HINDS AIRPORT LIGHTING PRODUCTS | L-828    | 1     | 1, 2  |      |      | 10kW   | 82860-W-11-1-66-0X; 82860-W-11-2-66-0X<br>82860-W-11-4-66-0X; 82860-W-11-8-66-0X |
| CROUSE HINDS AIRPORT LIGHTING PRODUCTS | L-828    | 1     | 1, 2  |      |      | 10kW   | 828X0-D-11-X-66-0X                                                               |
| CROUSE HINDS AIRPORT LIGHTING PRODUCTS | L-828    | 1     | 1, 2  |      |      | 10kW   | 828X0-D-10-X-66-0X                                                               |
| 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  |      |      | 10kW   | 828X0-D-10-X-66-0X                                                               |
| CROUSE HINDS AIRPORT LIGHTING PRODUCTS | L-828    | 1, 2  | 1, 2  |      |      | 15kW   | 828X0-D-15-X-XX-0X                                                               |
| CROUSE HINDS AIRPORT LIGHTING PRODUCTS | L-828    | 1, 2  | 1, 2  |      |      | 15kW   | 82860-W-15-1-66-0X; 82860-W-15-2-66-0X<br>82860-W-15-4-66-0X; 82860-W-15-8-66-0X |
| CROUSE HINDS AIRPORT LIGHTING PRODUCTS | L-828    | 1, 2  | 1, 2  |      |      | 15kW   | 828X0-D-15-X-XX-0X                                                               |
| CROUSE HINDS AIRPORT LIGHTING PRODUCTS | L-828    | 1     | 1, 2  |      |      | 15KW   | 82860PXM-XXX-15-X                                                                |
| CROUSE HINDS AIRPORT LIGHTING PRODUCTS | L-828    | 1, 2  | 1, 2  |      |      | 20kW   | 828X0-D-20-X-XX-0X                                                               |
| CROUSE HINDS AIRPORT LIGHTING PRODUCTS | L-828    | 1, 2  | 1, 2  |      |      | 20kW   | 82860-W-20-1-XX-0X; 82860-W-20-2-XX-0X<br>82860-W-20-4-XX-0X; 82860-W-20-8-XX-0X |
| CROUSE HINDS AIRPORT LIGHTING PRODUCTS | L-828    | 1, 2  | 1, 2  |      |      | 20kW   | 828X0-D-20-X-XX-0X                                                               |
| 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    | 1, 2  | 1, 2  |      |      | 30kW   | 828X0-D-30-X-XX-0X                                                               |
| CROUSE HINDS AIRPORT LIGHTING PRODUCTS | L-828    | 1, 2  | 1, 2  |      |      | 30kW   | 82860-W-30-1-XX-0X; 82860-W-30-2-XX-0X<br>82860-W-30-4-XX-0X; 82860-W-30-8-XX-0X |
| CROUSE HINDS AIRPORT LIGHTING PRODUCTS | L-828    | 1, 2  | 1, 2  |      |      | 30kW   | 828X0-D-30-X-XX-0X                                                               |
| 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     | 1, 2  |      |      | 37.5kW | 82860-W-37-4-20-0X; 82860-W-37-8-20-0X                                           |
| CROUSE HINDS AIRPORT LIGHTING PRODUCTS | L-828    | 1     | 1, 2  |      |      | 4kW    | 828X0-D-04-X-66-0X                                                               |
| 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  |      |      | 4kW    | 828X0-D-04-X-66-0X                                                               |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                                                                     | FAA type | CLASS | STYLE | MODE | SIZE | RATING | CAT NO.                   |
|-------------------------------------------------------------------------|----------|-------|-------|------|------|--------|---------------------------|
| CROUSE HINDS AIRPORT LIGHTING PRODUCTS                                  | L-828    | 2     | 1, 2  |      |      | 50kW   | 82860-W-50-8-20-0X        |
| CROUSE HINDS AIRPORT LIGHTING PRODUCTS                                  | L-828    | 1     | 1, 2  |      |      | 7.5kW  | 828X0-D-07-X-66-0X        |
| CROUSE HINDS AIRPORT LIGHTING PRODUCTS                                  | L-828    | 1     | 1, 2  |      |      | 7.5kW  | 82860PXS-XXX-07-X         |
| CROUSE HINDS AIRPORT LIGHTING PRODUCTS                                  | L-828    | 1     | 1, 2  |      |      | 7.5kW  | 828X0-D-07-X-66-0X        |
| 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 |
| HUGHEY & PHILLIPS, LLC                                                  | L-828    | 1     | 1, 2  |      |      | 2kW    | MG02L828XB-XX             |
| HUGHEY & PHILLIPS, LLC                                                  | L-828    | 1     | 1, 2  |      |      | 4kW    | MG04L828XB-XX             |
| HUGHEY & PHILLIPS, LLC                                                  | L-828    | 1     | 1, 2  |      |      | 7.5kW  | MG07L828XB-XX             |
| HUGHEY & PHILLIPS, LLC                                                  | L-828    | 1     | 1, 2  |      |      | 10kW   | MG10L828XB-XX             |
| HUGHEY & PHILLIPS, LLC                                                  | L-828    | 1     | 1, 2  |      |      | 15kW   | MG15L828XB-XX             |
| HUGHEY & PHILLIPS, LLC                                                  | L-828    | 1     | 1, 2  |      |      | 20kW   | MG20L828XB-XX             |
| HUGHEY & PHILLIPS, LLC                                                  | L-828    | 1     | 1, 2  |      |      | 30kW   | MG30L828XB-XX             |
| HUGHEY & PHILLIPS, LLC                                                  | L-828    | 2     | 2     |      |      | 30kW   | MG30L82820-XX             |
| HUGHEY & PHILLIPS, LLC                                                  | L-828    | 2     | 2     |      |      | 50kW   | MG50L82820-XX             |
| HUGHEY & PHILLIPS, LLC                                                  | L-828    | 1     | 1, 2  |      |      | 25kW   | MG25L828XB-XX             |
| 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                |
| HUGHEY & PHILLIPS, LLC                                                  | L-828    | 1     | 1, 2  |      |      | 2kW    | MSG02L828XB-XX            |
| HUGHEY & PHILLIPS, LLC                                                  | L-828    | 1     | 1, 2  |      |      | 4kW    | MSG04L828XB-XX            |
| HUGHEY & PHILLIPS, LLC                                                  | L-828    | 1     | 1, 2  |      |      | 7.5kW  | MSG07L828XB-XX            |
| HUGHEY & PHILLIPS, LLC                                                  | L-828    | 1     | 1, 2  |      |      | 10kW   | MSG10L828XB-XX            |
| HUGHEY & PHILLIPS, LLC                                                  | L-828    | 1     | 1, 2  |      |      | 15kW   | MSG15L828XB-XX            |
| HUGHEY & PHILLIPS, LLC                                                  | L-828    | 1     | 1, 2  |      |      | 20kW   | MSG20L828XB-XX            |
| HUGHEY & PHILLIPS, LLC                                                  | L-828    | 1     | 1, 2  |      |      | 25kW   | MSG25L828XB-XX            |
| HUGHEY & PHILLIPS, LLC                                                  | L-828    | 1     | 1, 2  |      |      | 30kW   | MSG30L828XB-XX            |
| HUGHEY & PHILLIPS, LLC                                                  | L-828    | 2     | 2     |      |      | 30kW   | MSG30L82820-XX            |
| HUGHEY & PHILLIPS, LLC                                                  | L-828    | 2     | 2     |      |      | 50kW   | MSG50L82820-XX            |
| L-829 Constant Current Regulators with Monitoring (FAA AC 150/5345-10H) |          |       |       |      |      |        |                           |
| ADB SAFEGATE AMERICAS, LLC                                              | L-829    | 1     | 1,2   |      |      | 2.5kW  | CRF6602XXXXAXX0           |
| ADB SAFEGATE AMERICAS, LLC                                              | L-829    | 1     | 1,2   |      |      | 4kW    | CRF6604XXXXAXX0           |
| ADB SAFEGATE AMERICAS, LLC                                              | L-829    | 1     | 1,2   |      |      | 5kW    | CRF6605XXXXAXX0           |
| 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    | 1,2   | 1,2   |      |      | 15kW   | CRFXX15XXXXAXX0           |
| 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    | 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   |      |      | 4kW    | CRT6604XXXXAXX0           |
| ADB SAFEGATE AMERICAS, LLC                                              | L-829    | 1     | 1,2   |      |      | 7.5kW  | CRT6607XXXXAXX0           |
| ADB SAFEGATE AMERICAS, LLC                                              | L-829    | 1     | 1,2   |      |      | 10kW   | CRT66010XXXXAXX0          |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                        | FAA type | CLASS | STYLE | MODE | SIZE | RATING | CAT NO.                                                                                  |
|----------------------------|----------|-------|-------|------|------|--------|------------------------------------------------------------------------------------------|
| 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     | 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    | 1,2   | 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, 2  | 1, 2  |      |      | 15kW   | PSSFXX15-X1X3; PSSFXX15-X2X3; PSSFXX15-X3X3; PSSFXX15-X4X3; PSSFXX15-X5X3; PSSFXX15-XBX3 |
| 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    | 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  |      |      | 2.5 kW | FLPP6602-X310, FLPP6602-XB10                                                             |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                        | FAA type | CLASS | STYLE | MODE | SIZE | RATING | CAT NO.                                                                                  |
|----------------------------|----------|-------|-------|------|------|--------|------------------------------------------------------------------------------------------|
| 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                                                             |
| 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, FLPP6625-5B10, 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, FLPP2030-5B10 |
| 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                                                               |
| ADB SAFEGATE AMERICAS, LLC | L-829    | 1, 2  | 1, 2  |      |      | 1 kW   | LF9X01XXXXXXXX00                                                                         |
| ADB SAFEGATE AMERICAS, LLC | L-829    | 1, 2  | 1, 2  |      |      | 2 kW   | LF9X02XXXXXXXX00                                                                         |
| ADB SAFEGATE AMERICAS, LLC | L-829    | 1, 2  | 1, 2  |      |      | 4kW    | LF9X04XXXXXXXX00                                                                         |
| ADB SAFEGATE AMERICAS, LLC | L-829    | 1, 2  | 1, 2  |      |      | 7.5kW  | LF9X07XXXXXXXX00                                                                         |
| ADB SAFEGATE AMERICAS, LLC | L-829    | 1, 2  | 1, 2  |      |      | 10kW   | LF9X10XXXXXXXX00                                                                         |
| ADB SAFEGATE AMERICAS, LLC | L-829    | 1, 2  | 1, 2  |      |      | 15kW   | LF9X15XXXXXXXX00                                                                         |
| ADB SAFEGATE AMERICAS, LLC | L-829    | 1, 2  | 1, 2  |      |      | 20 kW  | LF9X20XXXXXXXX00                                                                         |
| ADB SAFEGATE AMERICAS, LLC | L-829    | 1, 2  | 1, 2  |      |      | 25 kW  | LF9X25XXXXXXXX00                                                                         |
| ADB SAFEGATE AMERICAS, LLC | L-829    | 1, 2  | 1, 2  |      |      | 30 kW  | LF9X30XXXXXXXX00                                                                         |
| 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                                                       |
| 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                                                                             |
| AUGIER SAS                 | L-829    | 1     | 1, 2  |      |      | 2.5 kW | D41-FAA3-XX02-H010; D41-FAA5-XX02-H010                                                   |
| AUGIER SAS                 | L-829    | 1     | 1, 2  |      |      | 4 kW   | D41-FAA3-XX04-H010; D41-FAA5-XX04-H010                                                   |
| AUGIER SAS                 | L-829    | 1     | 1, 2  |      |      | 5 kW   | D41-FAA3-XX05-H010; D41-FAA5-XX05-H010                                                   |
| AUGIER SAS                 | L-829    | 1     | 1, 2  |      |      | 7.5 kW | D41-FAA3-XX07-H010; D41-FAA5-XX07-H010                                                   |
| AUGIER SAS                 | L-829    | 1     | 1, 2  |      |      | 10 kW  | D41-FAA3-XX10-H010; D41-FAA5-XX10-H010                                                   |
| AUGIER SAS                 | L-829    | 1     | 1, 2  |      |      | 15 kW  | D41-FAA3-XX15-H010; D41-FAA5-XX15-H010                                                   |
| AUGIER SAS                 | L-829    | 1     | 1, 2  |      |      | 20 kW  | D41-FAA3-XX20-H010; D41-FAA5-XX20-H010                                                   |
| AUGIER SAS                 | L-829    | 1     | 1, 2  |      |      | 2.5 kW | D41-FAA3-XX25-H010; D41-FAA5-XX25-H010                                                   |
| AUGIER SAS                 | L-829    | 1     | 1, 2  |      |      | 30 kW  | D41-FAA3-XX30-H010; D41-FAA5-XX30-H010                                                   |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                                    | FAA type | CLASS | STYLE | MODE | SIZE | RATING | CAT NO.                                                                          |
|----------------------------------------|----------|-------|-------|------|------|--------|----------------------------------------------------------------------------------|
| 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   | 82960-W-11-1-66-0X; 82960-W-11-2-66-0X<br>82960-W-11-4-66-0X; 82960-W-11-8-66-0X |
| 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  |      |      | 10kW   | 829X0-D-10-X-66-0X                                                               |
| CROUSE HINDS AIRPORT LIGHTING PRODUCTS | L-829    | 1, 2  | 1, 2  |      |      | 15kW   | 82960-W-15-1-66-0X; 82960-W-15-2-66-0X<br>82960-W-15-4-66-0X; 82960-W-15-8-66-0X |
| CROUSE HINDS AIRPORT LIGHTING PRODUCTS | L-829    | 1     | 1, 2  |      |      | 15KW   | 82960PXM-XXX-15-X                                                                |
| CROUSE HINDS AIRPORT LIGHTING PRODUCTS | L-829    | 1, 2  | 1, 2  |      |      | 20kW   | 82960-W-20-1-XX-0X; 82960-W-20-2-XX-0X<br>82960-W-20-4-XX-0X; 82960-W-20-8-XX-0X |
| 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    | 1, 2  | 1, 2  |      |      | 30kW   | 82960-W-30-1-XX-0X; 82960-W-30-2-XX-0X<br>82960-W-30-4-XX-0X; 82960-W-30-8-XX-0X |
| 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     | 1, 2  |      |      | 37.5kW | 82960-W-37-4-20-0X; 82960-W-37-8-20-0X                                           |
| 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  |      |      | 4kW    | 829X0-D-04-X-66-0X                                                               |
| CROUSE HINDS AIRPORT LIGHTING PRODUCTS | L-829    | 2     | 1, 2  |      |      | 50kW   | 82960-W-50-8-20-0X                                                               |
| CROUSE HINDS AIRPORT LIGHTING PRODUCTS | L-829    | 1     | 1, 2  |      |      | 7.5kW  | 82960PXS-XXX-07-X                                                                |
| CROUSE HINDS AIRPORT LIGHTING PRODUCTS | L-829    | 1     | 1, 2  |      |      | 7.5kW  | 829X0-D-07-X-66-0X                                                               |
| 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                                                        |
| HUGHEY & PHILLIPS, LLC                 | L-829    | 1     | 1, 2  |      |      | 2kW    | MG02L829XB-XX                                                                    |
| HUGHEY & PHILLIPS, LLC                 | L-829    | 1     | 1, 2  |      |      | 4kW    | MG04L829XB-XX                                                                    |
| HUGHEY & PHILLIPS, LLC                 | L-829    | 1     | 1, 2  |      |      | 7.5kW  | MG07L829XB-XX                                                                    |
| HUGHEY & PHILLIPS, LLC                 | L-829    | 1     | 1, 2  |      |      | 10kW   | MG10L829XB-XX                                                                    |
| HUGHEY & PHILLIPS, LLC                 | L-829    | 1     | 1, 2  |      |      | 15kW   | MG15L829XB-XX                                                                    |
| HUGHEY & PHILLIPS, LLC                 | L-829    | 1     | 1, 2  |      |      | 20kW   | MG20L829XB-XX                                                                    |
| HUGHEY & PHILLIPS, LLC                 | L-829    | 1     | 1, 2  |      |      | 30kW   | MG30L829XB-XX                                                                    |
| HUGHEY & PHILLIPS, LLC                 | L-829    | 2     | 2     |      |      | 30kW   | MG30L82920-XX                                                                    |
| HUGHEY & PHILLIPS, LLC                 | L-829    | 2     | 2     |      |      | 50kW   | MG50L82920-XX                                                                    |
| HUGHEY & PHILLIPS, LLC                 | L-829    | 1     | 1, 2  |      |      | 25kW   | MG25L829XB-XX                                                                    |
| HUGHEY & PHILLIPS, LLC                 | L-829    | 1     | 1, 2  |      |      | 2kW    | MSG02L829XB-XX                                                                   |
| HUGHEY & PHILLIPS, LLC                 | L-829    | 1     | 1, 2  |      |      | 4kW    | MSG04L829XB-XX                                                                   |
| HUGHEY & PHILLIPS, LLC                 | L-829    | 1     | 1, 2  |      |      | 7.5kW  | MSG07L829XB-XX                                                                   |
| HUGHEY & PHILLIPS, LLC                 | L-829    | 1     | 1, 2  |      |      | 10kW   | MSG10L829XB-XX                                                                   |
| HUGHEY & PHILLIPS, LLC                 | L-829    | 1     | 1, 2  |      |      | 15kW   | MSG15L829XB-XX                                                                   |
| HUGHEY & PHILLIPS, LLC                 | L-829    | 1     | 1, 2  |      |      | 20kW   | MSG20L829XB-XX                                                                   |
| HUGHEY & PHILLIPS, LLC                 | L-829    | 1     | 1, 2  |      |      | 25kW   | MSG25L829XB-XX                                                                   |
| HUGHEY & PHILLIPS, LLC                 | L-829    | 1     | 1, 2  |      |      | 30kW   | MSG30L829XB-XX                                                                   |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                                                     | FAA type | CLASS | STYLE | MODE | SIZE | RATING | CAT NO.                                              |
|---------------------------------------------------------|----------|-------|-------|------|------|--------|------------------------------------------------------|
| HUGHEY & PHILLIPS, LLC                                  | L-829    | 2     | 2     |      |      | 30kW   | MSG30L82920-XX                                       |
| HUGHEY & PHILLIPS, LLC                                  | L-829    | 2     | 2     |      |      | 50kW   | MSG50L82920-XX                                       |
| 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 150/5345-47C) |          |       |       |      |      |        |                                                      |
| 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-830-3  |       |       |      |      | 65W    | TA06566D-01; TA06566D-10                             |
| ABB INSTALLATION PRODUCTS, INC.                         | L-830-1  |       |       |      |      | 30/45W | TA045666-01; TA045666-10<br>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                             |
| 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                             |
| 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 BV                                         | L-830-1  |       |       |      |      | 30/45W | 1ST045666OS                                          |
| ADB SAFEGATE BV                                         | L-830-3  |       |       |      |      | 65W    | 1ST065666OS                                          |
| ADB SAFEGATE BV                                         | L-830-4  |       |       |      |      | 100W   | 1ST100666OS                                          |
| ADB SAFEGATE BV                                         | L-830-18 |       |       |      |      | 150W   | 1ST150666OS                                          |
| ADB SAFEGATE BV                                         | L-830-6  |       |       |      |      | 200W   | 1ST200666OS                                          |
| ADB SAFEGATE BV                                         | L-830-10 |       |       |      |      | 300W   | 1ST300666OS                                          |
| 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                                            |
| Bildal Electricals Pvt Ltd                              | L-830-1  |       |       |      |      | 45W    | BE045665                                             |
| 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-830-3  |       |       |      |      | 65W    | KR636.1A                                             |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                                                     | FAA type | CLASS | STYLE | MODE | SIZE | RATING | CAT NO.                                              |
|---------------------------------------------------------|----------|-------|-------|------|------|--------|------------------------------------------------------|
| EFLA OY                                                 | L-830-16 |       |       |      |      | 10/15W | KR621.1A                                             |
| 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-830-17 |       |       |      |      | 20/25W | KR625.1A                                             |
| EFLA OY                                                 | L-830-1  |       |       |      |      | 30/45W | KR531.1A                                             |
| 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-830-4  |       |       |      |      | 100W   | KR641.1A                                             |
| MONROE INTEGRO, LLC.                                    | L-830-19 |       |       |      |      | 150W   | 11731                                                |
| 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-830-2  |       |       |      |      | 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-830-1  |       |       |      |      | 30/45W | 11680                                                |
| MONROE INTEGRO, LLC.                                    | L-830-3  |       |       |      |      | 65W    | 11682                                                |
| MONROE INTEGRO, LLC.                                    | L-830-17 |       |       |      |      | 20/25W | 11729                                                |
| MONROE INTEGRO, LLC.                                    | L-830-11 |       |       |      |      | 300W   | 11760                                                |
| 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-831-3  |       |       |      |      | 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<br>TA04566D-01; TA04566D-10 |
| ABB INSTALLATION PRODUCTS, INC.                         | L-831-9  |       |       |      |      | 300W   | TA300225-01; TA300225-10                             |
| 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-831-12 |       |       |      |      | 500W   | TA500625-01; TA500625-10                             |
| ABB INSTALLATION PRODUCTS, INC.                         | L-831-13 |       |       |      |      | 500W   | TA500225-01; TA500225-10                             |
| ADB SAFEGATE BV                                         | L-831-1  |       |       |      |      | 30/45W | 1ST045665OS                                          |
| ADB SAFEGATE BV                                         | L-831-3  |       |       |      |      | 65W    | 1ST065665OS                                          |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                                                      | FAA type         | CLASS | STYLE | MODE | SIZE | RATING | CAT NO.                     |
|----------------------------------------------------------|------------------|-------|-------|------|------|--------|-----------------------------|
| ADB SAFEGATE BV                                          | L-831-4          |       |       |      |      | 100W   | 1ST100665OS                 |
| ADB SAFEGATE BV                                          | L-831-18         |       |       |      |      | 150W   | 1ST150665OS                 |
| ADB SAFEGATE BV                                          | L-831-6          |       |       |      |      | 200W   | 1ST200665OS                 |
| ADB SAFEGATE BV                                          | L-831-10         |       |       |      |      | 300W   | 1ST300665OS                 |
| 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                   |
| Bildal Electricals Pvt Ltd                               | L-831-1          |       |       |      |      | 45W    | BE045665                    |
| 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-831-18         |       |       |      |      | 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                     |
| MONROE INTEGRO, LLC.                                     | L-831-4          |       |       |      |      | 100W   | 11683                       |
| 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                       |
| 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                |
| HUGHEY & PHILLIPS, LLC                                   | L-847 1,2, 3, 4  | A,B   |       |      |      | 1      | L-847-X-X                   |
| 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<br>84700-X-66-10 |
| 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-849I           |       | A, E  |      |      |        | FTS 832 (157)               |
| FLASH TECHNOLOGY LLC                                     | L-849I           |       | B, F  |      |      |        | FTS 432 (75)                |
| FLASH TECHNOLOGY LLC                                     | L-849V           |       | B, F  |      |      |        | FTS 412 (75)                |
| FLASH TECHNOLOGY LLC.                                    | L-849V(L)        |       | A,E   |      |      |        | FTS 812(L) (E100)           |
| FLASH TECHNOLOGY LLC                                     | L-849V           |       | A, E  |      |      |        | FTS 812 (157)               |
| HUGHEY & PHILLIPS, LLC                                   | L-849V(L)        |       | E     |      |      |        | P2-08-0001-002 (619)        |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                                                  | FAA type  | CLASS | STYLE | MODE | SIZE | RATING | CAT NO.                                                                                                                                                                                                                                                                                 |
|------------------------------------------------------|-----------|-------|-------|------|------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HUGHEY & PHILLIPS, LLC                               | L-849V(L) |       | A     |      |      |        | P2-08-0001-102 (619)                                                                                                                                                                                                                                                                    |
| 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    |       | 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)                                                                                                                                                                                                                                                                         |
| 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) |       | E     |      |      |        | SAL1030-I-E (525)                                                                                                                                                                                                                                                                       |
| STROBE APPROACH LIGHTING TECHNOLOGY                  | L-849I(L) |       | C     |      |      |        | SAL1030-I-C (525)                                                                                                                                                                                                                                                                       |
| STROBE APPROACH LIGHTING TECHNOLOGY                  | L-849I(L) |       | A, E  |      |      |        | SAL 1030V (525)                                                                                                                                                                                                                                                                         |
| L-850 Runway Inpavement Lights (FAA AC 150/5345-46E) |           |       |       |      |      |        |                                                                                                                                                                                                                                                                                         |
| ADB SAFEGATE AMERICAS, LLC                           | L-850T(L) | 2     | 3     | 1    |      |        | DTHJ2RN0DMF00R0                                                                                                                                                                                                                                                                         |
| ADB SAFEGATE AMERICAS, LLC                           | L-850A(L) | 2     | 3     | 1    |      |        | DRCX2XX0XX00XU0 (623); DRCX3XX0XX00XU0 (623);<br>DRCX2XX0XX01XU0 (623); DRCX3XX0XX01XU0 (623)                                                                                                                                                                                           |
| ADB SAFEGATE AMERICAS, LLC                           | L-850B(L) | 2     | 3     | 1    |      |        | DTZX2WNXXX00XU0 (624); DTZX2WNXXX01XU0 (624)                                                                                                                                                                                                                                            |
| ADB SAFEGATE AMERICAS, LLC                           | L-850F    | 2     | 3     | 1    |      |        | 44A5950-0211(973)                                                                                                                                                                                                                                                                       |
| ADB SAFEGATE AMERICAS, LLC                           | L-850C(L) | 2     | 2     | 1    |      |        | IREL-XXX0XX0 (499)(500)(501)(502);<br>IREL-XXX0XX1 (499)(500)(501)(502)                                                                                                                                                                                                                 |
| ADB SAFEGATE AMERICAS, LLC                           | L-850D(L) | 2     | 2     | 1    |      |        | IREL-C4X0XX0 (499)(500);<br>IREL-C4X0XX1 (499)(500);<br>IREL-4BX0XX0 (499)(500);<br>IREL-4BX0XX1 (499)(500);<br>IREL-COX0XX0 (499); IREL-COX0XX1 (499);<br>IREL-40X0XX0 (500); IREL-40X0XX1 (500);<br>IREL-0BX0XX0 (499); IREL-0BX0XX1 (499);<br>IREL-44X0XX0 (500); IREL-44X0XX1 (500) |
| 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-850A(L) | 1, 2  | 3     | 1    |      |        | SLXRCI8BSSWW6.6AXXCL850A(L)( 620);<br>SIRCS1BSXWWXGA22 (620);<br>SLXRCI8BSSWR6.6AXXCL850A(L) (620)(621)<br>SIRCS1BSXWRXGA22 (620)(621)                                                                                                                                                  |
| ADB SAFEGATE AMERICAS, LLC                           | L-850B(L) | 1, 2  | 3     | 1    |      |        | SLXRZI8UXSW6.6AX1CL-850B(L) (849);<br>SIRZS1UXXWNXGA22 (849)                                                                                                                                                                                                                            |
| ADB SAFEGATE AMERICAS, LLC                           | L-850A(L) | 1, 2  | 3     | 1    |      |        | SLXRCI12BSSWW6.6AX1CL850A(L) (690);<br>SIRCS2BSXWWXGX21(690);<br>SLXRCI12BSSWR6.6AX1CL850A(L) (690)(691);<br>SIRCS2BSXWRXGX21 (690)(691)                                                                                                                                                |
| ADB SAFEGATE AMERICAS, LLC                           | L-850B(L) | 1, 2  | 3     | 1    |      |        | SLXRZI12UXSW6.6AX1CL-850B(L) (850);<br>SIRZS2UXXWNXGX21 (850)                                                                                                                                                                                                                           |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                        | FAA type  | CLASS | STYLE | MODE | SIZE | RATING | CAT NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|----------------------------|-----------|-------|-------|------|------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ADB SAFEGATE AMERICAS, LLC | L-850T(L) | 1, 2  | 3     | 1    |      |        | SLXRSI12USSR6.6AX1CL-850T(L) (704);<br>SIRSS2USXRNFX21 (704)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| ADB SAFEGATE AMERICAS, LLC | L-850D(L) | 1, 2  | 3     | 1    |      |        | SLXRNI12USSR6.6AX1CL850D(L) (700);<br>SIRNS2USXRNFX2X (700);<br>SLXRNI12BSSRR6.6AX1CL850D(L) (700);<br>SIRNS2BSXRRFX2X (700)<br>SLXRTI12ULSF6.6AX1CL850D(L) (701);<br>SIRTS2ULXFNFX2X (701);<br>SLXRTI12URSF6.6AX1CL850D(L) (703);<br>SIRTS2URXFNFX2X (703);<br>SLXRTNI12BLSFR6.6AX1CL850D(L) (700)(701);<br>SIRTS2BLXFRFX2X (700)(701);<br>SLXRTNI12BRSFR6.6AX1CL850D(L) (700)(703);<br>SIRTS2BRXFRFX2X (700)(703)<br>SLXREI12BCSWW6.6AX1CL850C(L) (692)(696);<br>SIRES2CXWWXGX2X (692)(696);<br>SLXREI12BCSWY6.6AX1CL850C(L) (692)(699);<br>SIRES2CXWYXGX2X (692)(699); |
| ADB SAFEGATE AMERICAS, LLC | L-850C(L) | 1, 2  | 3     | 1    |      |        | 44A6009-XXXX (123)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| ADB SAFEGATE AMERICAS, LLC | L-850C    | 2     | 3     | 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 AMERICAS, LLC | L-850A(L) | 1,2   | 3     | 1    |      |        | RSRC1xxxxNxxSxx1 (968)(963)(967)(962);<br>RSRC1xxxxNxxMx01 (968)(963)(967)(962);<br>RSRC1xxxxNxxRxx1 (968)(963)(967)(962);                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| ADB SAFEGATE AMERICAS, LLC | L-850B(L) | 1,2   | 3     | 1    |      |        | RSRZ1xxx1xWNSxx1 (965)(964);<br>RSRZ1xxx1xWNMx01 (965)(964);<br>RSRZ1xxx1xWNRxx1 (965)(964);                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| ADB SAFEGATE AMERICAS, LLC | L-850C(L) | 1,2   | 3     | 1    |      |        | RSRE1x2x2CxxSxx1(966)(980)(969)(979);<br>RSRE1x2x2CxxMx01(966)(980)(969)(979);<br>RSRE1x2x2CxxRxx1(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    |      |        | RSRx2x2xxxxSxx1(980)(970);<br>RSRx2x2xxxxMx01(980)(970);<br>RSRx2x2xxxxRxx1(980)(970);                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| ADB SAFEGATE BV            | L-850A(L) | 1, 2  | 3     | 1    |      |        | SafeLEDIQXRCI8BSSWWXC (620);<br>SafeLEDIQXRCI8BSSWRXC (620)(621)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| ADB SAFEGATE BV            | L-850B(L) | 1, 2  | 3     | 1    |      |        | SafeLEDIQXRZI8UXS-W1C (620)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| ADB SAFEGATE BV            | L-850B(L) | 1, 2  | 3     | 1    |      |        | SafeLEDXRZI12UXSW6.6A1C (690)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| ADB SAFEGATE BV            | L-850T(L) | 1, 2  | 3     | 1    |      |        | SafeLEDXRSI12USSR6.6A1C (704)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                                    | FAA type  | CLASS | STYLE | MODE | SIZE | RATING | CAT NO.                                                                                                                                                                                                                                                |
|----------------------------------------|-----------|-------|-------|------|------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ADB SAFEGATE BV                        | L-850A(L) | 1, 2  | 3     | 1    |      |        | SafeLEDXRCI12BSSWW6.6A1C (690);<br>SafeLEDXRCI12BSSWR6.6A1C (690)(691)                                                                                                                                                                                 |
| ADB SAFEGATE BV                        | L-850D(L) | 1, 2  | 3     | 1    |      |        | SafeLEDXRNI12USSR6.6A1C (700);<br>SafeLEDXRNI12BSSRR6.6A1C (700);<br>SafeLEDXRTI12ULSF6.6A1CL850D(L) (701);<br>SafeLEDXRTI12URSF6.6A1CL850D(L) (703);<br>SafeLEDXRTNI12BLSFR6.6A1CL850D(L) (700)(701);<br>SafeLEDXRTNI12BRSFR6.6A1CL850D(L) (700)(703) |
| ADB SAFEGATE BV                        | L-850C(L) | 1, 2  | 3     | 1    |      |        | SafeLEDXREI12BCSWW6.6A1C (692)(696)                                                                                                                                                                                                                    |
| ADB SAFEGATE BV                        | L-850C(L) | 1, 2  | 3     | 1    |      |        | SafeLEDXREI12BCSWY6.6A1C (692)(699)                                                                                                                                                                                                                    |
| ADB SAFEGATE BV                        | L-850C(L) | 1, 2  | 3     | 1    |      |        | SafeLEDXREI12BCSYW6.6A1C (695)(696)                                                                                                                                                                                                                    |
| ADB SAFEGATE BV                        | L-850C(L) | 1, 2  | 3     | 1    |      |        | SafeLEDXREI12BCSWR6.6A1C (692)(697)                                                                                                                                                                                                                    |
| ADB SAFEGATE BV                        | L-850C(L) | 1, 2  | 3     | 1    |      |        | SafeLEDXREI12BCSRW6.6A1C (693)(696)                                                                                                                                                                                                                    |
| ADB SAFEGATE BV                        | L-850C(L) | 1, 2  | 3     | 1    |      |        | SafeLEDXREI12BCSRY6.6A1C (693)(699)                                                                                                                                                                                                                    |
| ADB SAFEGATE BV                        | L-850C(L) | 1, 2  | 3     | 1    |      |        | SafeLEDXREI12BCSYR6.6A1C (695)(697)                                                                                                                                                                                                                    |
| ADB SAFEGATE BV                        | L-850C(L) | 1, 2  | 3     | 1    |      |        | SafeLEDXREI12BCSFY6.6A1C (694)(699)                                                                                                                                                                                                                    |
| ADB SAFEGATE BV                        | L-850A(L) | 1,2   | 3     | 1    |      |        | RSRC1xxxxNxxSxx1 (968)(963)(967)(962);<br>RSRC1xxxxNxxMx01 (968)(963)(967)(962);<br>RSRC1xxxxNxxRxx1 (968)(963)(967)(962);                                                                                                                             |
| ADB SAFEGATE BV                        | L-850B(L) | 1,2   | 3     | 1    |      |        | RSRZ1xxx1xWNSxx1 (965)(964);<br>RSRZ1xxx1xWNMx01 (965)(964);<br>RSRZ1xxx1xWNRxx1 (965)(964);                                                                                                                                                           |
| ADB SAFEGATE BV                        | L-850C(L) | 1,2   | 3     | 1    |      |        | RSRE1x2x2CxxSxx1(966)(980)(969)(979);<br>RSRE1x2x2CxxMx01(966)(980)(969)(979);<br>RSRE1x2x2CxxRxx1(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    |      |        | RSRx2x2xxxxxSxx1(980)(970);<br>RSRx2x2xxxxxMx01(980)(970);<br>RSRx2x2xxxxxRxx1(980)(970);                                                                                                                                                              |
| ADB SAFEGATE BV                        | L-850C(L) | 1, 2  | 3     | 1    |      |        | SafeLEDXREI12BCSYF6.6A1C (695)(698)                                                                                                                                                                                                                    |
| atg airports ltd                       | L-850A(L) | 1     | 3     | 1    |      |        | IR850A-11WW-110 (611); IR850A-12WB-110 (611)<br>IR850A-21BW-110 (611); IR850A-11WR-110 (611)(612);<br>IR850A-11RW-110 (612)(611)<br>IR850A-12RB-110 (612); IR850A-21BR-110 (612);                                                                      |
| atg airports ltd                       | L-850B(L) | 1     | 3     | 1    |      |        | IR850B-34WB-110 (614); IR850B-42BW-110 (613)<br>IR850B-43BW-110 (614); IR850B-24WB-110 (613)<br>IR850B-14WB-110 (611); IR850B-41BW-110 (611)                                                                                                           |
| atg airports ltd                       | L-850A    | 1     | 2     | 1    |      |        | ZA484-WW-X (126); ZA484-WR-X (126);<br>ZA484-W-X (126); ZA484-R-X (126)                                                                                                                                                                                |
| atg airports ltd                       | L-850B    | 1     | 2     | 1    |      |        | ZA480-WN-LHT (126); ZA480-WN-RHT (126)                                                                                                                                                                                                                 |
| 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)                                                                                                                                                                                                                        |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| 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);<br>850C-AP1-WR-12-PX-X (812)(815); 850C-AP1-RW-12-PX-X (815)(812):<br>850C-AP1-WY-12-PX-X (812)(813);850C-AP1-YW-12-PX-X (813)(812):<br>850C-AP1-YR-12-PX-X (813)(815); 850C-AP1-RY-12-PX-X (815)(813);<br>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);<br>850D-AP1-GR-12-PX-X (814)(815); 850D-AP1-RG-12-PX-X (815)(814):<br>850D-AP1-GN-12-PX-X (814); 850D-AP1-NG-12-PX-X (814);<br>850D-AP1-RN-12-PX-X (815); 850D-AP1-NR-12-PX-X (815);                                                                                       |
| 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)                                                                                                                                                                                                                                                                                        |
| Honeywell                              | L-850A(L) | 1     | 3     | 1    |      |        | RCL-WW-1I08BSC015SN0M1L200 (931) RCL-WR-<br>1I08BSC015SN0M1L200 (931)932) RCL-RW-1I08BSC015SN0M1L200<br>(932)(931) RCL-WN-1I08USC015SN0M1L100 (931) RCL-RN-<br>1I08USC015SN0M1L100 (932)                                                                                                              |
| Honeywell                              | L-850B(L) | 1     | 3     | 1    |      |        | TDZ-WN-1I08USC010SN0M1L100 (931) TDZ-WN-<br>1I08USC010CR0M1L100 (931) TDZ-WN-1I08USC010CL0M1L100 (931)                                                                                                                                                                                                |
| HUGHEY & PHILLIPS, LLC                 | L-850A(L) | 2     | 3     | 1    |      |        | 850A-L-X-WW-0-X(736); 850A-L-X-WR-0-X(734)(736);<br>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);<br>LRCL04-F-WR-XX-X-X (533)(532)(536)<br>LRCL04-F-WS-1P-X-X (533); LRCL04-F-WM-1P-X-X (533)<br>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)<br>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)<br>LRED04-F-YW-XX-X-X (538)(533); LRED04-WR-XX-X-X (533)(536)<br>LRED04-F-RW-XX-X-X (536)(533); LRED04-F-YR-XX-X-X (538)(536);<br>LRED04-F-RY-XX-X-X (536)(538); LRED04-F-YG-XX-X-X (538)(537);<br>LRED04-F-GY-XX-X-X (537)(538)              |
| OCEM AIRFIELD TECHNOLOGY               | L-850A(L) | 1     | 3     | 1    |      |        | LIRC-F-WW-XX-O-X-X (534); LIRC-F-WR-2P-O-X-X (534)(535);<br>LIRC-F-WR-1P-O-X-X (534)(531); LIRC-F-WM-1P-O-X-X (534);<br>LIRC-F-RM-1P-O-X-X (531)                                                                                                                                                      |
| OCEM AIRFIELD TECHNOLOGY               | L-850A(L) | 1, 2  | 3     | 1    |      |        | LIRC-F-WW-XX-R-X-X (534); LIRC-F-WR-2P-R-X-X (534) (535);<br>LIRC-F-WR-1P-R-X-X (534) (531); LIRC-F-WM-1P-R-X-X (534)<br>LIRC-F-RM-1P-R-X-X (531); LIRL-F-WW-XX-X-X (533)<br>LIRL-F-WR-XX-X-X (533)(532)(536); LIRL-F-WM-1P-X-X (533)<br>LIRL-F-RM-1P-X-X (532)                                       |
| OCEM AIRFIELD TECHNOLOGY               | L-850T(L) | 1     | 3     | 1    |      |        | LIRC-F-TM-1P-O-X-X (535)                                                                                                                                                                                                                                                                              |
| OCEM AIRFIELD TECHNOLOGY               | L-850T(L) | 1, 2  | 3     | 1    |      |        | LIRC-F-TM-1P-R-X-X (535)                                                                                                                                                                                                                                                                              |
| OCEM AIRFIELD TECHNOLOGY               | L-850T(L) | 1, 2  | 3     | 1    |      |        | LIRL-F-TM-1P-X-X (532)                                                                                                                                                                                                                                                                                |
| OCEM AIRFIELD TECHNOLOGY               | L-850D(L) | 1, 2  | 3     | 1    |      |        | LIRH-F-GR-X-XX-X-X (539)(532); LIRH-F-RR-L-XX-X-X (532)<br>LIRH-F-GS-X-1P-X-X (539); LIRH-F-GM-X-1P-X-X (539)                                                                                                                                                                                         |
| OCEM AIRFIELD TECHNOLOGY               | L-850E(L) | 1, 2  | 3     | 1    |      |        | LIRT-F-X-X-X (539)                                                                                                                                                                                                                                                                                    |
| OCEM AIRFIELD TECHNOLOGY               | L-850B(L) | 1     | 3     | 1    |      |        | LIRD-F-X-X-O-X-X (534)                                                                                                                                                                                                                                                                                |
| OCEM AIRFIELD TECHNOLOGY               | L-850B(L) | 1,2   | 3     | 1    |      |        | LIRD-F-X-X-R-X-X (534)                                                                                                                                                                                                                                                                                |
| OCEM AIRFIELD TECHNOLOGY               | L-850B(L) | 1,2   | 3     | 1    |      |        | LIRZ-F-X-X-X (533)                                                                                                                                                                                                                                                                                    |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                                     | FAA type  | CLASS | STYLE | MODE | SIZE | RATING | CAT NO.                                                                                                                                                                                                                                                                                                                                                              |
|-----------------------------------------|-----------|-------|-------|------|------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OCEM AIRFIELD TECHNOLOGY                | L-850C(L) | 1, 2  | 3     | 1    |      |        | LIRE-F-WW-XX-X-X (533); LIRE-F-WY-XX-X-X (533)(538)<br>LIRE-F-YW-XX-X-X (538)(533); LIRE-F-WR-XX-X-X (533)(536)<br>LIRE-F-RW-XX-X-X (536)(533); LIRE-F-YR-XX-X-X (538)(536)<br>LIRE-F-RY-XX-X-X (536)(538); LIRE-F-YG-XX-X-X (538)(537)<br>LIRE-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)<br>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)<br>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)<br>SLRE-E-CPR-XP-200-O-F (520); SLRE-E-CPY-XP-200-O-F (520)<br>SLRE-E-CRP-XP-200-O-F (520); SLRE-E-CYP-XP-200-O-F (520)<br>SLRE-E-GPY-XP-200-O-F (520); SLRE-E-RPY-XP-200-O-F (520)<br>SLRE-E-RYP-XP-200-O-F (520); SLRE-E-YCP-XP-200-O-F (520)<br>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)<br>SLRE-A-GXP-1P-100-O-F (520)<br>SLRE-A-RPG-XP-200-O-F (520)<br>SLRE-A-RPR-XP-200-O-F (520)<br>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)                                                                                                                                                                                                                                                                                                                                           |
| 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)<br>THRE-R-F-x2-R00G35-1-xx-1000 (870)(869)<br>THR-L-F-x2-G35000-1-xx-1000 (869)<br>THR-R-F-x2-000G35-1-xx-1000 (869)<br>RWE-S-F-x2-R00R00-1-xx-1000 (870)<br>RWE-S-F-x2-R00000-1-xx-1000 (870)                                                                                                                               |
| YOUYANG AIRPORT LIGHTING EQUIPMENT INC. | L-850C(L) | 1     | 2     | 1    |      |        | IHF(L)-REDL-W/W-21(993)<br>IHF(L)-REDL-W/Y-21(993)(994); IHF(L)-REDL-W/Y-31(993)(994)<br>IHF(L)-REDL-W/R-21(993)(995); IHF(L)-REDL-W/R-31(993)(995)<br>IHF(L)-REDL-Y/R-21(994)(995); IHF(L)-REDL-Y/R-31(994)(995)                                                                                                                                                    |
| YOUYANG AIRPORT LIGHTING EQUIPMENT INC. | L-850D(L) | 1     | 2     | 1    |      |        | IHF(L)-RTHL/RENL-G/R-21(996)(995)<br>IHF(L)-RTHL/RENL-G/R-31(996)(995)<br>IHF(L)-RTHL-G-21(996); IHF(L)-RTHL-G-31(996)<br>IHF(L)-RENL-R/R-11(995)<br>IHF(L)-RENL-R-11(995)                                                                                                                                                                                           |
| 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);<br>IHH(L)-RCLL-W/W-41 (956)(956);<br>IHH(L)-RCLL-W/R-11 (956)(957);<br>IHH(L)-RCLL-W/R-41 (956)(957);<br>IHH(L)-RCLL-W-11 (956);<br>IHH(L)-RCLL-R-11(957)                                                                                                                                                                             |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                                                   | FAA type  | CLASS | STYLE | MODE | SIZE | RATING | CAT NO.                                                                                                                                                                                                                                                                                                                                                   |
|-------------------------------------------------------|-----------|-------|-------|------|------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| YOUYANG AIRPORT LIGHTING EQUIPMENT INC.               | L-850B(L) | 1,2   | 3     | 1    |      |        | IHH(L)-RTZL-W--11 (956);<br>IHH(L)-RTZL-W-21 (956);<br>IHH(L)-RTZL-W-31 (956);                                                                                                                                                                                                                                                                            |
| YOUYANG AIRPORT LIGHTING EQUIPMENT INC.               | L-850A    | 2     | 3     | 1    |      |        | IHG-RCLL-2-048-2-01-1 (842)<br>IHG-RCLL-2-048-2-02-1 (842)                                                                                                                                                                                                                                                                                                |
| L-852 Taxiway Inpavement Lights (FAA AC 150/5345-46E) |           |       |       |      |      |        |                                                                                                                                                                                                                                                                                                                                                           |
| 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)<br>RSTE1XXP3NBNS1X2 (977) RSTE1XXP3NBNS2X2 (977)<br>RSTE1XXP3NBNM102 (977) RSTE1XXP3NBNM202 (977)                                                                                                                                                                                                           |
| ADB SAFEGATE AMERICAS, LLC                            | L-852D(L) | 2     | 3     | 1    |      |        | D2DXXYY0XXF0XU0 (659); D2DXXGG0XXF0XU0 (658)<br>D2DXXYY0XXF1XU0 (659); D2DXXGG0XXF1XU0 (658)<br>D2DXXYN0XXF0XU0 (659); D2DXXGN0XXF0XU0 (658)<br>D2DXXYN0XXF1XU0 (659); D2DXXGN0XXF1XU0 (658)<br>D2DXXWN0XXF0XU0 (666); D2DXXWW0XXF0XU0 (666)<br>D2DXXWN0XXF1XU0 (666); D2DXXWW0XXF1XU0 (666)<br>D2DXXWY0XXF0XU0 (659)(666);<br>D2DXXWY0XXF1XU0 (658)(666) |
| ADB SAFEGATE AMERICAS, LLC                            | L-852C(L) | 2     | 3     | 1    |      |        | D2CXXYY0XXF0XU0 (663); D2CXXGG0XXF0XU0 (662)<br>D2CXXYY0XXF1XU0 (663); D2CXXGG0XXF1XU0 (662)<br>D2CXXYN0XXF0XU0 (663); D2CXXGN0XXF0XU0 (662)<br>D2CXXYN0XXF1XU0 (663); D2CXXGN0XXF1XU0 (662)<br>D2CXXYG0XXF0XU0 (663)(662);<br>D2CXXYG0XXF1XU0 (663)(662);                                                                                                |
| ADB SAFEGATE AMERICAS, LLC                            | L-852J(L) | 2     | 3     | 1    |      |        | D2JXXYY3XSFOXU0 (887)(886); D2JXXGG3XSFOXU0 (885)(884)<br>D2JXXYY3XSF1XU0 (887)(886); D2JXXGG3XSF1XU0 (885)(884)<br>D2JXXYN3XSFOXU0 (887); D2JXXGN3XSFOXU0 (885) D2JXXYN3XSF1XU0<br>(887); D2JXXGN3XSF1XU0 (885) D2JXXNY3XSFOXU0 (886);<br>D2JXXNG3XSFOXU0 (884) D2JXXNY3XSF1XU0 (886); D2JXXNG3XSF1XU0<br>(884                                           |
| ADB SAFEGATE AMERICAS, LLC                            | L-852A(L) | 1,2   | 3     |      |      |        | RSTA2xxSxNxxSxx1(981)(982); RSTA2xxSxNxxMxx1(981)(982);<br>RSTA2xxSxNxxRxx1(981)(982);                                                                                                                                                                                                                                                                    |
| ADB SAFEGATE AMERICAS, LLC                            | L-852B(L) | 1,2   | 3     |      |      |        | RSTB2xxSxNxxSxx1(981)(982); RSTB2xxsxNxxMxx1(981)(982);<br>RSTB2xxSxNxxRxx1(981)(982);                                                                                                                                                                                                                                                                    |
| ADB SAFEGATE AMERICAS, LLC                            | L-852J(L) | 1,2   | 3     |      |      |        | RSTJ2xxSxCxxSxx1(981)(982); RSTJ2xxSxCxxMxx1(981)(982);<br>RSTJ2xxSxCxxRxx1(981)(982)                                                                                                                                                                                                                                                                     |
| ADB SAFEGATE AMERICAS, LLC                            | L-852C(L) | 1,2   | 3     |      |      |        | RSTC2xxSxNxxSxx1(983)(984);<br>RSTC2xxSxNxxMxx1(983)(984);RSTC2xxSxNxxRxx1(983)(984);                                                                                                                                                                                                                                                                     |
| ADB SAFEGATE AMERICAS, LLC                            | L-852D(L) | 1,2   | 3     |      |      |        | RSTD2xxSxNxxSxx1(985)(986)(987);<br>RSTD22xxSxNxxMxx1(985)(986)(987);<br>RSTD2xxSxNxxRxx1(985)(986)(987)                                                                                                                                                                                                                                                  |
| ADB SAFEGATE AMERICAS, LLC                            | L-852K(L) | 1,2   | 3     |      |      |        | RSTK2xxSxCxxSxx1(989)(990);RSTK2xxSxCxxMxx1(989)(990);<br>RSTK2xxSxCxxRxx1(989)(990);                                                                                                                                                                                                                                                                     |
| ADB SAFEGATE AMERICAS, LLC                            | L-852S(L) | 1,2   | 3     |      |      |        | RSSB2xxS1NRNSxx1(988); RSSB2xxS1NRNMxx1(988);<br>RSSB2xxS1NRNRxx1(988)                                                                                                                                                                                                                                                                                    |
| ADB SAFEGATE AMERICAS, LLC                            | L-852A(L) | 2     | 3     | 1    |      |        | D2AXXYY0XXF0XU0 (663); D2AXXGG0XXF0XU0 (662)<br>D2AXXYY0XXF1XU0 (663); D2AXXGG0XXF1XU0 (662)<br>D2AXXYN0XXF0XU0 (663); D2AXXGN0XXF0XU0 (662)<br>D2AXXYN0XXF1XU0 (663); D2AXXGN0XXF1XU0 (662)<br>D2AXXYG0XXF0XU0 (663)(662);<br>D2AXXYG0XXF1XU0 (663)(662);                                                                                                |
| ADB SAFEGATE AMERICAS, LLC                            | L-852K(L) | 2     | 3     | 1    |      |        | D2KXXYY3XSFOXU0 (891)(890); D2KXXGG3XSFOXU0 (889)(888)<br>D2KXXYY3XSF1XU0 (891)(890); D2KXXGG3XSF1XU0 (889)(888)<br>D2KXXYN3XSFOXU0 (891); D2KXXGN3XSFOXU0 (889)<br>D2KXXYN3XSF1XU0 (891); D2KXXGN3XSF1XU0 (889)<br>D2KXXNY3XSFOXU0 (890); D2KXXNG3XSFOXU0 (888)<br>D2KXXNY3XSF1XU0 (890); D2KXXNG3XSF1XU0 (888                                           |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                        | FAA type  | CLASS | STYLE | MODE | SIZE | RATING | CAT NO.                                                                                                                                                                                                                                                                                                                                                                                                          |
|----------------------------|-----------|-------|-------|------|------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ADB SAFEGATE AMERICAS, LLC | L-852B(L) | 2     | 3     | 1    |      |        | D2BXXYY0XXF0XU0 (665); D2BXXGG0XXF0XU0 (664)<br>D2BXXYY0XXF1XU0 (665); D2BXXGG0XXF1XU0 (664)<br>D2BXXYN0XXF0XU0 (665); D2BXXGN0XXF0XU0 (664)<br>D2BXXYN0XXF1XU0 (665); D2BXXGN0XXF1XU0 (664)                                                                                                                                                                                                                     |
| 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-852G    | 2     | 3     | 1    |      |        | 44A5875-211 (123);44A5988-1211 (123)                                                                                                                                                                                                                                                                                                                                                                             |
| ADB SAFEGATE AMERICAS, LLC | L-852S    | 2     | 3     | 1    |      |        | 44A5924-X11 (123); 44A5988-1211 (123)                                                                                                                                                                                                                                                                                                                                                                            |
| ADB SAFEGATE AMERICAS, LLC | L-852G(L) | 2     | 3     | 1    |      |        | IRGL-XXX11 (426)                                                                                                                                                                                                                                                                                                                                                                                                 |
| ADB SAFEGATE AMERICAS, LLC | L-852S    | 2     | 3     | 1    |      |        | 44A5924-X11 (123); 44A5988-1211 (123)                                                                                                                                                                                                                                                                                                                                                                            |
| ADB SAFEGATE AMERICAS, LLC | L-852G(L) | 2     | 3     | 1    |      |        | IRGL-2X121 (426); IRGL-3X121 (426)                                                                                                                                                                                                                                                                                                                                                                               |
| 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-852D(L) | 2     | 3     | 1    |      |        | ITCF-DX03X2 (597)(598)(618)(746)(858)                                                                                                                                                                                                                                                                                                                                                                            |
| ADB SAFEGATE AMERICAS, LLC | L-852K(L) | 2     | 3     | 1    |      |        | ITCF-KX03X2 (598)(618)(746)(858)                                                                                                                                                                                                                                                                                                                                                                                 |
| ADB SAFEGATE AMERICAS, LLC | L-852C(L) | 2     | 3     | 1    |      |        | ITCF-CX03X2 (570)(615)(749)(851)                                                                                                                                                                                                                                                                                                                                                                                 |
| ADB SAFEGATE AMERICAS, LLC | L-852A(L) | 2     | 3     | 1    |      |        | ITCF-AX03X2 (570)(615)(748)(873)                                                                                                                                                                                                                                                                                                                                                                                 |
| ADB SAFEGATE AMERICAS, LLC | L-852B(L) | 2     | 3     | 1    |      |        | ITCF-BX03X2 (570)(615)(749)(851)                                                                                                                                                                                                                                                                                                                                                                                 |
| ADB SAFEGATE AMERICAS, LLC | L-852J(L) | 2     | 3     | 1    |      |        | ITCF-JX03X2 (570)(615)(748)(873)                                                                                                                                                                                                                                                                                                                                                                                 |
| ADB SAFEGATE AMERICAS, LLC | L-852T(L) | 2     | 3     | 1    |      |        | ITEL-C11X (445); ITEL-C21X (445)                                                                                                                                                                                                                                                                                                                                                                                 |
| ADB SAFEGATE AMERICAS, LLC | L-852C(L) | 1, 2  | 3     | 1    |      |        | SLXTCI8UNSY6.6AX1CL852C(L) (721);<br>SITCS1UNXYNXGA22 (721);<br>SLXTCI8BNSYY6.6AX1CL852C(L) (721);<br>SITCS1BNXYXGA22 (721);<br>SLXTCI8UNSF6.6AX1CL852C(L) (723);<br>SITCS1UNXFNXGA22 (723);<br>SLXTCI8BNSFF6.6AX1CL852C(L) (723);<br>SITCS1BNXFFXGA22 (723);<br>SLXTCI8BNSFY6.6AX1CL852C(L) (721)(723);<br>SITCS1BNXFYXGA22 (721)(723)                                                                          |
| ADB SAFEGATE AMERICAS, LLC | L-852K(L) | 1, 2  | 3     | 1    |      |        | SLXTCI8BCSFF6.6AX1CL852K(L) (766)(767);<br>SITCS1BCXFFXGA22 (766)(767);<br>SLXTCI8ULSF6.6AX1CL852K(L) (766);<br>SITCS1ULXFNXGA22 (766);<br>SLXTCI8URSF6.6AX1CL852K(L) (767);<br>SITCS1URXFNXGA22 (767);<br>SLXTCI8BCSYY6.6AX1CL852K(L) (768)(769);<br>SITCS1BCXYXGA22 (768)(769);<br>SLXTCI8ULSY6.6AX1CL852K(L) (768);<br>SITCS1ULXYNXGA22 (768);<br>SLXTCI8URSY6.6AX1CL852K(L) (769);<br>SITCS1URXYNXGA22 (769) |
| ADB SAFEGATE AMERICAS, LLC | L-852D(L) | 1, 2  | 3     | 1    |      |        | SLXTCI8UDSY6.6AX1CL852D(L) (726);<br>SITCS1UDXYNXGA22 (726);<br>SLXTCI8BDSYY6.6AX1CL852D(L) (726);<br>SITCS1BDXYXGA22 (726);<br>SLXTCI8UDSF6.6AX1CL852D(L) (728);<br>SITCS1UDXFNXGA22 (728);<br>SLXTCI8BDSFF6.6AX1CL852D(L) (728)<br>SITCS1BDXFFXGA22 (728)                                                                                                                                                      |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                        | FAA type  | CLASS | STYLE | MODE | SIZE | RATING | CAT NO.                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------------------|-----------|-------|-------|------|------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ADB SAFEGATE AMERICAS, LLC | L-852C(L) | 1, 2  | 3     | 1    |      |        | SLXTCI12UNSY6.6AX1CL852C(L) (722);<br>SITCS2UNXYNXGX21 (722);<br>SLXTCI12BNSYY6.6AX1CL852C(L) (722);<br>SITCS2BNXYXXGX21 (722);<br>SLXTCI12UNSF6.6AX1CL852C(L) (724);<br>SITCS2UNXFNXGX21 (724);<br>SLXTCI12BNSFF6.6AX1CL852C(L) (724);<br>SITCS2BNXFFXGX21 (724);<br>SLXTCI12BNSFY6.6AX1CL852C(L) (722)(724);<br>SITCS2BNXFYXGX21 (722)(724)                                                                           |
| ADB SAFEGATE AMERICAS, LLC | L-852D(L) | 1, 2  | 3     | 1    |      |        | SLXTCI12UDSY6.6AX1CL852D(L) (727);<br>SITCS2UDXYNXGX21 (727);<br>SLXTCI12BDSYY6.6AX1CL852D(L) (727);<br>SITCS2BDXYXXGX21 (727);<br>SLXTCI12UDSF6.6AX1CL852D(L) (729);<br>SITCS2UDXFNXGX21 (729);<br>SLXTCI12BDSFF6.6AX1CL852D(L) (729);<br>SITCS2BDXFFXGX21 (729)                                                                                                                                                       |
| ADB SAFEGATE AMERICAS, LLC | L-852K(L) | 1, 2  | 3     | 1    |      |        | SLXTCI12BCSFF6.6AX1CL852K(L) (781)(783);<br>SITCS2BCXFFXGX21 (781)(783);<br>SLXTCI12ULSF6.6AX1CL852K(L) (781);<br>SITCS2ULXFNXGX21 (781);<br>SLXTCI12URSF6.6AX1CL852K(L) (783);<br>SITCS2URXFNXGX21 (783);<br>SLXTCI12BCSYY6.6AX1CL852K(L) (782)(784);<br>SITCS2BCXYXXGX21 (782)(784);<br>SLXTCI12ULSY6.6AX1CL852K(L) (782);<br>SITCS2ULXYNXGX21 (782);<br>SLXTCI12URSY6.6AX1CL852K(L) (784);<br>SITCS2URXYNXGX21 (784) |
| ADB SAFEGATE AMERICAS, LLC | L-852G(L) | 1, 2  | 3     | 1    |      |        | SLXRGLI8USSY6.6AX1CL852G(L)(714);<br>SIRGS1USXYNXGA22(714)                                                                                                                                                                                                                                                                                                                                                              |
| ADB SAFEGATE AMERICAS, LLC | L-852S(L) | 1, 2  | 3     | 1    |      |        | SLXSB18USSR6.6AX1CL852S(L)(715);<br>SISBS1USXRNXF22 (715)                                                                                                                                                                                                                                                                                                                                                               |
| ADB SAFEGATE AMERICAS, LLC | L-852G(L) | 1, 2  | 3     | 1    |      |        | SLXRGLI12USSY6.6AX1CL852G(L)(718);<br>SIRGS2USXYNXGX21(718)                                                                                                                                                                                                                                                                                                                                                             |
| ADB SAFEGATE AMERICAS, LLC | L-852S(L) | 1, 2  | 3     | 1    |      |        | SLXSB112USSR6.6AX1CL852S(L)(719)<br>SISBS2USXRNXF21(719)                                                                                                                                                                                                                                                                                                                                                                |
| ADB SAFEGATE BV            | L-852A(L) | 1,2   | 3     |      |      |        | RSTA20xSxNxxSxx1(981)(982); RSTA20xSxNxxMxx1(981)(982);<br>RSTA20xSxNxxRxx1(981)(982)                                                                                                                                                                                                                                                                                                                                   |
| ADB SAFEGATE BV            | L-852B(L) | 1,2   | 3     |      |      |        | RSTB20xSxNxxSxx1(981)(982); RSTB20xSxNxxMxx1(981)(982);<br>RSTB20xSxNxxRxx1(981)(982)                                                                                                                                                                                                                                                                                                                                   |
| ADB SAFEGATE BV            | L-852J(L) | 1,2   | 3     |      |      |        | RSTJ20xSxCxxSxx1(981)(982); RSTJ20xSxCxxMxx1(981)(982);<br>RSTJ20xSxCxxRxx1(981)(982)                                                                                                                                                                                                                                                                                                                                   |
| ADB SAFEGATE BV            | L-852C(L) | 1,2   | 3     |      |      |        | RSTC20xSxNxxSxx1(983)(984); RSTC20xSxNxxMxx1(983)(984);<br>RSTC20xSxNxxRxx1(983)(984)                                                                                                                                                                                                                                                                                                                                   |
| ADB SAFEGATE BV            | L-852D(L) | 1,2   | 3     |      |      |        | RSTD20xSxNxxSxx1(985)(986)(987);<br>RSTD20xSxNxxMxx1(985)(986)(987); RSTD20xSxNxxRxx1(985)(986)(987)                                                                                                                                                                                                                                                                                                                    |
| ADB SAFEGATE BV            | L-852K(L) | 1,2   | 3     |      |      |        | RSTK20xSxCxxSxx1(989)(990); RSTK20xSxCxxMxx1(989)(990);<br>RSTK20xSxCxxRxx1(989)(990)                                                                                                                                                                                                                                                                                                                                   |
| ADB SAFEGATE BV            | L-852S(L) | 1,2   | 3     |      |      |        | RSSB20xS1NRNSxx1(988); RSSB20xS1NRNMxx1(988)<br>RSSB20xS1NRNRxx1(988)                                                                                                                                                                                                                                                                                                                                                   |
| ADB SAFEGATE BV            | L-852T(L) | 1,2   | 3     |      |      |        | RSTE1XXP3NBNR1X2 (977) RSTE1XXP3NBNR2X2 (977)<br>RSTE1XXP3NBNS1X2 (977) RSTE1XXP3NBNS2X2 (977)<br>RSTE1XXP3NBNM102 (977) RSTE1XXP3NBNM202 (977)                                                                                                                                                                                                                                                                         |
| ADB SAFEGATE BV            | L-852T(L) | 1     | 3     |      |      |        | RSTE101S3NBNM101(1000); RSTE101S3NBNS101(1000)                                                                                                                                                                                                                                                                                                                                                                          |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                              | FAA type  | CLASS | STYLE | MODE | SIZE | RATING | CAT NO.                                                                                                                                                                                                                                                                          |
|----------------------------------|-----------|-------|-------|------|------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ADB SAFEGATE BV                  | L-852C(L) | 1, 2  | 3     | 1    |      |        | SafeLEDXTCI12UNSY6.6A1CL852C(L) (722);<br>SafeLEDXTCI12BNSYY6.6A1CL852C(L) (722);<br>SafeLEDXTCI12UNSF6.6A1CL852C(L) (724);<br>SafeLEDXTCI12BNSFF6.6A1CL852C(L) (724);<br>SafeLEDXTCI12BNSFY6.6A1CL852C(L) (722)(724)                                                            |
| ADB SAFEGATE BV                  | L-852D(L) | 1, 2  | 3     | 1    |      |        | SafeLEDXTCI12UDSY6.6A1CL852D(L) (727);<br>SafeLEDXTCI12BDSYY6.6A1CL852D(L) (727);<br>SafeLEDXTCI12UDSF6.6A1CL852D(L) (729);<br>SafeLEDXTCI12BDSFF6.6A1CL852D(L) (729)                                                                                                            |
| ADB SAFEGATE BV                  | L-852K(L) | 1, 2  | 3     | 1    |      |        | SafeLEDXTCI12BCSFF6.6A1CL852K(L) (781)(783);<br>SafeLEDXTCI12ULSF6.6A1CL852K(L) (781);<br>SafeLEDXTCI12URSF6.6A1CL852K(L) (783);<br>SafeLEDXTCI12BCSYY6.6A1CL852K(L) (782)(784);<br>SafeLEDXTCI12ULSY6.6A1CL852K(L) (782);<br>SafeLEDXTCI12URSY6.6A1CL852K(L) (784)              |
| ADB SAFEGATE BV                  | L-852C(L) | 1     | 2     | 1    |      |        | D TSA3GG0AS00001(772);<br>D TSA3GG0AM00001(772)<br>D TSA3GY0AS00001(772) (773);<br>D TSA3GY0AM00001(772) (773);<br>D TSA3YY0AS00001 (773);<br>D TSA3YY0AM00001 (773)<br>D TSA2GN0AS00001(772);<br>D TSA2GN0AM00001(772)<br>D TSA2YN0AS00001 (773);<br>D TSA2YN0AM00001 (773)     |
| ADB SAFEGATE BV                  | L-852C(L) | 2     | 2     | 1    |      |        | DTSL3GG0AS00001(772);<br>DTSL3GG0AM00001(772)<br>DTSL3GY0AS00001(772)(773); DTSL3GY0AM00001(772)(773)<br>DTSL3YY0AS00001 (773);<br>DTSL3YY0AM00001 (773)<br>DTSL2GN0AS00001(772);<br>DTSL2GN0AM00001(772)<br>DTSL2YN0AS00001 (773);<br>DTSL2YN0AM00001 (773)                     |
| ADB SAFEGATE BV                  | L-852K(L) | 1     | 2     | 1    |      |        | DTCA3GG3AS00001(772); DTCA3GG3AM00001(772)<br>DTCA3YY3AS00001(773); DTCA3YY3AM00001(773)<br>DTCA2GN3AS00001(772); DTCA2GN3AM00001(772)<br>DTCA2NG3AS00001(772); DTCA2NG3AM00001(772)<br>DTCA2YN3AS00001(773); DTCA2YN3AM00001(773)<br>DTCA2NY3AS00001(773); DTCA2NY3AM00001(773) |
| ADB SAFEGATE BV                  | L-852K(L) | 2     | 2     | 1    |      |        | DTCL3GG3AS00001(772); DTCL3GG3AM00001(772)<br>DTCL3YY3AS00001(773); DTCL3YY3AM00001(773)<br>DTCL2GN3AS00001(772); DTCL2GN3AS00001(772)<br>DTCL2NG3AS00001(772); DTCL2NG3AM00001(772)<br>DTCL2YN3AS00001(773); DTCL2YN3AM00001(773)<br>DTCL2NY3AS00001(773); DTCL2NY3AM00001(773) |
| AIRSAFE AIRPORT EQUIPMENT CO LTD | L-852C(L) | 1, 2  | 3     | 1    |      |        | TCLMS-08-S-LED-XX-1P-M (830)(831)                                                                                                                                                                                                                                                |
| AIRSAFE AIRPORT EQUIPMENT CO LTD | L-852K(L) | 1, 2  | 3     | 1    |      |        | TCLMS-08-C-LED-GG-1P-M (830)<br>TCLMS-08-C-LED-YY-1P-M (831)<br>TCLMS-08-C-LED-GB-1P-M (830)<br>TCLMS-08-C-LED-BG-1P-M (830)<br>TCLMS-08-C-LED-YB-1P-M (831)<br>TCLMS-08-C-LED-BY-1P-M (831)                                                                                     |
| atg airports ltd                 | L-852C(L) | 1     | 3     | 1    |      |        | IR852C-22GG-1X0 (607); IR852C-22YY-1X0 (608)<br>IR852C-26YB-1X0 (608); IR852C-62BY-1X0 (608)<br>IR852C-26GB-1X0 (607); IR852C-62BG-1X0 (607)<br>IR852C-22GY-1X0 (607)(608); IR852C-22YG-1X0 (608)(607)                                                                           |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                                    | FAA type  | CLASS | STYLE | MODE | SIZE | RATING | CAT NO.                                                                                                                                                                                                             |
|----------------------------------------|-----------|-------|-------|------|------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| atg airports ltd                       | L-852D(L) | 1     | 3     | 1    |      |        | IR852D-33GG-1X0 (609); IR852D-33YY-1X0 (610)<br>IR852D-36YB-1X0 (610); IR852D-63BY-1X0 (610)<br>IR852D-36GB-1X0 (609); IR852D-63BG-1X0 (609)                                                                        |
| atg airports ltd                       | L-852A(L) | 1     | 3     | 1    |      |        | IR852A-22GG-1X0 (609); IR852A-22YY-1X0 (610)<br>IR852A-26YB-1X0 (610); IR852A-62BY-1X0 (610)<br>IR852A-26GB-1X0 (609); IR852A-62BG-1X0 (609)<br>IR852A-22GY-1X0 (609)(610); IR852A-22YG-1X0 (609)(610)              |
| atg airports ltd                       | L-852B(L) | 1     | 3     | 1    |      |        | IR852B-33GG-1X0 (609); IR852B-33YY-1X0 (610)<br>IR852B-36YB-1X0 (610); IR852B-63BY-1X0 (610)<br>IR852B-36GB-1X0 (609); IR852B-63BG-1X0 (609)                                                                        |
| atg airports ltd                       | L-852J(L) | 1     | 3     | 1    |      |        | IR852J-44GG-1X0 (609); IR852J-55YY-1X0 (610)<br>IR852J-56YB-1X0 (610); IR852J-65BY-1X0 (610)<br>IR852J-46GB-1X0 (609); IR852J-64BG-1X0 (609)                                                                        |
| atg airports ltd                       | L-852K(L) | 1     | 3     | 1    |      |        | IR852K-44GG-1X0 (609); IR852K-55YY-1X0 (610)<br>IR852K-56YB-1X0 (610); IR852K-65BY-1X0 (610)<br>IR852K-46GB-1X0 (609); IR852K-64BG-1X0 (609)                                                                        |
| atg airports ltd                       | L-852T    | 1, 2  | 2     | 1    |      |        | ZA292 (126)                                                                                                                                                                                                         |
| atg airports ltd                       | L-852C    | 1     | 2     | 1    |      |        | ZA280C-44-GG-1-1 (126); ZA280C-44-GY-1-1 (126)<br>ZA280C-44-YY-1-1 (126); ZA280C-40-GN-1-1 (126)<br>ZA280C-40-YN-1-1 (126)                                                                                          |
| atg airports ltd                       | L-852D    | 1     | 2     | 1    |      |        | ZA280D-55-GG-1-1 (126); ZA280D-55-YY-1-1 (126)<br>ZA280D-55-WW-1-1 (126); ZA280D-55-WY-1-1 (126)<br>ZA280D-50-GN-1-1 (126); ZA280D-50-YN-1-1 (126)<br>ZA280D-50-WN-1-1 (126)                                        |
| atg airports ltd                       | L-852K    | 1     | 2     | 1    |      |        | ZA281K-23-GG-1-1 (126); ZA281K-23-YY-1-1 (126)<br>ZA281K-20-GN-1-1 (126); ZA281K-03-NY-1-1 (126)                                                                                                                    |
| atg airports ltd                       | L-852T(L) | 1, 2  | 2     | 1    |      |        | IR852T(L)-1-B-0-1 (774)                                                                                                                                                                                             |
| atg airports ltd                       | L-852C(L) | 1, 2  | 2     | 1    |      |        | ZA280LC-44-GG-1-1 (837)<br>ZA280LC-44-YY-1-1 (838)<br>ZA280LC-44-GY-1-1 (839)<br>ZA280LC-44-YG-1-1 (840)<br>ZA280LC-44-GN-1-1 (837)<br>ZA280LC-44-YN-1-1 (838)                                                      |
| atg airports ltd                       | L-852D(L) | 1, 2  | 2     | 1    |      |        | ZA280DL-55-GG-1-1 (837)<br>ZA280DL-55-YY-1-1 (838)<br>ZA280DL-50-GN-1-1 (837)<br>ZA280DL-50-YN-1-1 (838)                                                                                                            |
| 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-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);<br>852D-AP1-YN-F1-12U-XX-X-0 (992);<br>852D-AP1-GG-F1-12U-XX-X-0 (991);<br>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);<br>852B-AP1-YN-F1-12U-XX-X-0 (585);<br>852B-AP1-GG-F1-12U-XX-X-0 (991);<br>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);<br>852J-AP1-YN-F1-12U-XX-X-0 (585);<br>852J-AP1-NG-F1-12U-XX-X-0 (584);<br>852J-AP1-NY-F1-12U-XX-X-0 (585);<br>852J-AP1-GG-F1-12U-XX-X-0 (584);<br>852J-AP1-YY-F1-12U-XX-X-0 (585) |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                                    | FAA type  | CLASS | STYLE | MODE | SIZE | RATING | CAT NO.                                                                                                                                                                                                                                                                                                       |
|----------------------------------------|-----------|-------|-------|------|------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CROUSE HINDS AIRPORT LIGHTING PRODUCTS | L-852K(L) | 2     | 3     | 1    |      |        | 852K-AP1-GN-F1-12U-XX-X-0 (584);<br>852K-AP1-YN-F1-12U-XX-X-0 (585);<br>852K-AP1-NG-F1-12U-XX-X-0 (584);<br>852K-AP1-NY-F1-12U-XX-X-0 (585);<br>852K-AP1-GG-F1-12U-XX-X-0 (584);<br>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);<br>852B-AP1-YN-F1-8FS-XX-X-X (585);<br>852B-AP1-GG-F1-8FS-XX-X-X (991);<br>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);<br>852J-AP1-YN-F1-8FL-XX-X-X (992);<br>852J-AP1-NG-F1-8FR-XX-X-X (991);<br>852J-AP1-NY-F1-8FR-XX-X-X (992);<br>852J-AP1-GG-F1-8FC-XX-X-X (991);<br>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);<br>852K-AP1-YN-F1-8FL-XX-X-X (585);<br>852K-AP1-NG-F1-8FR-XX-X-X (584);<br>852K-AP1-NY-F1-8FR-XX-X-X (585);<br>852K-AP1-GG-F1-8FC-XX-X-X (584);<br>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);<br>852D-AP1-YN-F1-8FS-XX-X-X (992);<br>852D-AP1-GG-F1-8FS-XX-X-X (991);<br>852D-AP1-YY-F1-8FS-XX-X-X (992)                                                                                                                                                                   |
| CROUSE HINDS AIRPORT LIGHTING PRODUCTS | L-852T(L) | 2     | 3     | 1    |      |        | 852T-AP1-12A (397);<br>852T-AP1-12B (397);<br>852T-AP1-12A-1(397);<br>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)                                                                                                                                                                                                                                                                             |
| HONEYWELL                              | L-852C(L) | 1     | 3     | 1    |      |        | TCL-GY-1I08BSC003SN0M1L200 (933)(934);<br>TCL-YG-1I08BSC003SN0M1L200 (934)(933);<br>TCL-GG-1I08BSC003SN0M1L200 (933);<br>TCL-GN-1I08USC003SN0M1L100 (933);<br>IHP-YY-1I08BSC003SN0M1L200 (934);<br>IHP-YN-1I08USC003SN0M1L100 (934)                                                                           |
| HONEYWELL                              | L-852D(L) | 1     | 3     | 1    |      |        | TCL-GG-1I08BSC025SU0M1L200 (940);<br>TCL-YY-1I08BSC025SU0M1L200 (941);<br>TCL-WW-1I08BSC025SU0M1L100 (939);<br>TCL-WY-1I08BSC025SU0M1L200 (939)(941);<br>TCL-YW-1I08BSC025SU0M1L200 (941)(939);<br>TCL-GN-1I08USC025SU0M1L100 (940);<br>TCL-YN-1I08USC025SU0M1L100 (941);<br>TCL-WN-1I08USC025SU0M1L100 (939) |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                                | FAA type  | CLASS | STYLE | MODE | SIZE | RATING | CAT NO.                                                                                                                                                                                                                                                                                                                 |
|------------------------------------|-----------|-------|-------|------|------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HONEYWELL                          | L-852K(L) | 1     | 3     | 1    |      |        | TCL-GG-1I08BSC004CL0M1L200 (935)(937);<br>TCL-GG-1I08BSC004CR0M1L200 (937)(935);<br>TCL-YY-1I08BSC004CL0M1L200 (936)(938);<br>TCL-YY-1I08BSC004CR0M1L200 (938)(936);<br>TCL-GN-1I08USC004CL0M1L100 (935);<br>TCL-GN-1I08USC004CR0M1L100 (937);<br>TCL-YN-1I08USC004CL0M1L100 (936);<br>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) | 5     | 3     | 1    |      |        | L-852S-L-R-1-X                                                                                                                                                                                                                                                                                                          |
| HUGHEY & PHILLIPS, LLC             | L-852T(L) | 2     | 3     | 1    |      |        | L-852T-L-X-G2 (841)                                                                                                                                                                                                                                                                                                     |
| HUGHEY & PHILLIPS, LLC             | L-852A(L) | 2     | 3     | 1    |      |        | L-852A-L-X-GG-2-X-G2; (834);<br>L-852A-L-X-GY-2-X-G2; (834) (833);<br>L-852A-L-X-YY-2-X-G2; (833);<br>L-852A-L-X-YB-1-X-G2;(833);<br>L-852A-L-X-GB-1-X-G2 (834)                                                                                                                                                         |
| HUGHEY & PHILLIPS, LLC             | L-852B(L) | 2     | 3     | 1    |      |        | L-852B-L-X-GG-2-X-G2 (836);<br>L-852B-L-X-YY-2-X-G2 (835);<br>L-852B-L-X-GB-1-X-G2 (836);<br>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);<br>L-852C-L-X-GY-2-X-G2 (834) (833);<br>L-852C-L-X-YY-2-X-G2 (833);<br>L-852C-L-X-GB-1-X-G2 (834);<br>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);<br>L-852D-L-X-YY-2-X-G2 (835);<br>L-852D-L-X-WW-2-X-G2 (832);<br>L-852D-L-X-WY-2-X-G2 (832) (835);<br>L-852D-L-X-GB-1-X-G2 (836);<br>L-852D-L-X-YB-1-X-G2 (835);<br>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);<br>L-852J-L-X-YY-X-X-G2 (833);<br>L-852J-L-X-GB-X-X-G2 (834);<br>L-852J-L-X-YB-X-X-G2 (833)                                                                                                                                                                                                 |
| HUGHEY & PHILLIPS, LLC             | L-852K(L) | 2     | 3     | 1    |      |        | L-852K-L-X-GG-X-X-G2 (836);<br>L-852K-L-X-YY-X-X-G2 (835);<br>L-852K-L-X-GB-X-X-G2 (836);<br>L-852K-L-X-YB-X-X-G2 (835)                                                                                                                                                                                                 |
| 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)                                                                                                                                                                                                                                                                                                   |
| MULTI-ELECTRIC MANUFACTURING, INC. | L-852A(L) | 1     | 3     | 1    |      |        | LTA0804-F-A-GG-XX-0-X-X (540)<br>LTA0804-F-A-GY-XX-0-X-X (540)(541)<br>LTA0804-F-A-YG-XX-0-X-X (541)(540)<br>LTA0804-F-A-YY-XX-0-X-X (541)<br>LTA0804-F-A-GS-1P-0-X-X (540)<br>LTA0804-F-A-YS-1P-0-X-X (541)<br>LTA0804-F-A-GM-1P-0-X-X (540)<br>LTA0804-F-A-YM-1P-0-X-X (541)                                          |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                                | FAA type  | CLASS | STYLE | MODE | SIZE | RATING | CAT NO.                                                                                                                                                                                                                                                                                                                                                                                                            |
|------------------------------------|-----------|-------|-------|------|------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MULTI-ELECTRIC MANUFACTURING, INC. | L-852B(L) | 1     | 3     | 1    |      |        | LTA0804-F-B-GG-XX-0-X-X (540)<br>LTA0804-F-B-YY-XX-0-X-X (541)<br>LTA0804-F-B-GS-1P-0-X-X (540)<br>LTA0804-F-B-GM-1P-0-X-X (540)<br>LTA0804-F-B-YS-1P-0-X-X (541);<br>LTA0804-F-B-YM-1P-0-X-X (541)<br>LTA0804-F-B-SG-1P-0-X-X (540)<br>LTA0804-F-B-MG-1P-0-X-X (540)<br>LTA0804-F-B-SY-1P-0-X-X (541)<br>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)<br>LTA0804-F-C-GY-XX-0-X-X (540)(541)<br>LTA0804-F-C-YG-XX-0-X-X (541)(540)<br>LTA0804-F-C-YY-XX-0-X-X (541)<br>LTA0804-F-C-GS-1P-0-X-X (540)<br>LTA0804-F-C-GM-1P-0-X-X (540)<br>LTA0804-F-C-YS-1P-0-X-X (541)<br>LTA0804-F-C-YM-1P-0-X-X (541)<br>LTA0804-F-C-SG-1P-0-X-X (540)<br>LTA0804-F-C-MG-1P-0-X-X (540)<br>LTA0804-F-C-SY-1P-0-X-X (541)<br>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)<br>LTA0804-F-J-GS-1P-0-X-X (540); LTA0804-F-J-GM-1P-0-X-X (540)<br>LTA0804-F-J-YS-1P-0-X-X (541); LTA0804-F-J-YM-1P-0-X-X (541)<br>LTA0804-F-J-SG-1P-0-X-X (540); LTA0804-F-J-MG-1P-0-X-X (540)<br>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)<br>LTA0804-F-K-YY-XX-0-X-X (541)<br>LTA0804-F-K-GS-1P-0-X-X (540)<br>LTA0804-F-K-GM-1P-0-X-X (540)<br>LTA0804-F-K-YS-1P-0-X-X (541)<br>LTA0804-F-K-YM-1P-0-X-X (541)<br>LTA0804-F-K-SG-1P-0-X-X (540)<br>LTA0804-F-K-MG-1P-0-X-X (540)<br>LTA0804-F-K-SY-1P-0-X-X (541)<br>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)<br>LTA1204-F-A-GY-XX-0-X-X (540)(541)<br>LTA1204-F-A-YG-XX-0-X-X (541)(540)<br>LTA1204-F-A-YY-XX-0-X-X (541)<br>LTA1204-F-A-GS-1P-0-X-X (540)<br>LTA1204-F-A-YS-1P-0-X-X (541)<br>LTA1204-F-A-GM-1P-0-X-X (540)<br>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)<br>LTA1204-F-B-YY-XX-0-X-X (541)<br>LTA1204-F-B-GS-1P-0-X-X (540)<br>LTA1204-F-B-GM-1P-0-X-X (540)<br>LTA1204-F-B-YS-1P-0-X-X (541)<br>LTA1204-F-B-YM-1P-0-X-X (541)<br>LTA1204-F-B-SG-1P-0-X-X (540)<br>LTA1204-F-B-MG-1P-0-X-X (540)<br>LTA1204-F-B-SY-1P-0-X-X (541)<br>LTA1204-F-B-MY-1P-0-X-X (541)                                                                             |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                                | FAA type  | CLASS | STYLE | MODE | SIZE | RATING | CAT NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------------------------------|-----------|-------|-------|------|------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MULTI-ELECTRIC MANUFACTURING, INC. | L-852C(L) | 1, 2  | 3     | 1    |      |        | LTA1204-F-C-GG-XX-0-X-X (540)<br>LTA1204-F-C-GY-XX-0-X-X (540)(541)<br>LTA1204-F-C-YG-XP-0-X-X (541)(540)<br>LTA1204-F-C-YY-XP-0-X-X (541)<br>LTA1204-F-C-GS-1P-0-X-X (540)<br>LTA1204-F-C-GM-1P-0-X-X (540)<br>LTA1204-F-C-YS-1P-0-X-X (541)<br>LTA1204-F-C-YM-1P-0-X-X (541)<br>LTA1204-F-C-SG-1P-0-X-X (540)<br>LTA1204-F-C-MG-1P-0-X-X (540)<br>LTA1204-F-C-SY-1P-0-X-X (541)<br>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)<br>LTA0804-F-D-YY-XX-0-X-X (541)<br>LTA0804-F-D-GS-1P-0-X-X (540)<br>LTA0804-F-D-GM-1P-0-X-X (540)<br>LTA0804-F-D-YS-1P-0-X-X (541)<br>LTA0804-F-D-YM-1P-0-X-X (541)<br>LTA0804-F-D-WS-1P-0-X-X (542)<br>LTA0804-F-D-WM-1P-0-X-X (542)<br>LTA0804-F-D-SG-1P-0-X-X (540)<br>LTA0804-F-D-MG-1P-0-X-X (540)<br>LTA0804-F-D-SY-1P-0-X-X (541)<br>LTA0804-F-D-MY-1P-0-X-X (541)<br>LTA0804-F-D-SW-1P-0-X-X (542)<br>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)<br>LTA1204-F-D-YY-XX-0-X-X (541)<br>LTA1204-F-D-GS-1P-0-X-X (540);<br>LTA1204-F-D-GM-1P-0-X-X (540)<br>LTA1204-F-D-YS-1P-0-X-X (541)<br>LTA1204-F-D-YM-1P-0-X-X (541)<br>LTA1204-F-D-WS-1P-0-X-X (542)<br>LTA1204-F-D-WM-1P-0-X-X (542)<br>LTA1204-F-D-SG-1P-0-X-X (540)<br>LTA1204-F-D-MG-1P-0-X-X (540)<br>LTA1204-F-D-SY-1P-0-X-X- (541)<br>LTA1204-F-D-MY-1P-0-X-X (541)<br>LTA1204-F-D-SW-1P-0-X-X (542)<br>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)<br>LTA1204-F-J-GS-1P-0-X-X (540); LTA1204-F-J-GM-1P-0-X-X (540)<br>LTA1204-F-J-YS-1P-0-X-X (541); LTA1204-F-J-YM-1P-0-X-X (541)<br>LTA1204-F-J-SG-1P-0-X-X (540); LTA1204-F-J-MG-1P-0-X-X (540)<br>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)<br>LTA0804-F-A-GY-XX-R-X-X (540)(541)<br>LTA0804-F-A-YG-XX-R-X-X (541)(540)<br>LTA0804-F-A-YY-XX-R-X-X (541)<br>LTA0804-F-A-GS-1P-R-X-X (540)<br>LTA0804-F-A-YS-1P-R-X-X (541)<br>LTA0804-F-A-GM-1P-R-X-X (540)<br>LTA0804-F-A-YM-1P-R-X-X (541)                                                                                                                                                                                               |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                                | FAA type  | CLASS | STYLE | MODE | SIZE | RATING | CAT NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------------------|-----------|-------|-------|------|------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MULTI-ELECTRIC MANUFACTURING, INC. | L-852K(L) | 1, 2  | 3     | 1    |      |        | LTA0804-F-K-GG-XX-R-X-X (540)<br>LTA0804-F-K-YY-XX-R-X-X (541)<br>LTA0804-F-K-GS-1P-R-X-X (540)<br>LTA0804-F-K-GM-1P-R-X-X (540)<br>LTA0804-F-K-YS-1P-R-X-X (541)<br>LTA0804-F-K-YM-1P-R-X-X (541)<br>LTA0804-F-K-SG-1P-R-X-X (540);<br>LTA0804-F-K-MG-1P-R-X-X (540)<br>LTA0804-F-K-SY-1P-R-X-X (541)<br>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)<br>LTA0804-F-J-GS-1P-R-X-X (540); LTA0804-F-J-GM-1P-R-X-X (540)<br>LTA0804-F-J-YS-1P-R-X-X (541); LTA0804-F-J-YM-1P-R-X-X (541)<br>LTA0804-F-J-SG-1P-R-X-X (540); LTA0804-F-J-MG-1P-R-X-X (540)<br>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)<br>LTA0804-F-D-YY-XX-R-X-X (541)<br>LTA0804-F-D-GS-1P-R-X-X (540)<br>LTA0804-F-D-GM-1P-R-X-X (540)<br>LTA0804-F-D-YS-1P-R-X-X (541)<br>LTA0804-F-D-YM-1P-R-X-X (541)<br>LTA0804-F-D-WS-1P-R-X-X (542)<br>LTA0804-F-D-WM-1P-R-X-X (542)<br>LTA0804-F-D-SG-1P-R-X-X (540)<br>LTA0804-F-D-MG-1P-R-X-X (540)<br>LTA0804-F-D-SY-1P-R-X-X (541)<br>LTA0804-F-D-MY-1P-R-X-X (541)<br>LTA0804-F-D-SW-1P-R-X-X (542)<br>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)<br>LTA0804-F-C-GY-XX-R-X-X (540)(541)<br>LTA0804-F-C-YG-XX-R-X-X (541)(540)<br>LTA0804-F-C-YY-XX-R-X-X (541)<br>LTA0804-F-C-GS-1P-R-X-X (540)<br>LTA0804-F-C-GM-1P-R-X-X (540)<br>LTA0804-F-C-YS-1P-R-X-X (541)<br>LTA0804-F-C-YM-1P-R-X-X (541)<br>LTA0804-F-C-SG-1P-R-X-X (540)<br>LTA0804-F-C-MG-1P-R-X-X (540)<br>LTA0804-F-C-SY-1P-R-X-X (541)<br>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)<br>LTA0804-F-B-YY-XX-R-X-X (541)<br>LTA0804-F-B-GS-1P-R-X-X (540)<br>LTA0804-F-B-GM-1P-R-X-X (540)<br>LTA0804-F-B-YS-1P-R-X-X (541)<br>LTA0804-F-B-YM-1P-R-X-X (541)<br>LTA0804-F-B-SG-1P-R-X-X (540)<br>LTA0804-F-B-MG-1P-R-X-X (540)<br>LTA0804-F-B-SY-1P-R-X-X (541)<br>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)                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                      | FAA type | CLASS | STYLE | MODE | SIZE | RATING | CAT NO.                                                                                                                                                              |
|--------------------------|----------|-------|-------|------|------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OCEM AIRFIELD TECHNOLOGY | L-852D   | 1     | 3     | 1    |      |        | TWCD-D-F-GG-XP-090-0-F (519);<br>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);<br>TWCD-A-F-GY-XP-060-0-F (521)<br>TWCD-A-F-YG-XP-060-0-F (521);<br>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)<br>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);<br>TWCD-A-F-GY-XP-060-R-F (521)<br>TWCD-A-F-YG-XP-060-R-F (521);<br>TWCD-A-F-YY-XP-060-R-F (521)                                       |
| OCEM AIRFIELD TECHNOLOGY | L-852A   | 1     | 3     | 1    |      |        | TWCS-A-F-GG-030-0-F (521); TWCS-A-F-GM-030-0-F (521)<br>TWCS-A-F-GY-030-0-F (521); TWCS-A-F-YG-030-0-F (521)<br>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)<br>TWCS-A-F-GY-030-R-F (521); TWCS-A-F-YG-030-R-F (521)<br>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)<br>TWCS-J-F-MG-030-0-F (521); TWCS-J-F-MY-030-0-F (521)<br>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)<br>TWCS-J-F-MG-030-R-F (521); TWCS-J-F-MY-030-R-F (521)<br>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);<br>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)<br>TWCS-D-F-GM-045-0-F (519); TWCS-D-F-YM-045-0-F (519)<br>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)<br>TWCS-D-F-GM-045-R-F (519); TWCS-D-F-YM-045-R-F (519)<br>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);<br>TWCD-C-F-GY-XP-090-R-F (519)<br>TWCD-C-F-YG-XP-090-R-F (519);<br>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)<br>TWCS-C-F-GY-045-0-F (519); TWCS-C-F-YG-045-0-F (519)<br>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)<br>TWCS-C-F-GY-045-R-F (519); TWCS-C-F-YG-045-R-F (519)<br>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)<br>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)<br>TWCS-B-F-YM-030-R-F (521); TWCS-B-F-YY-030-R-F (521)                                                         |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                      | FAA type  | CLASS | STYLE | MODE | SIZE | RATING | CAT NO.                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------------------------|-----------|-------|-------|------|------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OCEM AIRFIELD TECHNOLOGY | L-852B(L) | 1     | 3     | 1    |      |        | LITC08-F-B-GG-XX-0-X-X (540); LITC08-F-B-YY-XX-0-X-X (541)<br>LITC08-F-B-GS-1P-0-X-X (540); LITC08-F-B-GM-1P-0-X-X (540)<br>LITC08-F-B-YS-1P-0-X-X (541); LITC08-F-B-YM-1P-0-X-X (541)<br>LITC08-F-B-SG-1P-0-X-X (540); LITC08-F-B-MG-1P-0-X-X (540)<br>LITC08-F-B-SY-1P-0-X-X (541); LITC08-F-B-MY-1P-0-X-X (541)                                                                                           |
| OCEM AIRFIELD TECHNOLOGY | L-852T(L) | 1     | 3     | 1    |      |        | LITE08-F-0-X-X (543)                                                                                                                                                                                                                                                                                                                                                                                         |
| OCEM AIRFIELD TECHNOLOGY | L-852A(L) | 1     | 3     | 1    |      |        | LITC08-F-B-GG-XX-R-X-X (540); LITC08-F-B-YY-XX-R-X-X (541)<br>LITC08-F-B-GS-1P-R-X-X (540); LITC08-F-B-GM-1P-R-X-X (540)<br>LITC08-F-B-YS-1P-R-X-X (541); LITC08-F-B-YM-1P-R-X-X (541)<br>LITC08-F-B-SG-1P-R-X-X (540); LITC08-F-B-MG-1P-R-X-X (540)<br>LITC08-F-B-SY-1P-R-X-X (541); LITC08-F-B-MY-1P-R-X-X (541)                                                                                           |
| OCEM AIRFIELD TECHNOLOGY | L-852C(L) | 1     | 3     | 1    |      |        | LITC08-F-C-GG-XX-0-X-X (540);<br>LITC08-F-C-GY-XX-0-X-X (540)(541)<br>LITC08-F-C-YG-XX-0-X-X (541)(540);<br>LITC08-F-C-YY-XX-0-X-X (541)<br>LITC08-F-C-GS-1P-0-X-X (540);<br>LITC08-F-C-GM-1P-0-X-X (540)<br>LITC08-F-C-YS-1P-0-X-X (541);<br>LITC08-F-C-YM-1P-0-X-X (541)<br>LITC08-F-C-SG-1P-0-X-X (540);<br>LITC08-F-C-MG-1P-0-X-X (540)<br>LITC08-F-C-SY-1P-0-X-X (541);<br>LITC08-F-C-MY-1P-0-X-X (541) |
| OCEM AIRFIELD TECHNOLOGY | L-852J(L) | 1     | 3     | 1    |      |        | LITC08-F-J-GG-XX-0-X-X (540); LITC08-F-J-YY-XX-0-X-X (541)<br>LITC08-F-J-GS-1P-0-X-X (540); LITC08-F-J-GM-1P-0-X-X (540)<br>LITC08-F-J-YS-1P-0-X-X (541); LITC08-F-J-YM-1P-0-X-X (541)<br>LITC08-F-J-SG-1P-0-X-X (540); LITC08-F-J-MG-1P-0-X-X (540)<br>LITC08-F-J-SY-1P-0-X-X (541); LITC08-F-J-MY-1P-0-X-X (541)                                                                                           |
| OCEM AIRFIELD TECHNOLOGY | L-852K(L) | 1     | 3     | 1    |      |        | LITC08-F-K-GG-XX-0-X-X (540); LITC08-F-K-YY-XX-0-X-X (541)<br>LITC08-F-K-GS-1P-0-X-X (540); LITC08-F-K-GM-1P-0-X-X (540)<br>LITC08-F-K-YS-1P-0-X-X (541); LITC08-F-K-YM-1P-0-X-X (541)<br>LITC08-F-K-SG-1P-0-X-X (540); LITC08-F-K-MG-1P-0-X-X (540)<br>LITC08-F-K-SY-1P-0-X-X (541); LITC08-F-K-MY-1P-0-X-X (541)                                                                                           |
| OCEM AIRFIELD TECHNOLOGY | L-852A(L) | 1, 2  | 3     | 1    |      |        | LITC12-F-A-GG-XX-0-X-X (540);<br>LITC12-F-A-GY-XX-0-X-X (540)(541)<br>LITC12-F-A-YG-XX-0-X-X (541)(540);<br>LITC12-F-A-YY-XX-0-X-X (541)<br>LITC12-F-A-GS-1P-0-X-X (540);<br>LITC12-F-A-YS-1P-0-X-X (541)<br>LITC12-F-A-GM-1P-0-X-X (540);<br>LITC12-F-A-YM-1P-0-X-X (541)                                                                                                                                   |
| OCEM AIRFIELD TECHNOLOGY | L-852B(L) | 1, 2  | 3     | 1    |      |        | LITC12-F-B-GG-XX-0-X-X (540); LITC12-F-B-YY-XX-0-X-X (541)<br>LITC12-F-B-GS-1P-0-X-X (540); LITC12-F-B-GM-1P-0-X-X (540)<br>LITC12-F-B-YS-1P-0-X-X (541); LITC12-F-B-YM-1P-0-X-X (541)<br>LITC12-F-B-SG-1P-0-X-X (540); LITC12-F-B-MG-1P-0-X-X (540)<br>LITC12-F-B-SY-1P-0-X-X (541); LITC12-F-B-MY-1P-0-X-X (541)                                                                                           |
| OCEM AIRFIELD TECHNOLOGY | L-852C(L) | 1, 2  | 3     | 1    |      |        | LITC12-F-C-GG-XX-0-X-X (540);<br>LITC12-F-C-GY-XX-0-X-X (540)(541)<br>LITC12-F-C-YG-XP-0-X-X (541)(540);<br>LITC12-F-C-YY-XP-0-X-X (541)<br>LITC12-F-C-GS-1P-0-X-X (540);<br>LITC12-F-C-GM-1P-0-X-X (540)<br>LITC12-F-C-YS-1P-0-X-X (541);<br>LITC12-F-C-YM-1P-0-X-X (541)<br>LITC12-F-C-SG-1P-0-X-X (540);<br>LITC12-F-C-MG-1P-0-X-X (540)<br>LITC12-F-C-SY-1P-0-X-X (541);<br>LITC12-F-C-MY-1P-0-X-X (541) |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                      | FAA type  | CLASS | STYLE | MODE | SIZE | RATING | CAT NO.                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--------------------------|-----------|-------|-------|------|------|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OCEM AIRFIELD TECHNOLOGY | L-852J(L) | 1, 2  | 3     | 1    |      |        | LITC12-F-J-GG-XX-0-X-X (540); LITC12-F-J-YY-XX-0-X-X (541)<br>LITC12-F-J-GS-1P-0-X-X (540); LITC12-F-J-GM-1P-0-X-X (540)<br>LITC12-F-J-YS-1P-0-X-X (541); LITC12-F-J-YM-1P-0-X-X (541)<br>LITC12-F-J-SG-1P-0-X-X (540); LITC12-F-J-MG-1P-0-X-X (540)<br>LITC12-F-J-SY-1P-0-X-X (541); LITC12-F-J-MY-1P-0-X-X (541)                                                                                                                             |
| OCEM AIRFIELD TECHNOLOGY | L-852K(L) | 1, 2  | 3     | 1    |      |        | LITC12-F-K-GG-X-0-X-X (540); LITC12-F-K-YY-XX-0-X-X (541)<br>LITC12-F-K-GS-1P-0-X-X (541); LITC12-F-K-GM-1P-0-X-X (540)<br>LITC12-F-K-YS-1P-0-X-X (541); LITC12-F-K-YM-1P-0-X-X (541)<br>LITC12-F-K-SG-1P-0-X-X (540); LITC12-F-K-MG-1P-0-X-X (540)<br>LITC12-F-K-SY-1P-0-X-X (541); LITC12-F-K-MY-1P-0-X-X (541)                                                                                                                              |
| OCEM AIRFIELD TECHNOLOGY | L-852D(L) | 1     | 3     | 1    |      |        | LITC08-F-D-GG-XX-0-X-X (540); LITC08-F-D-YY-XX-0-X-X (541)<br>LITC08-F-D-GS-1P-0-X-X (540); LITC08-F-D-GM-1P-0-X-X (540)<br>LITC08-F-D-YS-1P-0-X-X (541); LITC08-F-D-YM-1P-0-X-X (541)<br>LITC08-F-D-WS-1P-0-X-X (542); LITC08-F-D-WM-1P-0-X-X (542)<br>LITC08-F-D-SG-1P-0-X-X (540); LITC08-F-D-MG-1P-0-X-X (540)<br>LITC08-F-D-SY-1P-0-X-X (541); LITC08-F-D-MY-1P-0-X-X (541)<br>LITC08-F-D-SW-1P-0-X-X (542); LITC08-F-D-MW-1P-0-X-X (542) |
| OCEM AIRFIELD TECHNOLOGY | L-852D(L) | 1, 2  | 3     | 1    |      |        | LITC12-F-D-GG-XX-0-X-X (540); LITC12-F-D-YY-XX-0-X-X (541)<br>LITC12-F-D-GS-1P-0-X-X (540); LITC12-F-D-GM-1P-0-X-X (540)<br>LITC12-F-D-YS-1P-0-X-X (541); LITC12-F-D-YM-1P-0-X-X (541)<br>LITC12-F-D-WS-1P-0-X-X(542); LITC12-F-D-WM-1P-0-X-X (542)<br>LITC12-F-D-SG-1P-0-X-X (540); LITC12-F-D-MG-1P-0-X-X (540)<br>LITC12-F-D-SY-1P-0-X-X (541); LITC12-F-D-MY-1P-0-X-X (541)<br>LITC12-F-D-SW-1P-0-X-X (542); LITC12-F-D-MW-1P-0-X-X (542)  |
| OCEM AIRFIELD TECHNOLOGY | L-852T(L) | 1, 2  | 3     | 1    |      |        | LITE18-F-R-X-X (543)                                                                                                                                                                                                                                                                                                                                                                                                                           |
| OCEM AIRFIELD TECHNOLOGY | L-852K(L) | 1, 2  | 3     | 1    |      |        | LITC08-F-K-GG-XX-R-X-X (540); LITC08-F-K-YY-XX-R-X-X (541)<br>LITC08-F-K-GS-1P-R-X-X (540); LITC08-F-K-GM-1P-R-X-X (540)<br>LITC08-F-K-YS-1P-R-X-X (541); LITC08-F-K-YM-1P-R-X-X (541)<br>LITC08-F-K-SG-1P-R-X-X (540); LITC08-F-K-MG-1P-R-X-X (540)<br>LITC08-F-K-SY-1P-R-X-X (541); LITC08-F-K-MY-1P-R-X-X (541)                                                                                                                             |
| OCEM AIRFIELD TECHNOLOGY | L-852J(L) | 1,2   | 3     | 1    |      |        | LITC08-F-J-GG-XX-R-X-X (540); LITC08-F-J-YY-XX-R-X-X (541)<br>LITC08-F-J-GS-1P-R-X-X (540); LITC08-F-J-GM-1P-R-X-X (540)<br>LITC08-F-J-YS-1P-R-X-X (541); LITC08-F-J-YM-1P-R-X-X (541)<br>LITC08-F-J-SG-1P-R-X-X (540); LITC08-F-J-MG-1P-R-X-X (540)<br>LITC08-F-J-SY-1P-R-X-X (541); LITC08-F-J-MY-1P-R-X-X (541)                                                                                                                             |
| OCEM AIRFIELD TECHNOLOGY | L-852D(L) | 1, 2  | 3     | 1    |      |        | LITC08-F-D-GG-XX-R-X-X (540); LITC08-F-D-YY-XX-R-X-X (541)<br>LITC08-F-D-GS-1P-R-X-X (540); LITC08-F-D-GM-1P-R-X-X (540)<br>LITC08-F-D-YS-1P-R-X-X (541); LITC08-F-D-YM-1P-R-X-X (541)<br>LITC08-F-D-WS-1P-R-X-X (542); LITC08-F-D-WM-1P-R-X-X (542)<br>LITC08-F-D-SG-1P-R-X-X (540); LITC08-F-D-MG-1P-R-X-X (540)<br>LITC08-F-D-SY-1P-R-X-X (541); LITC08-F-D-MY-1P-R-X-X (541)<br>LITC08-F-D-SW-1P-R-X-X (542); LITC08-F-D-MW-1P-R-X-X (542) |
| OCEM AIRFIELD TECHNOLOGY | L-852C(L) | 1, 2  | 3     | 1    |      |        | LITC08-F-C-GG-XX-R-X-X (540);<br>LITC08-F-C-GY-XX-R-X-X (540)(541)<br>LITC08-F-C-YG-XX-R-X-X (541)(540);<br>LITC08-F-C-YY-XX-R-X-X (541)<br>LITC08-F-C-GS-1P-R-X-X (540);<br>LITC08-F-C-GM-1P-R-X-X (540)<br>LITC08-F-C-YS-1P-R-X-X (541);<br>LITC08-F-C-YM-1P-R-X-X (541)<br>LITC08-F-C-SG-1P-R-X-X (540);<br>LITC08-F-C-MG-1P-R-X-X (540)<br>LITC08-F-C-SY-1P-R-X-X (541);<br>LITC08-F-C-MY-1P-R-X-X (541)                                   |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                                     | FAA type  | CLASS | STYLE | MODE | SIZE | RATING | CAT NO.                                                                                                                                                                                                                                                                                                            |
|-----------------------------------------|-----------|-------|-------|------|------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OCEM AIRFIELD TECHNOLOGY                | L-852B(L) | 1, 2  | 3     | 1    |      |        | LITC08-F-B-GG-XX-R-X-X (540); LITC08-F-B-YY-XX-R-X-X (541)<br>LITC08-F-B-GS-1P-R-X-X (540); LITC08-F-B-GM-1P-R-X-X (540)<br>LITC08-F-B-YS-1P-R-X-X (541); LITC08-F-B-YM-1P-R-X-X (541)<br>LITC08-F-B-SG-1P-R-X-X (540); LITC08-F-B-MG-1P-R-X-X (540)<br>LITC08-F-B-SY-1P-R-X-X (541); LITC08-F-B-MY-1P-R-X-X (541) |
| OCEM AIRFIELD TECHNOLOGY                | L-852A(L) | 1, 2  | 3     | 1    |      |        | LITC08-F-A-GG-XX-R-X-X (540);<br>LITC08-F-A-GY-XX-R-X-X (540)(541)<br>LITC08-F-A-YG-XX-R-X-X (541)(540);<br>LITC08-F-A-YY-XX-R-X-X (541)<br>LITC08-F-A-GS-1P-R-X-X (540);<br>LITC08-F-A-YS-1P-R-X-X (541)<br>LITC08-F-A-GM-1P-R-X-X (540);<br>LITC08-F-A-YM-1P-R-X-X (541)                                         |
| OCEM AIRFIELD TECHNOLOGY                | L-852G(L) | 1, 2  | 3     | 1    |      |        | LITG-F-X-X-X (538)                                                                                                                                                                                                                                                                                                 |
| OCEM AIRFIELD TECHNOLOGY                | L-852S(L) | 1, 2  | 3     | 1    |      |        | LITS-X-X (532)                                                                                                                                                                                                                                                                                                     |
| 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)<br>TWCS-K-F-MG-045-O-F (519); TWCS-K-F-MY-045-O-F (519)<br>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)<br>TWCS-K-F-MG-045-R-F (519); TWCS-K-F-MY-045-R-F (519)<br>TWCS-K-F-YM-045-R-F (519); TWCS-K-F-YY-045-R-F (519)                                                                                                                                               |
| TKH AIRPORT SOLUTIONS                   | L-852G(L) | 1     | 3     | 1    |      |        | RWG <sub>s</sub> -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-xO-1000(902)                                                                                                                                                                                                                                                                                  |
| TKH AIRPORT SOLUTIONS                   | L-852T(L) | 1     | 3     | 1    |      |        | TXE-O-F-x1-B00000-1-xx-1000 (862)                                                                                                                                                                                                                                                                                  |
| 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)                                                                                                                                                                                                                                                                                   |
| YOUYANG AIRPORT LIGHTING EQUIPMENT INC. | L-852T(L) | 2     | 2     | 1    |      |        | ILD(L)-TEDL-1-001-01 (753)                                                                                                                                                                                                                                                                                         |
| YOUYANG AIRPORT LIGHTING EQUIPMENT INC. | L-852S(L) | 2     | 3     | 1    |      |        | IHH(L)-STBL-C-11-R (756)                                                                                                                                                                                                                                                                                           |
| YOUYANG AIRPORT LIGHTING EQUIPMENT INC. | L-852T    | 2     | 2     | 1    |      |        | ILC-TEDL-2-048-01 (760)                                                                                                                                                                                                                                                                                            |
| 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);<br>IMB-TCLL(C)-X-040-2-01-X-R (759);<br>IMB-TCLL(C)-X-040-2-03-X-L (759);<br>IMB-TCLL(C)-X-040-2-03-X-R (759);<br>IMB-TCLL(C)-X-040-1-04-1-L (759);<br>IMB-TCLL(C)-X-040-1-04-1-R (759)<br>IMB-TCLL(C)-X-040-1-05-1-L (759);<br>IMB-TCLL(C)-X-040-1-05-1-R (759)                 |
| YOUYANG AIRPORT LIGHTING EQUIPMENT INC. | L-852C(L) | 1, 2  | 3     | 1    |      |        | IMB(L)-TCLL-S-XX-X/X-XX (757)(758)                                                                                                                                                                                                                                                                                 |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                                                                  | FAA type  | CLASS | STYLE | MODE | SIZE | RATING | CAT NO.                                                                                                                                                                          |
|----------------------------------------------------------------------|-----------|-------|-------|------|------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| YOUYANG AIRPORT LIGHTING EQUIPMENT INC.                              | L-852C(L) | 1,2   | 3     |      |      |        | IMB(L)-TCLL-G/G-SX1(960);<br>IMB(L)-TCLL-G/Y-SX1(960)(961);<br>IMB(L)-TCLL-Y/G-SX1(961)(960);<br>IMB(L)-TCLL-Y/Y-SX1(961);<br>IMB(L)-TCLL-G-S11(960);<br>IMB(L)-TCLL-Y-S11(961); |
| YOUYANG AIRPORT LIGHTING EQUIPMENT INC.                              | L-852k(L) | 1,2   | 3     |      |      |        | IMB(L)-TCLL-G/G-CX1(960);<br>IMB(L)-TCLL-Y/Y-CX1(961);<br>IMB(L)-TCLL-G-CX1(960);<br>IMB(L)-TCLL-Y-CX1(961);                                                                     |
| YOUYANG AIRPORT LIGHTING EQUIPMENT INC.                              | L-852T(L) | 1,2   | 3     |      |      |        | ILD(L)-TEDL-B-11 (926)                                                                                                                                                           |
| YOUYANG AIRPORT LIGHTING EQUIPMENT INC.                              | L-852K(L) | 1, 2  | 3     | 1    |      |        | IMB(L)-TCLL-C-2X-G/G-XX (757);<br>IMB(L)-TCLL-C-11-G-XX (757);<br>IMB(L)-TCLL-C-11-Y-XX (758)                                                                                    |
| 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                                                                                                                                                               |
| 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")                                                                                                                                                             |
| 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")                                                                                                                                                         |
| L-853 Retroreflective Markers (FAA AC 150/5345-39E)                  |           |       |       |      |      |        |                                                                                                                                                                                  |
| VALTIR, LLC                                                          | II        |       | N/A   |      |      |        | SH6XXSMA-XR-XXX; SH6XXSMT-XR-XXX;<br>SH6XXSST-XR-XXX; SH6XXSLT-XR-XXX;<br>SH6XXGP5-XR-XXX; SH6XXGP3-XR-XXX;<br>SH6XXGP9-XR-XXX                                                   |
| VALTIR, LLC                                                          | II        |       | N/A   |      |      |        | SH6XXSMA-XG-XXX; SH6XXSMT-XG-XXX;<br>SH6XXSST-XG-XXX; SH6XXSLT-XG-XXX;<br>SH6XXGP5-XG-XXX; SH6XXGP3-XG-XXX;<br>SH6XXGP9-XG-XXX                                                   |
| VALTIR, LLC                                                          | II        |       | N/A   |      |      |        | SH6XXSMA-XS-XXX; SH6XXSMT-XS-XXX;<br>SH6XXSST-XS-XXX; SH6XXSLT-XS-XXX;<br>SH6XXGP5-XS-XXX; SH6XXGP3-XS-XXX;<br>SH6XXGP9-XS-XXX                                                   |
| VALTIR, LLC                                                          | II        |       | N/A   |      |      |        | SH6XXSMA-XB-XXX; SH6XXSMT-XB-XXX;<br>SH6XXSST-XB-XXX; SH6XXSLT-XB-XXX;<br>SH6XXGP5-XB-XXX; SH6XXGP3-XB-XXX;<br>SH6XXGP9-XB-XXX                                                   |
| VALTIR, LLC                                                          | II        |       | N/A   |      |      |        | SH6XXSMA-XA-XXX; SH6XXSMT-XA-XXX;<br>SH6XXSST-XA-XXX; SH6XXSLT-XA-XXX;<br>SH6XXGP5-XA-XXX; SH6XXGP3-XA-XXX;<br>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)                                                                                                                                                                |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                                                  | FAA type         | CLASS | STYLE   | MODE | SIZE    | RATING | CAT NO.                                     |
|------------------------------------------------------|------------------|-------|---------|------|---------|--------|---------------------------------------------|
| FLASH TECHNOLOGY 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                           | L858B            | 2     | 2, 3, 5 | 3    | 4, 5    |        | SWXX-XXXXXXX (124)(594)                     |
| ADB SAFEGATE AMERICAS, LLC                           | L-858(L) Y, R, L | 2     | 2, 3, 5 | 2    | 1       |        | SR1X-7XX3XX0 (496)                          |
| ADB SAFEGATE AMERICAS, LLC                           | L-858(L) Y, R, L | 2     | 2, 3, 5 | 3    | 1       |        | SS1X-7XX3XX0 (496)                          |
| ADB SAFEGATE AMERICAS, LLC                           | L-858(L) Y, R, L | 2     | 2, 3, 5 | 2    | 2       |        | SR2X-7XX3XX0 (497)                          |
| ADB SAFEGATE AMERICAS, LLC                           | L-858(L) Y, R, L | 2     | 2, 3, 5 | 3    | 2       |        | SS2X-7XX3XX0 (497)                          |
| ADB SAFEGATE AMERICAS, LLC                           | L-858(L) Y, R, L | 2     | 2, 3, 5 | 2    | 3       |        | SR3X-7XX3XX0 (498)                          |
| ADB SAFEGATE AMERICAS, LLC                           | L-858(L) Y, R, L | 2     | 2, 3, 5 | 3    | 3       |        | SS3X-7XX3XX0 (498)                          |
| ADB SAFEGATE AMERICAS, LLC                           | L-858(L) B       | 2     | 2, 3, 5 | 2    | 4       |        | SR4X-7XX3XX0 (496)                          |
| ADB SAFEGATE AMERICAS, LLC                           | L-858(L) B       | 2     | 2, 3, 5 | 3    | 4       |        | SS4X-7XX3XX0 (496)                          |
| ADB SAFEGATE AMERICAS, LLC                           | L-858(L) B       | 2     | 2, 3, 5 | 2    | 5       |        | SR5X-7XX3XX0 (498)                          |
| ADB SAFEGATE AMERICAS, LLC                           | L-858(L) B       | 2     | 2, 3, 5 | 3    | 5       |        | SS5X-7XX3XX0 (498)                          |
| ADB SAFEGATE AMERICAS, LLC                           | L-858Y, R, L     | 2     | 2, 3, 5 | 2    | 1, 2, 3 |        | SHXX-XXXXXXX (124)(594)                     |
| ADB SAFEGATE AMERICAS, LLC                           | L-858B           | 2     | 2, 3, 5 | 2    | 4, 5    |        | SHXX-XXXXXXX (124)(594)                     |
| ADB SAFEGATE AMERICAS, LLC                           | L-858Y, R, L     | 2     | 2, 3, 5 | 3    | 1, 2, 3 |        | SWXX-XXXXXXX (124)(594)                     |
| ADB SAFEGATE AMERICAS, LLC                           | L-858B           | 2     | 2, 3, 5 | 3    | 4, 5    |        | SWXX-XXXXXXX (124)(594)                     |
| AGM AIRFIELD GUIDANCESIGN                            | Y, R, L          | 2     | 2,3,5   | 2    | 1       |        | I1XHX.XXF(900)                              |
| AGM AIRFIELD GUIDANCESIGN                            | Y, R, L          | 2     | 2,3,5   | 2    | 2       |        | I2XHX.XXF (900)                             |
| AGM AIRFIELD GUIDANCESIGN                            | Y, R, L          | 2     | 2,3,5   | 2    | 3       |        | I3XHX.XXF (900)                             |
| AGM AIRFIELD GUIDANCESIGN                            | Y,R,L            | 2     | 2,3,5   | 3    | 3       |        | I3XHX.XXF3(900)                             |
| AGM AIRFIELD GUIDANCESIGN                            | B                | 2     | 2,3,5   | 2    | 4, 5    |        | I4XH1.0XF (900); I5XH1.0XF (900)            |
| AGM AIRFIELD GUIDANCESIGN                            | Y, R, L          | NA    | 4       | 2    | 1, 2, 3 |        | I14NX.XXF; I24NX.XXF; I34NX.XXF             |
| AGM AIRFIELD GUIDANCESIGN                            | B                | 2     | 2,3,5   | 3    | 4,5     |        | I4XH1.0XF3 (900); I5XH1.0XF3 (900)          |
| AGM AIRFIELD GUIDANCESIGN                            | L-858Y, R, L(L)  | 2     | 2       | 2    | 1, 2, 3 |        | D12HXXF (462); D22HXXF (462); D32HXXF (462) |
| AGM AIRFIELD GUIDANCESIGN                            | L-858Y, R, L(L)  | 2     | 3       | 2    | 1, 2, 3 |        | D13HXXF (462); D23HXXF (462); D33HXXF (462) |
| AGM AIRFIELD GUIDANCESIGN                            | L-858Y,R,L       |       | 4       | 2    | 1,2,3   |        | D14NXXF;D24NXXF;D34NXXF                     |
| AGM AIRFIELD GUIDANCESIGN                            | L-858Y, R, L(L)  | 2     | 5       | 2    | 1, 2, 3 |        | D15HXXF (462); D25HXXF (462); D35HXXF (462) |
| AGM AIRFIELD GUIDANCESIGN                            | L-858B(L)        | 2     | 2, 3, 5 | 2    | 5       |        | D5XH1XF (462)                               |
| 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(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-858            | 2     | 4       | 2    | 1, 2, 3 |        | 858F4-X-X-X                                 |
| HUGHEY & PHILLIPS, LLC                               | L-858Y,R,L(L)    | 2     | 2,3,5   | 2    | 1       |        | L858-MX-1-2-X(709); L858-MX-1-2-X-B(709)    |
| HUGHEY & PHILLIPS, LLC                               | L-858Y,R,L(L)    | 2     | 2,3,5   | 2    | 2       |        | L858-MX-2-2-X(709); L858-MX-2-2-X-B(709)    |
| HUGHEY & PHILLIPS, LLC                               | L-858Y,R,L(L)    | 2     | 2,3,5   | 2    | 3       |        | L858-MX-3-2-X(709); L858-MX-3-2-X-B(709)    |
| HUGHEY & PHILLIPS, LLC                               | L-858B(L)        | 2     | 2,3,5   | 2    | 4       |        | L858-MX-4-2-X(709); L858-MX-4-2-X-B(709)    |
| HUGHEY & PHILLIPS, LLC                               | L-858B(L)        | 2     | 2,3,5   | 2    | 5       |        | L858-MX-5-2-X(709); L858-MX-5-2-X-B(709)    |
| HUGHEY & PHILLIPS, LLC                               | L-858Y,R,L(L)    | 2     | 2,3,5   | 3    | 1       |        | L858-MX-1-3-X(709); L858-MX-1-3-X-B(709)    |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                                                                              | FAA type        | CLASS | STYLE   | MODE | SIZE    | RATING | CAT NO.                                                                                                                                                                                |
|----------------------------------------------------------------------------------|-----------------|-------|---------|------|---------|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HUGHEY & PHILLIPS, LLC                                                           | L-858Y,R,L(L)   | 2     | 2,3,5   | 3    | 2       |        | L858-MX-2-3-X(709); L858-MX-2-3-X-B(709)                                                                                                                                               |
| HUGHEY & PHILLIPS, LLC                                                           | L-858Y,R,L(L)   | 2     | 2,3,5   | 3    | 3       |        | L858-MX-3-3-X(709); L858-MX-3-3-X-B(709)                                                                                                                                               |
| HUGHEY & PHILLIPS, LLC                                                           | L-858B(L)       | 2     | 2,3,5   | 3    | 4       |        | L858-MX-4-3-X(709); L858-MX-4-3-X-B(709)                                                                                                                                               |
| HUGHEY & PHILLIPS, LLC                                                           | L-858B(L)       | 2     | 2,3,5   | 3    | 5       |        | L858-MX-5-3-X(709); L858-MX-5-3-X-B(709)                                                                                                                                               |
| HUGHEY & PHILLIPS, LLC                                                           | L-858C,R,Y,L    | NA    | 4       | 1,2  | 1, 2, 3 |        | L-858-X-X-X                                                                                                                                                                            |
| STANDARD SIGNS, INC.                                                             | L-858Y, R, L, C | NA    | 4       | 2    | 1, 2, 3 |        | SUL-4; MUL-4; LUL-4<br>SUL-6; MUL-6; LUL-6                                                                                                                                             |
| STANDARD SIGNS, INC.                                                             | L-858Y, R, L(L) | 1,2   | 2, 3, 5 | 2    | 1       |        | SXL (442)                                                                                                                                                                              |
| STANDARD SIGNS, INC.                                                             | L-858Y, R, L(L) | 1,2   | 2, 3, 5 | 2, 3 | 2       |        | MXL (442)                                                                                                                                                                              |
| STANDARD SIGNS, INC.                                                             | L-858Y, R, L(L) | 1,2   | 2, 3, 5 | 2. 3 | 3       |        | LXL (442)                                                                                                                                                                              |
| 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-858B          | 1, 2  | 5       | 2, 3 | 4       |        | D1P (11A); D1Q (33)                                                                                                                                                                    |
| STANDARD SIGNS, INC.                                                             | L-858B          | 1, 2  | 5       | 2, 3 | 5       |        | DL1P (11A); DL1Q (33)                                                                                                                                                                  |
| STANDARD SIGNS, INC.                                                             | L-858Y, R, L    | 1, 2  | 5       | 2    | 1       |        | SXP (11A); SXQ (33)                                                                                                                                                                    |
| STANDARD SIGNS, INC.                                                             | L-858Y, R, L    | 1, 2  | 5       | 2, 3 | 2       |        | MXP (11A); MXQ (33)                                                                                                                                                                    |
| STANDARD SIGNS, INC.                                                             | L-858Y, R, L    | 1, 2  | 5       | 2, 3 | 3       |        | LXP (11A); LXQ (33)                                                                                                                                                                    |
| 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)                    |                 |       |         |      |         |        |                                                                                                                                                                                        |
| FLASH TECHNOLOGY LLC                                                             | L-859V, I       |       | F       |      |         |        | FTS 417 (75); FTS 437 (75)                                                                                                                                                             |
| STROBE APPROACH LIGHTING TECHNOLOGY                                              | L-859V          |       | F       |      |         |        | L849-V1-F (287)                                                                                                                                                                        |
| STROBE APPROACH LIGHTING TECHNOLOGY                                              | L-859I          |       | F       |      |         |        | L849-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 (731);<br>EMIS2YG0XS00X00 (762)(763)                                                                                                                                   |
| ADB SAFEGATE AMERICAS, LLC                                                       | L-861E(L)       |       |         | 1    |         |        | EMIS2RR0XS00X00(733);<br>EMIS2RG0XS00X00(732)(733);<br>EMIS2NG0XS00X00(732);                                                                                                           |
| ADB SAFEGATE AMERICAS, LLC                                                       | L-861SE(L)      |       |         | 1    |         |        | EMIS2RG0XSFOX00 (764)(765);<br>EMIS2NR0XSFOX00 (764);<br>EMIS2NG0XSFOX00 (765);                                                                                                        |
| ADB SAFEGATE AMERICAS, LLC                                                       | L-861SE         |       |         | 1    |         |        | 44A2090-16X1 (819)(820); 44A2090-18X2 (819)(820)                                                                                                                                       |
| ADB SAFEGATE AMERICAS, LLC                                                       | L-861T(L)       |       |         | 1    |         |        | ETES-1X10 (445); ETES-1X11 (445)                                                                                                                                                       |
| ADB SAFEGATE AMERICAS, LLC                                                       | L-861T(L)       |       |         | 1    |         |        | ETES-6X10 (445); ETES-6X11 (445)                                                                                                                                                       |
| ADB SAFEGATE AMERICAS, LLC                                                       | L-861T(L)       |       |         | 1    |         |        | EHP-B2XX0 (445)                                                                                                                                                                        |
| ADB SAFEGATE AMERICAS, LLC                                                       | L-861           |       |         | 1    |         |        | 44C1081-21XX(747); 44C1081-61XX(290);<br>44C1081-22XX(747); 44C1081-62XX(290);<br>44C1081-29XX(747); 44C1081-69XX(290);<br>44C1081-63XX(290); 44C1081-6CXX(290);<br>44C1081-6DXX(290); |
| ADB SAFEGATE AMERICAS, LLC                                                       | L-861E          |       |         | 1    |         |        | 44C1081-66XX(290); 44C1081-67XX(290);<br>44C1081-6BXX(290); 44C1081-6EXX(290);                                                                                                         |
| ADB SAFEGATE AMERICAS, LLC                                                       | L-861T          |       |         | 1    |         |        | 44C1081-55XX(291); 44C1081-65XX(290)                                                                                                                                                   |
| AIRPORT LIGHTING COMPANY                                                         | L-861           |       |         | 1    |         |        | 216-45-Q-CC-XX (725); 216-45-Q-CY-XX (725); 216-45-Q-YY-XX (725);<br>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);<br>216-45-Q-GO-XX (725)                                                                                              |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                                    | FAA type   | CLASS | STYLE | MODE | SIZE | RATING | CAT NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|----------------------------------------|------------|-------|-------|------|------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AIRPORT LIGHTING COMPANY               | L-861T     |       |       | 1    |      |        | 216-45-Q-BB-XX (725); 216-30-Q-BB-XX (661)                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| AIRPORT LIGHTING COMPANY               | L-861(L)   |       |       | 1    |      |        | ALC-861L-CC-XX-X (553); ALC-861L-CY-XX-X (553)<br>ALC-861L-GY-XX-X (555); ALC-861L-RC-XX-X (553)<br>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);<br>ALC-861L-RG-XX-X (556)                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| AIRPORT LIGHTING COMPANY               | L-861T(L)  |       |       | 1    |      |        | ALC-861L-BB-XX-X (552)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| AIRPORT LIGHTING COMPANY               | L-861SE(L) |       |       | 1    |      |        | ESEL-RG-XX-X (945)(946); ESEL-GR-XX-X (946)(945);<br>ESEL-OG-XX-X (946); ESEL-GO-XX-X (946)                                                                                                                                                                                                                                                                                                                                                                                                                   |
| atg airports ltd                       | L-861T(L)  |       |       |      |      |        | IR861T(L)-1-B-0-1-1-00 (774)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| CROUSE HINDS AIRPORT LIGHTING PRODUCTS | L-861(L)   |       |       | 1    |      |        | 861M-AP1-WM-1-XX-0-0 (653);<br>861M-AP1-WM-2-XX-0-0 (653);<br>861M-AP1-WM-1-XX-1-0 (653);<br>861M-AP1-WM-2-XX-1-0 (653);<br>861M-AP1-YM-1-XX-0-0 (653);<br>861M-AP1-YM-2-XX-0-0 (653);<br>861M-AP1-YM-1-XX-1-0 (653);<br>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);<br>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);<br>861E-AP1-RG-2-XX-0-0 (651)(657);<br>861E-AP1-RG-1-XX-1-0 (651)(657);<br>861E-AP1-RG-2-XX-1-0 (651)(657);<br>861E-AP1-RR-1-XX-0-0 (651);<br>861E-AP1-RR-2-XX-0-0 (651);<br>861E-AP1-RR-1-XX-1-0 (651);<br>861E-AP1-RR-2-XX-1-0 (651);<br>861E-AP1-GN-1-XX-0-0 (657);<br>861E-AP1-GN-2-XX-0-0 (657);<br>861E-AP1-GN-1-XX-1-0 (657);<br>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);<br>861S-AP1-RG-2-XX-0-0 (652)(657);<br>861S-AP1-RG-1-XX-1-0 (652)(657);<br>861S-AP1-RG-2-XX-1-0 (652)(657);<br>861S-AP1-GN-1-XX-0-0 (657);<br>861S-AP1-GN-2-XX-0-0 (657);<br>861S-AP1-GN-1-XX-1-0 (657);<br>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);<br>861B-AP1-WY-1-XX-1-0 (653); 861B-AP1-WY-2-XX-1-0 (653);<br>861B-AP1-WR-1-XX-0-0 (653); 861B-AP1-WR-2-XX-0-0 (653);<br>861B-AP1-WR-1-XX-1-0 (653); 861B-AP1-WR-2-XX-1-0 (653);<br>861B-AP1-YR-1-XX-0-0 (653); 861B-AP1-YR-2-XX-0-0 (653);<br>861B-AP1-YR-1-XX-1-0 (653); 861B-AP1-YR-2-XX-1-0 (653);<br>861B-AP1-GY-1-XX-0-0 (656)(654);<br>861B-AP1-GY-2-XX-0-0 (656)(654);<br>861B-AP1-GY-1-XX-1-0 (656)(654);<br>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)<br>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)                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| FLIGHT LIGHT INC.                      | L-861T     |       |       | 1    |      |        | FL-861-B-30Q-XX-X (31) (817); FL-861-B-45Q-XX-X (33) (818)<br>FL-861-B-45-XX-X (634)                                                                                                                                                                                                                                                                                                                                                                                                                          |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                                                                               | FAA type   | CLASS | STYLE | MODE | SIZE | RATING | CAT NO.                                                                                                                                                                                          |
|-----------------------------------------------------------------------------------|------------|-------|-------|------|------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HUGHEY & PHILLIPS, LLC                                                            | L-861(L)   |       |       | 1    |      |        | 861-L-W-XX (495); 861-L-Y-XX (495);<br>861-L-WY-XX (495); 861-L-WR-XX (495);<br>861-L-YR-XX (495); 861-L-GY-XX (494)(495)                                                                        |
| HUGHEY & PHILLIPS, LLC                                                            | L-861T(L)  |       |       | 1    |      |        | 861T-L-B-XX-X (682)                                                                                                                                                                              |
| HUGHEY & PHILLIPS, LLC                                                            | L-861E(L)  |       |       | 1    |      |        | 861E-L-GB-XX-X (495);<br>861E-L-RG-XX-X (494)(495);<br>861E-L-RR-XX-X (494);                                                                                                                     |
| HUGHEY & PHILLIPS, LLC                                                            | L-861SE(L) |       |       | 1    |      |        | 861SE-L-GB-XX-X (495);<br>861SE-L-RG-XX-X (494)(495)                                                                                                                                             |
| HUGHEY & PHILLIPS, LLC                                                            | L-861T(L)  |       |       | 1    |      |        | 861T-L-B-066-XX-6 (683);<br>861T-L-B-066-XX-7 (683)                                                                                                                                              |
| HUGHEY & PHILLIPS, LLC                                                            | L-861      |       |       | 1    |      |        | L861-066-XX-45-XXM (681)                                                                                                                                                                         |
| HUGHEY & PHILLIPS, LLC                                                            | L-861E     |       |       | 1    |      |        | L861E-066-XX-1-XXM (681)                                                                                                                                                                         |
| HUGHEY & PHILLIPS, LLC                                                            | L-861T     |       |       | 1    |      |        | L861T-066-B-45-XXM (681)                                                                                                                                                                         |
| HUGHEY & PHILLIPS, LLC                                                            | L-861T     |       |       | 1    |      |        | L861T-066-B-30-XXM (685)                                                                                                                                                                         |
| HUGHEY & PHILLIPS, LLC                                                            | L-861T(L)  |       |       | 1    |      |        | 7400 LED (579)(580)                                                                                                                                                                              |
| HUGHEY & PHILLIPS, LLC                                                            | L-861      |       |       | 1    |      |        | 7100(706); 7100Q(705); 7550(706); 7550Q(705)                                                                                                                                                     |
| HUGHEY & PHILLIPS, LLC                                                            | L-861E     |       |       | 1    |      |        | 7250(706); 7250Q(705)                                                                                                                                                                            |
| HUGHEY & PHILLIPS, LLC                                                            | L-861T     |       |       | 1    |      |        | 7400(707); 7400Q(708)                                                                                                                                                                            |
| MULTI-ELECTRIC MANUFACTURING, INC.                                                | L-861(L)   |       |       |      |      |        | LEMIRL-F-0-YG-XX-X-X (948)<br>LEMIRL-F-0-W-XX-X-X (949)<br>LEMIRL-F-0-Y-XX-X-X (949)<br>LEMIRL-F-0-YW-XX-X-X (949)<br>LEMIRL-F-0-WR-XX-X-X (949)<br>LEMIRL-F-0-YR-XX-X-X (949)                   |
| MULTI-ELECTRIC MANUFACTURING, INC.                                                | L-861E(L)  |       |       |      |      |        | LEMIRL-F-E-RG-XX-X-X(951)(952)<br>LEMIRL-F-E-GM-XX-X-X(951)<br>LEMIRL-F-E-RR-XX-X-X(952)                                                                                                         |
| MULTI-ELECTRIC MANUFACTURING, INC.                                                | L-861SE(L) |       |       |      |      |        | LEMIRL-F-S-RG-XX-X-X(950)(952)<br>LEMIRL-F-S-GM-XX-X-X(950)                                                                                                                                      |
| MULTI-ELECTRIC MANUFACTURING, INC.                                                | L-861T(L)  |       |       | 1    |      |        | LTE-F-XX-A-X-X (544)                                                                                                                                                                             |
| OCEM AIRFIELD TECHNOLOGY                                                          | L-861(L)   |       |       |      |      |        | LEMIRL-F-0-YG-XX-X-X (948)<br>LEMIRL-F-0-W-XX-X-X (949)<br>LEMIRL-F-0-Y-XX-X-X (949)<br>LEMIRL-F-0-YW-XX-X-X (949)<br>LEMIRL-F-0-WR-XX-X-X (949)<br>LEMIRL-F-0-YR-XX-X-X (949)                   |
| OCEM AIRFIELD TECHNOLOGY                                                          | L-861E(L)  |       |       |      |      |        | LEMIRL-F-E-RG-XX-X-X(951)(952)<br>LEMIRL-F-E-GM-XX-X-X(951)<br>LEMIRL-F-E-RR-XX-X-X(952)                                                                                                         |
| OCEM AIRFIELD TECHNOLOGY                                                          | L-861SE(L) |       |       |      |      |        | LEMIRL-F-S-RG-XX-X-X(950)(952)<br>LEMIRL-F-S-GM-XX-X-X(950)                                                                                                                                      |
| OCEM AIRFIELD TECHNOLOGY                                                          | L-861T(L)  |       |       | 1    |      |        | LETE-F-35-A-X-X (544); LETE-F-35-B-X-X (544);<br>LETE-F-50-A-X-X (544); LETE-F-50-B-X-X (544);<br>LETE-F-61-A-X-X (544); LETE-F-61-B-X-X (544);<br>LETE-F-76-A-X-X (544); LETE-F-76-B-X-X (544); |
| YOUYANG AIRPORT LIGHTING EQUIPMENT INC.                                           | L-861T     |       |       | 1    |      |        | ELC-TEDL-045-01(33)                                                                                                                                                                              |
| 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                                                        | L-862S     |       |       | 1    |      |        | 44A5877-X (153)                                                                                                                                                                                  |
| ADB SAFEGATE AMERICAS, LLC                                                        | L-862E     |       |       | 1    |      |        | 44A2071-411X (801)<br>44A2071-412X (801)<br>44A2071-413X (801)<br>44A2071-417X (801)                                                                                                             |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                                    | FAA type  | CLASS | STYLE | MODE | SIZE | RATING | CAT NO.                                                                                                                                                                                                                                                                                                                        |
|----------------------------------------|-----------|-------|-------|------|------|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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 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 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)                                                                                                                                                   |
| ADB SAFEGATE BV                        | L-862S(L) |       |       | 1    |      |        | ETSS2RN00SF0000 (735); ETSS2RN00MF0000 (735)                                                                                                                                                                                                                                                                                   |
| AIRPORT LIGHTING COMPANY               | L-862     |       |       | 1    |      |        | 213Q-1-150-CC-XX (684); 213Q-1-150-CC-XX-2 (684); 213Q-1-150-CY-XX (684); 213Q-1-150-CY-XX-2 (684); 213Q-1-150-CR-XX (684); 213Q-1-150-CR-XX-2 (684); 213Q-1-150-GY-XX (684); 213Q-1-150-GY-XX-2 (684); 213Q-1-150-YR-XX (684); 213Q-1-150-YR-XX-2 (684)                                                                       |
| AIRPORT LIGHTING COMPANY               | L-862(L)  |       |       | 1    |      |        | EHL-WW-XX-X(927) EHL-RY-XX-X(929)(928); EHL-YR-XX-X(928)(929) EHL-WY-XX-X(927)(928); EHL-YW-XX-X(928)(927) EHL-WR-XX-X(927)(929); EHL-RW-XX-X(929)(927) EHL-YG-XX-X(928)(930); EHL-GY-XX-X(930)(928)                                                                                                                           |
| AIRPORT LIGHTING COMPANY               | L-862E(L) |       |       | 1    |      |        | EHL-RG-XX-X(929)(930); EHL-GR-XX-X(930)(929) EHL-OG-XX-X(930); EHL-GO-XX-X(930) EHL-OR-XX-X(929); EHL-RR-XX-X(929)                                                                                                                                                                                                             |
| AIRPORT LIGHTING COMPANY               | L-862E    |       |       | 1    |      |        | 213Q-1-200-RR-XX (641); 213Q-1-200-RR-XX-2 (641); 213Q-1-200-RO-XX (641); 213Q-1-200-RO-XX-2 (641); 213Q-1-200-RG-XX (641); 213Q-1-200-RG-XX-2 (641); 213Q-1-200-GO-XX (641); 213Q-1-200-GO-XX-2 (641)                                                                                                                         |
| AIRSAFE AIRPORT EQUIPMENT CO LTD       | L-862(L)  |       |       | 1    |      |        | EBL-RE-LED-XX-X (793)(794)(795)(796)                                                                                                                                                                                                                                                                                           |
| CROUSE HINDS AIRPORT LIGHTING PRODUCTS | L-862E    |       |       | 1    |      |        | 8624X-T-RG-200-XX (136); 8624X-T-GR-200-XX (136)                                                                                                                                                                                                                                                                               |
| 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)                                                                                                               |
| CROUSE HINDS AIRPORT LIGHTING PRODUCTS | L-862S    |       |       | 1    |      |        | 862S-XX (153)                                                                                                                                                                                                                                                                                                                  |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                                    | FAA type  | CLASS | STYLE | MODE | SIZE | RATING | CAT NO.                                                                                                                                                                                                                                                                                                                     |
|----------------------------------------|-----------|-------|-------|------|------|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CROUSE HINDS AIRPORT LIGHTING PRODUCTS | L-862(L)  |       |       | 1    |      |        | 862E-AP1-WW-X-XX-X (808);<br>862E-AP1-WY-X-XX-X (808)(806);<br>862E-AP1-YW-X-XX-X (806)(808);<br>862E-AP1-WR-X-XX-X (808)(805);<br>862E-AP1-RW-X-XX-X (805)(808);<br>862E-AP1-GY-X-XX-X (807)(806);<br>862E-AP1-YG-X-XX-X (806)(807);<br>862E-AP1-RY-X-XX-X (805)(806);<br>862E-AP1-YR-X-XX-X (806)(805);                   |
| CROUSE HINDS AIRPORT LIGHTING PRODUCTS | L-862S(L) |       |       | 1    |      |        | 862S-AP1-RN-X-XX-X(881);<br>862ESB-AP1-RN-X-XX-X(908)                                                                                                                                                                                                                                                                       |
| CROUSE HINDS AIRPORT LIGHTING PRODUCTS | L-862E(L) |       |       | 1    |      |        | 862T-AP1-RG-X-XX-X (809)(810);<br>862T-AP1-GR-X-XX-X (810)(809);<br>862T-AP1-GN-X-XX-X (810);<br>862T-AP1-NG-X-XX-X (810);<br>862T-AP1-RN-X-XX-X (809);<br>862T-AP1-RR-X-XX-X (809)                                                                                                                                         |
| 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);<br>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);<br>L-862E-L-XXX-XX-1 (827)(828)                                                                                                                                                                                                                                                               |
| HUGHEY & PHILLIPS, LLC                 | L-862S(L) |       |       | 1    |      |        | L-862S-L-RB-XX-0 (823);<br>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);<br>LERE-F-T-RR-XX-A-X-0 (546)<br>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);<br>LERE-F-E-WY-XX-A-X-0 (548)(545);<br>LERE-F-E-YW-XX-A-X-0 (545)(548);<br>LERE-F-E-WR-XX-A-X-0 (548)(546);<br>LERE-F-E-RW-XX-A-X-0 (546)(548);<br>LERE-F-E-YR-XX-A-X-0 (545)(546);<br>LERE-F-E-RY-XX-A-X-0 (546)(545);<br>LERE-F-E-GY-XX-A-X-0 (549)(545);<br>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)<br>6370-R-WR-XX-A-3 (853); 6370-R-GA-XX-A-3 (853)<br>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);<br>6370-T-RR-XX-A-3 (854); 6370-T-OG-XX-A-3 (854);<br>6370-T-GO-XX-A-3 (854); 6370-T-OR-XX-A-3 (854);<br>6370-T-RO-XX-A-3 (854)                                                                                                                                             |
| OCEM AIRFIELD TECHNOLOGY               | L-862     |       |       | 1    |      |        | FP150-F-CC-150 (153); FP150-F-CR-150 (153);<br>FP150-F-CY-150 (153); FP150-F-GY-150 (153);<br>FP150-F-RC-150 (153); FP150-F-RY-150 (153);<br>FP150-F-YC-150 (153); FP150-F-YG-150 (153);<br>FP150-F-YR-150 (153)                                                                                                            |
| OCEM AIRFIELD TECHNOLOGY               | L-862S    |       |       | 1    |      |        | FAU-SB-100-P-001 (127)                                                                                                                                                                                                                                                                                                      |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                                                            | FAA type  | CLASS | STYLE | MODE | SIZE | RATING | CAT NO.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|----------------------------------------------------------------|-----------|-------|-------|------|------|--------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OCEM AIRFIELD TECHNOLOGY                                       | L-862(L)  |       |       | 1    |      |        | LERE-F-E-WW-XX-A-X-X (548);<br>LERE-F-E-WW-XX-B-X-X (548);<br>LERE-F-E-WY-XX-A-X-X (548)(545);<br>LERE-F-E-WY-XX-B-X-X (548)(545)<br>LERE-F-E-YW-XX-A-X-X (545)(548);<br>LERE-F-E-YW-XX-B-X-X (545)(548)<br>LERE-F-E-WR-XX-A-X-X (548)(546);<br>LERE-F-E-WR-XX-B-X-X (548)(546)<br>LERE-F-E-RW-XX-A-X-X (546)(548);<br>LERE-F-E-RW-XX-B-X-X (546)(548);<br>LERE-F-E-YR-XX-A-X-X (545)(546);<br>LERE-F-E-YR-XX-B-X-X (545)(546)<br>LERE-F-E-RY-XX-A-X-X (546)(545);<br>LERE-F-E-RY-XX-B-X-X (546)(545);<br>LERE-F-E-GY-XX-A-X-X (549)(545);<br>LERE-F-E-GY-XX-B-X-X (549)(545)<br>LERE-F-E-YG-XX-A-X-X (545)(549);<br>LERE-F-E-YG-XX-B-X-X (545)(549); |
| OCEM AIRFIELD TECHNOLOGY                                       | L-862E(L) |       |       | 1    |      |        | LERE-F-T-RG-XX-A-X-X (546)(549);<br>LERE-F-T-RG-XX-B-X-X (546)(549);<br>LERE-F-T-GR-XX-A-X-X (549)(546);<br>LERE-F-T-GR-XX-B-X-X (549)(546);<br>LERE-F-T-RR-XX-A-X-X (546);<br>LERE-F-T-RR-XX-B-X-X (546);<br>LERE-F-T-MG-XX-A-X-X (549);<br>LERE-F-T-MG-XX-B-X-X (549);<br>LERE-F-T-GM-XX-A-X-X (549);<br>LERE-F-T-GM-XX-B-X-X (549);<br>LERE-F-T-RM-XX-A-X-X (546);<br>LERE-F-T-RM-XX-B-X-X (546);<br>LERE-F-T-MR-XX-A-X-X (546);<br>LERE-F-T-MR-XX-B-X-X (546);                                                                                                                                                                                    |
| 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-862(L)  |       |       | 1    |      |        | EHB(L)-REDL-W/W(788); EHB(L)-REDL-W/Y(788)(787)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| YOUYANG AIRPORT LIGHTING EQUIPMENT INC.                        | L-862E(L) |       |       | 1    |      |        | EHB(L)-RTHL/RENL-G/R (789)(790)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| YOUYANG AIRPORT LIGHTING EQUIPMENT INC.                        | L-862E(L) |       |       | 1    |      |        | EHA(L)-RTHL-G-F (859)<br>EHA(L)-RENL-R-F (860)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| YOUYANG AIRPORT LIGHTING EQUIPMENT INC.                        | L-862S(L) |       |       | 1    |      |        | EHA(L)-STBL-R-F (860)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 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)  |       |       |      |      |        | D1CWC13409SYS (676); D1CWC14409SYS (676)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| DIALIGHT CORPORATION                                           | L-864(L)  |       |       |      |      |        | D6CB55-SYS (895);D6CB77-SYS (896);D6CE77-SYS(896);D6CG77-SYS (896)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| DIALIGHT CORPORATION                                           | L-864(L)  |       |       |      |      |        | D366-A57-SYS(882)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| FLASH TECHNOLOGY LLC                                           | L-864(L)  |       |       |      |      |        | FTS 350i(904)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| FLASH TECHNOLOGY LLC                                           | L-864(L)  |       |       |      |      |        | FTS 371 AC (892); FTS 371 SMART AC (892)<br>FTS 371 48VDC (892); FTS 371 SMART 48VDC (892)<br>FTS 371 SMART DC (-)48V (892); FTS 371 24VDC (892)<br>FTS 371 SMART 24VDC (892);<br>FTS 371 SMART DC (-)24V (892)                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| FLASH TECHNOLOGY LLC                                           | L-864(L)  |       |       |      |      |        | FTS 370d AC (893);FTS 370d 48VDC(893)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| FLASH TECHNOLOGY LLC                                           | L-864(L)  |       |       |      |      |        | FTS 370i-2 IR (852)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| FLASH TECHNOLOGY LLC                                           | L-864(L)  |       |       |      |      |        | FTS 270 (855)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| FLASH TECHNOLOGY LLC                                           | L-864(L)  |       |       |      |      |        | FTS 372 (861); FTS 372s (947)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                                                           | FAA type | CLASS | STYLE | MODE | SIZE | RATING | CAT NO.                                                                                                                                                                                     |
|---------------------------------------------------------------|----------|-------|-------|------|------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| HUGHEY & PHILLIPS, LLC                                        | L-864(L) |       |       |      |      |        | 50-2002-001 (924);<br>50-2002-001-A (924);<br>50-2002-001-B (924)                                                                                                                           |
| HUGHEY & PHILLIPS, LLC                                        | L-864    |       |       |      |      |        | FG-2009B (144); FG-3000B (144)                                                                                                                                                              |
| INTERNATIONAL TOWER LIGHTING, LLC                             | L-864    |       |       |      |      |        | ILS-3400 (334)                                                                                                                                                                              |
| INTERNATIONAL TOWER LIGHTING, LLC                             | L-864(L) |       |       |      |      |        | ILS-3600-OIR (636)                                                                                                                                                                          |
| INTERNATIONAL TOWER LIGHTING, LLC                             | L-864(L) |       |       |      |      |        | IFH-1910-OIR (874)                                                                                                                                                                          |
| INTERNATIONAL TOWER LIGHTING, LLC                             | L-864(L) |       |       |      |      |        | ILS-1900-OIR (925)                                                                                                                                                                          |
| OBSTA                                                         | L-864(L) |       |       |      |      |        | 113724 (913); 113724I (913); 113710U (913)<br>113756U (913); 113714U (913); 113790U (913)<br>113725U (914); 113725UI (914); 113712U (914)<br>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);<br>L550-864-30-IR-G(880)                                                                                                                                          |
| POINT LIGHTING CORPORATION                                    | L-864(L) |       |       |      |      |        | PFB-37003-R-1(942);<br>PFB-37003-R-5(942)                                                                                                                                                   |
| POINT LIGHTING CORPORATION                                    | L-864(L) |       |       |      |      |        | PFB-37002-R-x-F4-NC (942);<br>PFB-37002-RW-1-F4F5-NC (942) (785);<br>PFB-37002-RW-1-F4F5.2-NC (942) (785)                                                                                   |
| POINT LIGHTING CORPORATION                                    | L-864(L) |       |       |      |      |        | PFB-37004-R-1 (1006);<br>PFB-37004-RW-1 (1006)                                                                                                                                              |
| QUANTEC NETWORKS GMBH                                         | L-864(L) |       |       |      |      |        | 15994 (856); 15995 (856); 15996 (856); 15997 (856)<br>15998 (856); 15999 (856); 15731 (856); 16000 (856)                                                                                    |
| QUANTEC NETWORKS GMBH                                         | L-864(L) |       |       |      |      |        | 15417 (856); 16007 (856); 15407 (856); 16008 (856)<br>16009 (856); 16010 (856); 15589 (856); 16011 (856)                                                                                    |
| TECHNOSTROBE                                                  | L-864(L) |       |       |      |      |        | LED-RED-STANDARD-G3 (907)                                                                                                                                                                   |
| TECHNOSTROBE                                                  | L-864(L) |       |       |      |      |        | LED-RED-Standard-SEC G3 (972)                                                                                                                                                               |
| 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 370dAC (893); FTS 370w AC (893);FTS 370d 48VDC (893); FTS 370w 48VDC (893)                                                                                                              |
| FLASH TECHNOLOGY LLC                                          | L-865(L) |       |       |      |      |        | FTS 372 (861); FTS 372s (947)                                                                                                                                                               |
| HUGHEY & PHILLIPS, LLC                                        | L-865    |       |       |      |      |        | FG-2000B (144); FG-3000B (144)                                                                                                                                                              |
| INTERNATIONAL TOWER LIGHTING, LLC                             | L-865    |       |       |      |      |        | ILS-3400 (334); ILS-2400 (334)                                                                                                                                                              |
| INTERNATIONAL TOWER LIGHTING, LLC                             | L-865(L) |       |       |      |      |        | ILS-3600-OIR (636)<br>ILS-2600-OIR (638)                                                                                                                                                    |
| OBSTA                                                         | L-865(L) |       |       |      |      |        | 113723U (914); 113723UI (914); 113711U (914)<br>113757U (914); 113713U (914); 113791U (914); 113725U (914);<br>113725UI (914); 113715U (914); 113758U (914); 113712U(914);<br>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);<br>PFB-37002-W-1-F5.2 (785);<br>PFB-37002-RW-1-F4F5-NC (942)(785);<br>PFB-37002-RW-1-F4F5.2-NC (942)(785)                                                           |
| POINT LIGHTING CORPORATION                                    | L-865(L) |       |       |      |      |        | PFB-37004-W-1 (1006);<br>PFB-37004-RW-1 (1006)                                                                                                                                              |
| TECHNOSTROBE                                                  | L-865(L) |       |       |      |      |        | LED-B-HYBRID-G5-Vac(905); LED-B-HYBRID-G5(905)                                                                                                                                              |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                                                           | FAA type              | CLASS | STYLE | MODE | SIZE | RATING | CAT NO.                                                                             |
|---------------------------------------------------------------|-----------------------|-------|-------|------|------|--------|-------------------------------------------------------------------------------------|
| 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 370d AC (893); FTS 370w AC (893);<br>FTS 370d 48VDC (893); FTS 370w 48VDC (893) |
| FLASH TECHNOLOGY LLC                                          | L-866(L)              |       |       |      |      |        | FTS 372 (861); FTS 372s (947)                                                       |
| INTERNATIONAL TOWER LIGHTING, LLC                             | L-866(L)              |       |       |      |      |        | ILS-3600-CAT-IR (636)<br>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<br>PLATE  | IA    |       |      | B    |        | L867B-CP-B-S                                                                        |
| AIRPORT LIGHTING EQUIPMENT INC.                               | L-867 SPACER<br>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<br>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                                                                            |
| AIRPORT LIGHTING EQUIPMENT INC.                               | L-867 COVER<br>PLATE  | IA    |       |      | D    |        | L867-CP-D-S                                                                         |
| AIRPORT LIGHTING EQUIPMENT INC.                               | L-867 SPACER<br>RINGS | IA    |       |      | D    |        | L867D-ER-D-S                                                                        |
| JAQUITH INDUSTRIES, INC.                                      | L-867 BASE            | IB    |       |      | B    |        | ACS20XXXXXXXXXXPCC; ACS21XXXXXXXXXX                                                 |
| JAQUITH INDUSTRIES, INC.                                      | L-867 EXT             | IB    |       |      | B    |        | AES2XXXX                                                                            |
| JAQUITH INDUSTRIES, INC.                                      | L-867 COVER<br>PLATE  | IB    |       |      | B    |        | AKS10XXXX                                                                           |
| JAQUITH INDUSTRIES, INC.                                      | L-867 SPACER<br>RINGS | IB    |       |      | B    |        | ATS2006XX                                                                           |
| JAQUITH INDUSTRIES, INC.                                      | L-867 BASE            | IB    |       |      | D    |        | ACS63XXXXXXXXXX; ACS60XXXXXXXXXXPCC                                                 |
| JAQUITH INDUSTRIES, INC.                                      | L-867 EXT             | IB    |       |      | D    |        | AES6XXXX                                                                            |
| JAQUITH INDUSTRIES, INC.                                      | L-867 COVER<br>PLATE  | IB    |       |      | D    |        | AKS20XXXX                                                                           |
| JAQUITH INDUSTRIES, INC.                                      | L-867 SPACER<br>RINGS | IB    |       |      | D    |        | ATS6003XX                                                                           |
| JAQUITH INDUSTRIES, INC.                                      | L-867 COVER<br>PLATE  | IB    |       |      | E    |        | AKS70XXXX                                                                           |
| JAQUITH INDUSTRIES, INC.                                      | L-867 SPACER<br>RINGS | IB    |       |      | E    |        | ATS7003XX                                                                           |
| MILLERBERND MANUFACTURING COMPANY                             | L-867 BASE            | IB    |       |      | B    |        | 127CC(X)SS; 127CG(X)SS                                                              |
| MILLERBERND MANUFACTURING COMPANY                             | L-867 COVER<br>PLATE  | IB    |       |      | B    |        | 127L(X)SS                                                                           |
| MILLERBERND MANUFACTURING COMPANY                             | L-867 SPACER<br>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<br>PLATE  | IB    |       |      | D    |        | 167L(X)SS                                                                           |
| MILLERBERND MANUFACTURING COMPANY                             | L-867 SPACER<br>RINGS | IB    |       |      | D    |        | 167S(X)SS                                                                           |
| MILLERBERND MANUFACTURING COMPANY                             | L-867 BASE            | IA    |       |      | B    |        | 127CC(X); 127CG(X); 127CN(X); 127ACC(X)PCC; 127ACG(X)PCC                            |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                                                   | FAA type              | CLASS | STYLE | MODE | SIZE | RATING | CAT NO.                                        |
|-------------------------------------------------------|-----------------------|-------|-------|------|------|--------|------------------------------------------------|
| MILLERBERND MANUFACTURING COMPANY                     | L-867 EXT             | IA    |       |      | B    |        | 127E(X)                                        |
| MILLERBERND MANUFACTURING COMPANY                     | L-867 COVER<br>PLATE  | IA    |       |      | B    |        | 127L(X)                                        |
| MILLERBERND MANUFACTURING COMPANY                     | L-867 SPACER<br>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<br>PLATE  | IA    |       |      | D    |        | 167L(X)                                        |
| MILLERBERND MANUFACTURING COMPANY                     | L-867 SPACER<br>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<br>PLATE  | IA    |       |      | E    |        | 247L(X)                                        |
| MILLERBERND MANUFACTURING COMPANY                     | L-867 SPACER<br>RINGS | IA    |       |      | E    |        | 247S(X)                                        |
| MILLERBERND MANUFACTURING COMPANY                     | L-867 MUD<br>PLATE    | IA    |       |      | E    |        | 247M215                                        |
| Saudi International Co. (SAINTCO)                     | L-867                 | IA    |       |      | B    |        | SI-DB-67IB                                     |
| YOUYANG AIRPORT LIGHTING EQUIPMENT INC.               | L-867 BASE            | IA    |       |      | B    |        | ALB-L867-12-24-1A-C4-XX                        |
| 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 COVER<br>PLATE  | IA    |       |      | B    |        | BCP-L867-12-09-S                               |
| JAQUITH INDUSTRIES, INC.                              | L-867 BASE            | IA    |       |      | B    |        | AC20XXXXXXXXXXPCC; AC21XXXXXXXXXX              |
| JAQUITH INDUSTRIES, INC.                              | L-867 EXT             | IA    |       |      | B    |        | AE2XXXX                                        |
| JAQUITH INDUSTRIES, INC.                              | L-867 COVER<br>PLATE  | IA    |       |      | B    |        | AK10XXXX                                       |
| JAQUITH INDUSTRIES, INC.                              | L-867 SPACER<br>RINGS | IA    |       |      | B    |        | AT2006XX                                       |
| JAQUITH INDUSTRIES, INC.                              | L-867 MUD<br>PLATE    | IA    |       |      | B    |        | AM5417                                         |
| JAQUITH INDUSTRIES, INC.                              | L-867 BASE            | IA    |       |      | D    |        | AC63XXXXXXXXXX; AC60XXXXXXXXXXPCC              |
| JAQUITH INDUSTRIES, INC.                              | L-867 EXT             | IA    |       |      | D    |        | AE6XXXX                                        |
| JAQUITH INDUSTRIES, INC.                              | L-867 COVER<br>PLATE  | IA    |       |      | D    |        | AK20XXXX                                       |
| JAQUITH INDUSTRIES, INC.                              | L-867 SPACER<br>RINGS | IA    |       |      | D    |        | AT6003XX                                       |
| JAQUITH INDUSTRIES, INC.                              | L-867 MUD<br>PLATE    | IA    |       |      | D    |        | AM5527                                         |
| JAQUITH INDUSTRIES, INC.                              | L-867 BASE            | IA    |       |      | E    |        | AC67XXXXXXXXXX                                 |
| JAQUITH INDUSTRIES, INC.                              | L-867 EXT             | IA    |       |      | E    |        | AE7XXXX                                        |
| JAQUITH INDUSTRIES, INC.                              | L-867 COVER<br>PLATE  | IA    |       |      | E    |        | AK70XXXX                                       |
| JAQUITH INDUSTRIES, INC.                              | L-867 SPACER<br>RINGS | IA    |       |      | E    |        | AT7003XX                                       |
| JAQUITH INDUSTRIES, INC.                              | L-867 MUD<br>PLATE    | IA    |       |      | E    |        | AM5727                                         |
| L-868 Light Bases, Load Bearing (FAA AC 150/5345-42J) |                       |       |       |      |      |        |                                                |
| AIRPORT LIGHTING EQUIPMENT INC.                       | L-868 BASE            | IA    |       |      | B    |        | 12XX                                           |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                             | FAA type                        | CLASS | STYLE | MODE | SIZE | RATING | CAT NO.                                                                                   |
|---------------------------------|---------------------------------|-------|-------|------|------|--------|-------------------------------------------------------------------------------------------|
| AIRPORT LIGHTING EQUIPMENT INC. | L-868<br>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<br>PLATE            | IA    |       |      | B    |        | L868-CP-B-S                                                                               |
| AIRPORT LIGHTING EQUIPMENT INC. | L-868 SPACER<br>RINGS           | IA    |       |      | B    |        | L868-FR-B-S<br>L868-SR-B-S                                                                |
| JAQUITH INDUSTRIES, INC.        | L-868 SPACER<br>RINGS           | IB    |       |      | B    |        | AFS5402XX; AFS5402XXY; AFS5434XX; ARS5411XX; ARS5421XX;<br>ARS5422XX; ARS5424; ARS5421XXY |
| JAQUITH INDUSTRIES, INC.        | L-868 BASE                      | IA    |       |      | A    |        | AC08XXXXXXXXXX                                                                            |
| JAQUITH INDUSTRIES, INC.        | L-868 BASE<br>MULTI-<br>SECTION | IA    |       |      | A    |        | AC40XXXXXXXXXX (bottom); AE4703M (middle); AF0XXXX (top)                                  |
| JAQUITH INDUSTRIES, INC.        | L-868 EXT                       | IA    |       |      | A    |        | AX0XXXX                                                                                   |
| JAQUITH INDUSTRIES, INC.        | L-868 COVER<br>PLATE            | IA    |       |      | A    |        | AK80XXXX                                                                                  |
| JAQUITH INDUSTRIES, INC.        | L-868 MUD<br>PLATE              | IA    |       |      | A    |        | AM5017; AM5027                                                                            |
| JAQUITH INDUSTRIES, INC.        | L-868 BASE                      | IA    |       |      | B    |        | AC24XXXXXXXXXX                                                                            |
| JAQUITH INDUSTRIES, INC.        | L-868 BASE<br>MULTI-<br>SECTION | IA    |       |      | B    |        | AC44XXXXXXXXXX (bottom); AE4704M (middle); AF2XXXX (top)                                  |
| JAQUITH INDUSTRIES, INC.        | L-868 EXT                       | IA    |       |      | B    |        | AX2XXXX                                                                                   |
| JAQUITH INDUSTRIES, INC.        | L-868 CONV<br>RING              | IA    |       |      | B    |        | AA5423; AA5413                                                                            |
| JAQUITH INDUSTRIES, INC.        | L-868 COVER<br>PLATE            | IA    |       |      | B    |        | AK40XXXX                                                                                  |
| JAQUITH INDUSTRIES, INC.        | L-868 MUD<br>PLATE              | IA    |       |      | B    |        | AM5417; AM5427                                                                            |
| JAQUITH INDUSTRIES, INC.        | L-868 BASE                      | IA    |       |      | C    |        | AC35XXXXXXXXXX                                                                            |
| JAQUITH INDUSTRIES, INC.        | L-868 BASE<br>MULTI-<br>SECTION | IA    |       |      | C    |        | AC45XXXXXXXXXX (bottom); AE4705M (middle); AF3XXXX (top)                                  |
| JAQUITH INDUSTRIES, INC.        | L-868 EXT                       | IA    |       |      | C    |        | AX3XXXX                                                                                   |
| JAQUITH INDUSTRIES, INC.        | L-868 CONV<br>RING              | IA    |       |      | C    |        | AA5523; AA5513                                                                            |
| JAQUITH INDUSTRIES, INC.        | L-868 COVER<br>PLATE            | IA    |       |      | C    |        | AK50XXXX                                                                                  |
| JAQUITH INDUSTRIES, INC.        | L-868 MUD<br>PLATE              | IA    |       |      | C    |        | AM5527; AM5517                                                                            |
| JAQUITH INDUSTRIES, INC.        | L-868 BASE                      | IB    |       |      | A    |        | ACS08XXXXXXXXXX                                                                           |
| JAQUITH INDUSTRIES, INC.        | L-868 BASE<br>MULTI-<br>SECTION | IB    |       |      | A    |        | ACS40XXXXXXXXXX (bottom); AE54703M (middle);<br>AF50XXXX (top)                            |
| JAQUITH INDUSTRIES, INC.        | L-868 EXT                       | IB    |       |      | A    |        | AXS0XXXX                                                                                  |
| JAQUITH INDUSTRIES, INC.        | L-868 COVER<br>PLATE            | IB    |       |      | A    |        | AKS80XXXX                                                                                 |
| JAQUITH INDUSTRIES, INC.        | L-868 SPACER<br>RINGS           | IB    |       |      | A    |        | AFS0802XX; AFS0802XXY; ARS0821XX; ARS0821XXY; ARS0824                                     |
| JAQUITH INDUSTRIES, INC.        | L-868 BASE                      | IB    |       |      | B    |        | ACS24XXXXXXXXXX                                                                           |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                               | FAA type                        | CLASS | STYLE | MODE | SIZE | RATING | CAT NO.                                                                                                |
|-----------------------------------|---------------------------------|-------|-------|------|------|--------|--------------------------------------------------------------------------------------------------------|
| JAQUITH INDUSTRIES, INC.          | L-868 BASE<br>MULTI-<br>SECTION | IB    |       |      | B    |        | ACS44XXXXXXXXXX (bottom); AES4704M (middle);<br>AF52XXXX (top)                                         |
| JAQUITH INDUSTRIES, INC.          | L-868 EXT                       | IB    |       |      | B    |        | AXS2XXXX                                                                                               |
| JAQUITH INDUSTRIES, INC.          | L-868 COVER<br>PLATE            | IB    |       |      | B    |        | AKS40XXXX                                                                                              |
| JAQUITH INDUSTRIES, INC.          | L-868 BASE                      | IB    |       |      | C    |        | ACS35XXXXXXXXXX                                                                                        |
| JAQUITH INDUSTRIES, INC.          | L-868 BASE<br>MULTI-<br>SECTION | IB    |       |      | C    |        | ACS45XXXXXXXXXX (bottom); AES4705M (middle);<br>AF53XXXX (top)                                         |
| JAQUITH INDUSTRIES, INC.          | L-868 EXT                       | IB    |       |      | C    |        | AXS3XXXX                                                                                               |
| JAQUITH INDUSTRIES, INC.          | L-868 COVER<br>PLATE            | IB    |       |      | C    |        | AKS50XXXX                                                                                              |
| JAQUITH INDUSTRIES, INC.          | L-868 SPACER<br>RINGS           | IB    |       |      | C    |        | AF55502XX; AF55502XXY; AF55702XXY; ARS5511XX; ARS5521XX;<br>ARS5521XXY; ARS5524; ARS5721XX; ARS5721XXY |
| JAQUITH INDUSTRIES, INC.          | L-868 SPACER<br>RINGS           | IA    |       |      | A    |        | AF0802XX; AF0802XXY; AR0824; AR0821XX; AR0821XXY                                                       |
| JAQUITH INDUSTRIES, INC.          | L-868 SPACER<br>RINGS           | IA    |       |      | B    |        | AF5402XX; AF5402XXY; AR5411XX; AR5424; AR5421XX; AR5422XX;<br>AR5421XXY; AR5424AL                      |
| JAQUITH INDUSTRIES, INC.          | L-868 ADAPT<br>PLATE            | IA    |       |      | B    |        | AF543412; AA122820                                                                                     |
| JAQUITH INDUSTRIES, INC.          | L-868 SPACER<br>RINGS           | IA    |       |      | C    |        | AF5502XX; AF5502XXY; AF5702XXY; AR5511XX; AR5524; AR5521XX;<br>AR5521XXY; AR5721XX; AR5721XXY          |
| JAQUITH INDUSTRIES, INC.          | L-868 ADAPT<br>PLATE            | IA    |       |      | C    |        | AA251520MKE; AA251520; AA251220; AA251220CDE                                                           |
| MILLERBERND MANUFACTURING COMPANY | L-868 BASE                      | IB    |       |      | B    |        | 128CC(X)SS; 128CG(X)SS                                                                                 |
| MILLERBERND MANUFACTURING COMPANY | L-868 COVER<br>PLATE            | IB    |       |      | B    |        | 128L(X)SS                                                                                              |
| MILLERBERND MANUFACTURING COMPANY | L-868 SPACER<br>RINGS           | 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<br>PLATE            | IB    |       |      | C    |        | 158L(X)SS                                                                                              |
| MILLERBERND MANUFACTURING COMPANY | L-868 SPACER<br>RINGS           | IB    |       |      | C    |        | 158S(X)SS                                                                                              |
| MILLERBERND MANUFACTURING COMPANY | L-868 BASE<br>MULTI-<br>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<br>RING              | IA    |       |      | A    |        | 88CR                                                                                                   |
| MILLERBERND MANUFACTURING COMPANY | L-868 COVER<br>PLATE            | IA    |       |      | A    |        | 88L(X)                                                                                                 |
| MILLERBERND MANUFACTURING COMPANY | L-868 SPACER<br>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<br>RING              | IA    |       |      | B    |        | 128CR; 128A0125-8; 128TRD                                                                              |
| MILLERBERND MANUFACTURING COMPANY | L-868 COVER<br>PLATE            | IA    |       |      | B    |        | 128L(X)                                                                                                |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                                                                          | FAA type                 | CLASS | STYLE | MODE | SIZE | RATING | CAT NO.                                                                              |
|------------------------------------------------------------------------------|--------------------------|-------|-------|------|------|--------|--------------------------------------------------------------------------------------|
| 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                                                                      |
| MILLERBERND MANUFACTURING COMPANY                                            | L-868 Multi section      | IA    |       |      | B    |        | 128TS(X) Top                                                                         |
| NOVA GROUP INC.                                                              | L-868 Cover Plate        | IA    |       |      | C    |        | NGI-868.4                                                                            |
| NOVA GROUP INC.                                                              | L-868 Multi Section      | 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)                                                       |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                                                                         | FAA type | CLASS | STYLE                                                                              | MODE                                               | SIZE | RATING | CAT NO.                                                                                                                                           |
|-----------------------------------------------------------------------------|----------|-------|------------------------------------------------------------------------------------|----------------------------------------------------|------|--------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| AIRPORT LIGHTING COMPANY                                                    | L-880    | II    | B                                                                                  |                                                    |      |        | 880-C-2 (385);<br>880-C-2-3 (385)                                                                                                                 |
| AIRPORT LIGHTING COMPANY                                                    | L-880    | II    | A                                                                                  |                                                    |      |        | 88-0AX0X0 (958)                                                                                                                                   |
| AIRPORT LIGHTING COMPANY                                                    | L-880    | II    | B                                                                                  |                                                    |      |        | 88-0BX0X0 (958)                                                                                                                                   |
| 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-PO-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    | II    | A                                                                                  |                                                    |      |        | 88-1AX0X0 (958)                                                                                                                                   |
| AIRPORT LIGHTING COMPANY                                                    | L-881    | II    | B                                                                                  |                                                    |      |        | 88-1BX0X0 (958)                                                                                                                                   |
| AIRPORT LIGHTING COMPANY                                                    | L-881    | II    | A                                                                                  |                                                    |      |        | 881-V-2 (385);<br>881-V-2-3 (385)                                                                                                                 |
| AIRPORT LIGHTING COMPANY                                                    | L-881    | II    | B                                                                                  |                                                    |      |        | 881-C-2 (385):<br>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-PO-UM-12-0(883)                                                                                                                         |
| L-885 Lights, Flashing, Obstruction, Red, 60 FPM (FAA AC 150/5345-43J)      |          |       |                                                                                    |                                                    |      |        |                                                                                                                                                   |
| FLASH TECHNOLOGY LLC                                                        | L-885(L) |       |                                                                                    |                                                    |      |        | FTS 370d AC (893); FTS 370d 48VDC (893)                                                                                                           |
| FLASH TECHNOLOGY LLC                                                        | L-885(L) |       |                                                                                    |                                                    |      |        | FTS 371 SMART AC (892); FTS 371 SMART 48VDC (892)<br>FTS 371 SMART DC (-)48V (892);<br>FTS 371 SMART 24VDC (892)<br>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);<br>50-2013-X00 (924)                                                                                                           |
| INTERNATIONAL TOWER LIGHTING, 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<br>MONITORING; C-<br>ADVANCED MONITORING;<br>D-SMGCS READY | A-PRESET<br>FAILSAFE; B-<br>LAST STATE<br>FAILSAFE |      |        | MONITORING (A, B, C, D): ALCMS-AY; ALCMS-BY;<br>ALCMS-CY; ALCMS-DY; FAIL SAFE: (A, B): ALCMS-XA;<br>ALCMS-XB                                      |
| AIRPORT LIGHTING COMPANY                                                    | L-890    |       | A-CONTROL ONLY; B-BASIC                                                            | A-PRESET<br>FAILSAFE                               |      |        | Monitoring Options: CONTROL ONLY(A):CMS-A-A;<br>BASIC (B)-CMS-B-A;<br>FAIL-SAFE OPTIONS: PRESET(A) CMS-A-A; CMS-B-A                               |
| CROUSE HINDS AIRPORT LIGHTING PRODUCTS                                      | L-890    |       | A-CONTROL ONLY; B-BASIC<br>MONITORING; C-<br>ADVANCED MONITORING;<br>D-SMGCS READY | A-PRESET<br>FAILSAFE; B-<br>LAST STATE<br>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<br>MONITORING; C-<br>ADVANCED MONITORING;<br>D-SMGCS READY | A-PRESET<br>FAILSAFE; B-<br>LAST STATE<br>FAILSAFE |      |        | Monitoring A,B,C,D : LMGR LS-L-890AX; LMGR LS-L-890BX; LMGR LS-L-<br>890CX; LMGR LS-L-890DX<br>FAIL-SAFE (A,B) LMGR LS-L-890XA; LMGR LS-L-890XB   |
| HONEYWELL INTERNATIONAL INC.                                                | L-890    |       | A-CONTROL ONLY; B-BASIC<br>MONITORING; C-<br>ADVANCED MONITORING;<br>D-SMGCS READY | A-PRESET<br>FAILSAFE; B-<br>LAST STATE<br>FAILSAFE |      |        | MONITORING (A,B,C,D): LMGR-L-890AX; LMGR-L-890BX; LMGR-L-<br>890DX;<br>FAIL-SAFE (A,B) : LMGR-L-L890XA; LMGR-L-890XB                              |
| MC SOLUTIONS SRL                                                            | L-890    |       | A-CONTROL ONLY; B-BASIC<br>MONITORING; C-<br>ADVANCED MONITORING;<br>D-SMGCS READY | A-PRESET<br>FAILSAFE; B-<br>LAST STATE<br>FAILSAFE |      |        | MIA-L1, MIA-L2, MIA-L3, MIA-L4, MIA-L4A, MIA-L4B                                                                                                  |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| MFG                                                                                 | FAA type | CLASS | STYLE                                                                    | MODE                                     | SIZE | RATING    | CAT NO.                                                                                                                                                                                                                        |
|-------------------------------------------------------------------------------------|----------|-------|--------------------------------------------------------------------------|------------------------------------------|------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| RURAL ELECTRIC INC.                                                                 | L-890    |       | A-CONTROL ONLY; B-BASIC MONITORING; C-ADVANCED MONITORING                | A-PRESET FAILSAFE; B-LAST STATE FAILSAFE |      |           | MONITORING OPTIONS: CONTROL ONLY(A): L-890-A-A; L-890-A-B<br>BASIC(B): L-890-B-A; L-890-B-B<br>ADVANCED(C) - L-890-C-A; L-890-C-B<br>FAIL-SAFE OPTIONS: PRESET(A): L-890-A-A; L-890-B-A<br>LAST STATE(B): L-890-A-B; L-890-B-B |
| 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                                                                                                                                                                                                                        |
| 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    |       |                                                                          |                                          |      |           | RCM-D (649)                                                                                                                                                                                                                    |
| 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    | IA    | L-867B                                                                   |                                          | 2"   |           | AP1832G                                                                                                                                                                                                                        |
| JAQUITH INDUSTRIES, INC.                                                            | L-894    | IA    | L-867B                                                                   |                                          | 1.5" |           | AP1835G                                                                                                                                                                                                                        |
| JAQUITH INDUSTRIES, INC.                                                            | L-894    | IA    | L-867D                                                                   |                                          | 2"   |           | AP2832G                                                                                                                                                                                                                        |
| JAQUITH INDUSTRIES, INC.                                                            | L-894    | IA    | L-867D                                                                   |                                          | 1.5" |           | AP2835G                                                                                                                                                                                                                        |
| JAQUITH INDUSTRIES, INC.                                                            | L-894    | IA    | L-867B                                                                   |                                          | 2"   |           | AP1932G                                                                                                                                                                                                                        |
| JAQUITH INDUSTRIES, INC.                                                            | L-894    | IA    | L-867B                                                                   |                                          | 1.5" |           | AP1935G                                                                                                                                                                                                                        |
| JAQUITH INDUSTRIES, INC.                                                            | L-894    | IA    | L-867D                                                                   |                                          | 2"   |           | AP2932G                                                                                                                                                                                                                        |
| JAQUITH INDUSTRIES, INC.                                                            | L-894    | IA    | 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    | IA    |                                                                          |                                          | 2"   |           | AW2202                                                                                                                                                                                                                         |
| JAQUITH INDUSTRIES, INC.                                                            | L-895    | IA    |                                                                          |                                          | 1.5" |           | AW2205                                                                                                                                                                                                                         |
|                                                                                     |          |       |                                                                          |                                          |      |           |                                                                                                                                                                                                                                |
|                                                                                     |          |       |                                                                          |                                          |      |           |                                                                                                                                                                                                                                |

Any run way fixture listed above that uses a LED lighting source may not be compatible with Enhanced Flight Vision Systems that use IR energy emissions for imaging.  
(L) Indicates LED fixture IR element present is not tested nor certified under this program as to compatible with any night vision equipment.

| LAMP | DESIGNATION         | WATTS | VOLTS | AMPS | Lamp Manufacturer        |
|------|---------------------|-------|-------|------|--------------------------|
| 10A  | 6.6A/T10/1P         | 30    |       | 6.6  | GE                       |
| 11A  | 6.6A/T10/P          | 45    |       | 6.6  | GE                       |
| 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                       |
| 32B  | 116A21/TS           | 116   | 120   |      | Philips                  |
| 32C  | 116A21/TS           | 116   | 130   |      | Philips                  |
| 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                    |
| 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         |

| LAMP | DESIGNATION                                   | WATTS | VOLTS   | AMPS | Lamp Manufacturer                   |
|------|-----------------------------------------------|-------|---------|------|-------------------------------------|
| 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                               |
| 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<br>LUXEON REBEL<br>40LUMEN RED | LED   |         |      | AUSTIN INSULATORS                   |
| 412  | D1RW1018 RED &<br>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<br>WHITE                     | LED   |         |      | ADB SAFEGATE AMERICAS, LLC          |
| 419  | 44A6950/1X0 6 EA<br>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<br>GREEN                      | LED   |         |      | ADB SAFEGATE AMERICAS, LLC          |
| 423  | 0100-3866 RED                                 | LED   |         |      | HALI-BRITE                          |
| 426  | 48A0415-TYLV 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                          |

| LAMP | DESIGNATION                        | WATTS | VOLTS   | AMPS | Lamp Manufacturer          |
|------|------------------------------------|-------|---------|------|----------------------------|
| 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 |
| 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                        |

| LAMP | DESIGNATION                      | WATTS | VOLTS | AMPS | Lamp Manufacturer                      |
|------|----------------------------------|-------|-------|------|----------------------------------------|
| 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<br>PHILIPS        | LED   |       |      | QUANTEC                                |
| 510  | 1370135                          | LED   |       |      | FLASH TECHNOLOGY                       |
| 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<br>TECHNOLOGY |
| 526  | D1RW-1019 DUAL                   | LED   |       |      | DIALIGHT                               |
| 527  | D1RW-1020 DUAL                   | LED   |       |      | DIALIGHT                               |
| 528  | SafeLED-TE-E-O-B-NPS-<br>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           |
| 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-OLTE-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 |

| LAMP | DESIGNATION                                 | WATTS | VOLTS   | AMPS | Lamp Manufacturer                               |
|------|---------------------------------------------|-------|---------|------|-------------------------------------------------|
| 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<br>LED LEFT             | LED   |         | 6.6  | atg                                             |
| 614  | IRIS200-LED55 WHITE<br>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<br>ADB SAFEGATE AMERICAS, LLC |
| 621  | NSL.8L.RC.S.R                               | LED   |         | 6.6  | ADB SAFEGATE BVBA<br>ADB SAFEGATE AMERICAS, LLC |
| 622  | LMP-OLTE-300-IR                             | LED   |         |      | ITL                                             |
| 623  | 44A7479 1100-3 White<br>& 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                                             |

| LAMP | DESIGNATION               | WATTS | VOLTS   | AMPS | Lamp Manufacturer          |
|------|---------------------------|-------|---------|------|----------------------------|
| 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<br>ORGA               |
| 646  | XQE RED                   | LED   | 120     |      | ORGA<br>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           |
| 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 |

| LAMP | DESIGNATION                            | WATTS | VOLTS | AMPS | Lamp Manufacturer                               |
|------|----------------------------------------|-------|-------|------|-------------------------------------------------|
| 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;<br>SG18415WW1               | LED   |       | 6.6  | ADB SAFEGATE BVBA                               |
| 687  | SG18416WY1;SG18471<br>Y4;SG18416WY1    | LED   |       | 6.6  | ADB SAFEGATE BVBA                               |
| 688  | SG18417WR1;<br>SG18470W5;<br>SG18472R7 | LED   |       | 6.6  | ADB SAFEGATE BVBA                               |
| 689  | SG18432YR1;<br>SG18471Y4;<br>SG18472R7 | LED   |       | 6.6  | ADB SAFEGATE BVBA                               |
| 690  | NSL.12L.RC.S.W                         | LED   |       | 6.6  | ADB SAFEGATE BVBA<br>ADB SAFEGATE AMERICAS, LLC |
| 691  | SG18500R2                              | LED   |       | 6.6  | ADB SAFEGATE BVBA                               |
| 692  | NSL.12L.RE.C.W1                        | LED   |       | 6.6  | ADB SAFEGATE BVBA<br>ADB SAFEGATE AMERICAS, LLC |
| 693  | NSL.12L.RE.C.R1                        | LED   |       | 6.6  | ADB SAFEGATE BVBA<br>ADB SAFEGATE AMERICAS, LLC |
| 694  | NSL.12L.RE.C.F2                        | LED   |       | 6.6  | ADB SAFEGATE BVBA<br>ADB SAFEGATE AMERICAS, LLC |
| 695  | NSL.12L.RE.C.Y2                        | LED   |       | 6.6  | ADB SAFEGATE BVBA<br>ADB SAFEGATE AMERICAS, LLC |
| 696  | NSL.12L.RE.C.W2                        | LED   |       | 6.6  | ADB SAFEGATE BVBA<br>ADB SAFEGATE AMERICAS, LLC |
| 697  | NSL.12L.RE.C.R2                        | LED   |       | 6.6  | ADB SAFEGATE BVBA<br>ADB SAFEGATE AMERICAS, LLC |
| 698  | NSL.12L.RE.C.F2                        | LED   |       | 6.6  | ADB SAFEGATE BVBA<br>ADB SAFEGATE AMERICAS, LLC |
| 699  | NSL.12L.RE.C.Y2                        | LED   |       | 6.6  | ADB SAFEGATE BVBA<br>ADB SAFEGATE AMERICAS, LLC |
| 700  | NSL.12L.RN.S.R                         | LED   |       | 6.6  | ADB SAFEGATE BVBA<br>ADB SAFEGATE AMERICAS, LLC |
| 701  | NSL.12L.RT.L.F.F                       | LED   |       | 6.6  | ADB SAFEGATE BVBA<br>ADB SAFEGATE AMERICAS, LLC |

| LAMP | DESIGNATION             | WATTS | VOLTS | AMPS | Lamp Manufacturer                               |
|------|-------------------------|-------|-------|------|-------------------------------------------------|
| 703  | NSL.12L.RT.R.F.F        | LED   |       | 6.6  | ADB SAFEGATE BVBA<br>ADB SAFEGATE AMERICAS, LLC |
| 704  | NSL.12L.RT.R.F.F        | LED   |       | 6.6  | ADB SAFEGATE BVBA<br>ADB SAFEGATE AMERICAS, LLC |
| 705  | GN 45W EXM 6.6A         | 45    |       | 6.6  | HUGHEY & PHILLIPS                               |
| 706  | GN 45W EXM 6.6A<br>T10P | 45    |       | 6.6  | HUGHEY & PHILLIPS                               |
| 707  | GN 30W EXM 6.6A         | 30    |       | 6.6  | HUGHEY & PHILLIPS                               |
| 708  | GN 30W EXM 6.6A<br>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<br>ADB SAFEGATE AMERICAS, LLC |
| 715  | NSL.8L.SB.S.R           | LED   |       | 6.6  | ADB SAFEGATE BVBA<br>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<br>ADB SAFEGATE AMERICAS, LLC |
| 719  | NSL.12L.SB.S.R          | LED   |       | 6.6  | ADB SAFEGATE BVBA<br>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<br>ADB SAFEGATE AMERICAS, LLC |
| 722  | NSL.12L.TC.N.Y          | LED   |       | 6.6  | ADB SAFEGATE BVBA<br>ADB SAFEGATE AMERICAS, LLC |
| 723  | NSL.8L.TC.N.F           | LED   |       | 6.6  | ADB SAFEGATE BVBA<br>ADB SAFEGATE AMERICAS, LLC |
| 724  | NSL.12L.TC.N.F          | LED   |       | 6.6  | ADB SAFEGATE BVBA<br>ADB SAFEGATE AMERICAS, LLC |
| 725  | 101Q                    | 45    |       | 6.6  | AIRPORT LIGHTING CO                             |
| 726  | NSL.8L.TC.D.Y           | LED   |       | 6.6  | ADB SAFEGATE BVBA<br>ADB SAFEGATE AMERICAS, LLC |
| 727  | NSL.12L.TC.D.Y          | LED   |       | 6.6  | ADB SAFEGATE BVBA<br>ADB SAFEGATE AMERICAS, LLC |
| 728  | NSL.8L.TC.D.F           | LED   |       | 6.6  | ADB SAFEGATE BVBA<br>ADB SAFEGATE AMERICAS, LLC |
| 729  | NSL.12L.TC.D.F          | LED   |       | 6.6  | ADB SAFEGATE BVBA<br>ADB SAFEGATE AMERICAS, LLC |
| 730  | SG18646R10              | LED   |       | 6.6  | ADB SAFEGATE BVBA                               |

| LAMP | DESIGNATION        | WATTS | VOLTS   | AMPS | Lamp Manufacturer                               |
|------|--------------------|-------|---------|------|-------------------------------------------------|
| 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          |
| 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<br>ADB SAFEGATE AMERICAS, LLC |

| LAMP | DESIGNATION                            | WATTS | VOLTS   | AMPS | Lamp Manufacturer                               |
|------|----------------------------------------|-------|---------|------|-------------------------------------------------|
| 767  | NSL.8L.TC.R.F                          | LED   |         | 6.6  | ADB SAFEGATE BVBA<br>ADB SAFEGATE AMERICAS, LLC |
| 768  | NSL.8L.TC.L.Y                          | LED   |         | 6.6  | ADB SAFEGATE BVBA<br>ADB SAFEGATE AMERICAS, LLC |
| 769  | NSL.8L.TC.R.Y                          | LED   |         | 6.6  | ADB SAFEGATE BVBA<br>ADB SAFEGATE AMERICAS, LLC |
| 770  | 1371012                                | LED   | 48      |      | FLASH TECHNOLOGY                                |
| 771  | 1371011                                | LED   | 24      |      | FLASH TECHNOLOGY                                |
| 772  | 1593.15.670 AD-light<br>TWY GREEN LED  | LED   |         |      | ADB SAFEGATE BVBA                               |
| 773  | 1593.15.660 AD-light<br>TWY YELLOW LED | LED   |         |      | ADB SAFEGATE BVBA                               |
| 774  | AT996                                  | LED   |         |      | ATG AIRPORTS LTD.                               |
| 775  | ITL-1710-ENG                           | 50    | 120-240 |      | INTERNATIONAL TOWER LIGHTING,<br>LLC            |
| 776  | ITL-1700-ENG-IR                        | 50    | 120-240 |      | INTERNATIONAL TOWER LIGHTING,<br>LLC            |
| 777  | ITL-1710-ENG-IR                        | 50    | 120-240 |      | INTERNATIONAL TOWER LIGHTING,<br>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<br>ADB SAFEGATE AMERICAS, LLC |
| 782  | NSL.12L.TC.C.F1                        | LED   |         |      | ADB SAFEGATE BVBA<br>ADB SAFEGATE AMERICAS, LLC |
| 783  | NSL.12L.TC.C.Y2                        | LED   |         |      | ADB SAFEGATE BVBA<br>ADB SAFEGATE AMERICAS, LLC |
| 784  | NSL.12L.TC.C.Y1                        | LED   |         |      | ADB SAFEGATE BVBA<br>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                                |

| LAMP | DESIGNATION                                                    | WATTS | VOLTS | AMPS | Lamp Manufacturer          |
|------|----------------------------------------------------------------|-------|-------|------|----------------------------|
| 799  | A3-06-3161-004;<br>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;<br>PL11199L-WH;<br>PL111099R-WHR<br>PL11199L-WHR; | LED   |       |      | POINT LIGHTING             |
| 803  | PL11199R-WH;<br>PPL11199L-WH;<br>PL11199R-WHW;<br>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 |
| 821  | PCA-1412-REV1                                                  | LED   |       |      | AVLITE                     |
| 822  | A3-06-3185-001                                                 | LED   |       |      | ASTRONICS DME              |
| 823  | A3-06-3185-002 RED<br>LED without arctic kit                   | LED   |       |      | ASTRONICS DME              |
| 824  | A3-06-3185-003 GREEN<br>LED without arctic kit                 | LED   |       |      | ASTRONICS DME              |
| 825  | A3-06-3185-004 WHITE<br>LED without arctic kit                 | LED   |       |      | ASTRONICS DME              |
| 826  | A3-06-3185-005<br>YELLOW LED with arctic<br>kit                | LED   |       |      | ASTRONICS DME              |

| LAMP | DESIGNATION                              | WATTS | VOLTS      | AMPS  | Lamp Manufacturer                               |
|------|------------------------------------------|-------|------------|-------|-------------------------------------------------|
| 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<br>ADB SAFEGATE AMERICAS, LLC |
| 850  | NSL.12L.RZ.SLR.W                         | LED   |            | 6.6   | ADB SAFEGATE BVBA<br>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.                       |
| 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<br>EQUIPMENT INC       |
| 858  | 48A0443-GRN-300                          | LED   |            |       | ADB SAFEGATE AMERICAS, LLC                      |

| LAMP | DESIGNATION           | WATTS | VOLTS      | AMPS    | Lamp Manufacturer                       |
|------|-----------------------|-------|------------|---------|-----------------------------------------|
| 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/XXXXXX0XX        | 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              |
| 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                   |

| LAMP | DESIGNATION           | WATTS | VOLTS | AMPS | Lamp Manufacturer                                  |
|------|-----------------------|-------|-------|------|----------------------------------------------------|
| E100 | F1380880              | LED   |       |      | Flash Technology                                   |
| 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<br>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  | LFHMMWRO-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.                                   |
| 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<br>Equipment inc. |
| 927  | 62-3X30               | LED   |       |      | Airporting Lighting Company                        |
| 928  | 62-3X31               | LED   |       |      | Airporting Lighting Company                        |
| 929  | 62-3X32               | LED   |       |      | Airporting Lighting Company                        |

| LAMP | DESIGNATION      | WATTS | VOLTS | AMPS | Lamp Manufacturer                               |
|------|------------------|-------|-------|------|-------------------------------------------------|
| 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                       |
| 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                       |

| LAMP | DESIGNATION                        | WATTS | VOLTS | AMPS | Lamp Manufacturer                                  |
|------|------------------------------------|-------|-------|------|----------------------------------------------------|
| 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<br>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<br>Equipment inc. |
| 994  | 111-503L2                          | LED   |       |      | Youyang Airport Lighting Airport<br>Equipment inc. |
| 995  | 111-503N3                          | LED   |       |      | Youyang Airport Lighting Airport<br>Equipment inc. |
| 996  | 111-503M4                          | LED   |       |      | Youyang Airport Lighting Airport<br>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.                                  |
| 1002 | PL11492-R, PL11495-DC              | LED   |       |      | Point Lighting Corporation                         |
| 1006 | PL11594-RW                         | LED   |       |      | Point Lighting Corporation                         |

| Certified Airport Lighting Equipment Manufacturers                                                                                                   | North American Rep                                                                                                                                                                           |
|------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ABB</b><br>12 Southland Road<br>Ormond Beach, FL 32174                                                                                            |                                                                                                                                                                                              |
| <b>ADB Safegate Americas, LLC</b><br>700 Science Blvd.<br>Columbus, OH 43230<br>Tel: (614) 861 -1304                                                 |                                                                                                                                                                                              |
| <b>ADB Safegate BV</b><br>Leuvensesteenweg 585<br>B 1930 Zaventem<br>Belgium<br>Tel: (032) 2 722 17 11                                               | <b>ADB Safegate Americas, LLC</b><br>977 Gahanna Pkwy<br>PO Box 30829<br>Columbus, OH 43230-0829<br>Tel: (614) 861 -1304                                                                     |
| <b>AGM Airfield Guidancesign Mfrs Inc</b><br>108 Fairgrounds Dr. Suite 8<br>Manlius, NY 13104<br>Tel: (315) 682-6707<br>Fax: (315) 682-6758          |                                                                                                                                                                                              |
| <b>Airport Lighting Company</b><br>108 Fairgrounds Dr.<br>Manlius, NY 13104<br>Tel: (315) 682-6460<br>Fax: (315) 682-6469                            |                                                                                                                                                                                              |
| <b>Airport Lighting Equipment Inc</b><br>208 H Street<br>Rupert, ID 83350<br>Tel (208) 436-0513<br>Fax (208) 436-3492                                |                                                                                                                                                                                              |
| <b>Airsafe Airport Equipment Co Ltd</b><br>Room 27AB Dongtai Bldg<br>No 309 Tanggu Rd<br>Shanghai 200080 PRC                                         | <b>Kwon HyoSup</b><br>13974 Rockland Village Dr #302<br>Chantilly, VA 20151<br>Tel (703) 980-0157                                                                                            |
| <b>atg airports ltd</b><br>Lowton Business Park Newton Road<br>Lowton St.Mary's Warrington, UK WA3 2AP<br>Tel: 44 1942 685555<br>Fax: 44 1942 685518 | <b>ATG Airports Inc.</b><br>7857 Drew Circle #11<br>Fort Myers, FL33967<br>Tel: (239) 985-9406<br>Fax: (239) 985-9435<br><a href="http://www.atgairports.com">http://www.atgairports.com</a> |
| <b>Augier SAS</b><br>1 ere avenue, n°2243<br>Carros, France 06513<br>Tel: +33 4 92086200                                                             | <b>Multi Electric Mfg. Inc.</b><br>4223-43 West Lake Street<br>Chicago, IL. 60624                                                                                                            |
| <b>Avlite Systems</b><br>11 Industrial Drive<br>Somerville, Victoria<br>3912 Australia<br>Tel: 61 0 3 5977 6128                                      | <b>Sealite USA LLC (dba Avlite Systems)</b><br>61 Business Park Drive<br>Tilton, NH 03276<br>Tel (603) 737-1310                                                                              |

| Certified Airport Lighting Equipment Manufacturers                                                                                                                                                    | North American Rep                                                                                                                                                                      |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Bildal Electricals Pvt Ltd</b><br>Plot No. 152, Udyog Kendra Extn II,<br>Ecotech III, Greater Noida 201306, India<br>+91 981 101 3857<br>+91 987 370 0840<br>bildal@airfieldlight.in               | <b>Dean Technologies Inc</b><br>4117 Billy Mitchell Dr, Addison, TX<br>75001, United States +1 972-248-7691<br>rmaharaj@hvca.com                                                        |
| <b>BrightPortal Resources, LLC</b><br>1410 Counrty Road<br>Blanco TX 78606<br>Tel-979-270-1655<br>www.brightportalresourecs.com                                                                       |                                                                                                                                                                                         |
| <b>Conductores Monterrey S.A. de C.V/ Viakon</b><br>Avenue Conductores No. 505 Ote<br>Col. Constituyentes de Queretaro<br>San Nicholas de Los Garza<br>Nuevo Leon 66493 Mexico<br>Tel: 5281 8030 8053 |                                                                                                                                                                                         |
| <b>Control Industries Inc</b><br>614 Central Ave<br>Findlay, OH 45840<br>Tel: (419)800-0129                                                                                                           |                                                                                                                                                                                         |
| <b>Controlled Power, Inc.</b><br>17909 Bothell Everett Hwy SE<br>Suite 102<br>Bothell, WA 98012<br>Tel: (425) 485 1778<br>Fax: (425) 485 0658<br>www.controlledpowerinc.com                           |                                                                                                                                                                                         |
| <b>Crouse-Hinds Airport Lighting Products</b><br>1200 Kennedy Road<br>Windsor, Connecticut 06095<br>Tel: (860) 683-4300                                                                               |                                                                                                                                                                                         |
| <b>Dialight Corporation</b><br>1501 Rt. 34 South<br>Farmingdale, NJ 07727<br>Tel: (732)-919-3119<br>Fax: (732)-751-5778<br>www.dialight.com                                                           |                                                                                                                                                                                         |
| <b>EFLA Oy</b><br>Kipinatie 3<br>06150 Porvoo, Finland<br>Tel: 358 (0) 204 76 2367<br>www.efla.net                                                                                                    | <b>LED Airport Lighting Inc.</b><br>Melanie Prada<br>305-790-6157<br>5245 NW 36th St., Ste 217<br>Miami Springs, FL 33166<br>sales@ledairportlighting.com<br>www.ledairportlighting.com |

| Certified Airport Lighting Equipment Manufacturers                                                                                                           | North American Rep                                                                                                              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| <b>Flash Technology LLC</b><br>332 Nichol Mill Lane<br>Franklin, TN 37067<br>Tel: (615) 503-2000<br>Fax: (615) 261-2600                                      |                                                                                                                                 |
| <b>Flexstake Inc.</b><br>2150 Andrea Lane<br>Fort Myers, FL 33912<br>Tel (941) 481-3539                                                                      |                                                                                                                                 |
| <b>Flight Light, Inc.</b><br>2708 47th Ave<br>Sacramento, CA 95822<br><a href="http://www.flightlight.com">http://www.flightlight.com</a>                    |                                                                                                                                 |
| <b>Hali-Brite, Inc.</b><br>925 First Street SW<br>Crosby, MN 56441<br>Tel: (800) 553-6269<br><a href="http://www.halibrite.com">http://www.halibrite.com</a> |                                                                                                                                 |
| <b>Honeywell</b><br>715 Peachtree St NE<br>Atlanta, GA 30308<br>Tel +1 (847) 391-3223                                                                        |                                                                                                                                 |
| <b>Honeywell International, Inc.</b><br>715 Peachtree St NE<br>Atlanta, GA 30308<br>Tel +1 (847) 391-3223                                                    |                                                                                                                                 |
| <b>Hughey &amp; Phillips, LLC</b><br>240 W Twain Ave<br>Urbana, OH 43078<br>Tel: (937)-652-3500<br>Fax: (937) 652 3508                                       |                                                                                                                                 |
| <b>International Tower Lighting, LLC</b><br>1001 Centre Pointe Drive, Suite A<br>La Vergne, TN 37086 USA                                                     |                                                                                                                                 |
| <b>Jaquith Industries Inc.</b><br>600 East Brighton Avenue<br>P.O. Box 780<br>Syracuse, New York 13205<br>Tel (315) 478-5700                                 |                                                                                                                                 |
| <b>Kukdong Electric Wire Co., Ltd a NEXANS company</b><br>29-23 Yongjeong-Gil<br>Chopyeong-Myeon<br>Jincheon-Gun<br>Chungcheongbuk-Do<br>Seoul, South Korea  | <b>Nexans AmerCable Service Center</b><br>182 Milburn Drive<br>Tooele, Utah 84074<br>Tel: (866) 337-0803<br>Fax: (435) 843-9136 |

| Certified Airport Lighting Equipment Manufacturers                                                                                                                                                                                       | North American Rep                                                                                                                                            |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>MC SOLUTIONS SRL</b><br>VIA VAL D'OSSOLA 12/14<br>VIMERCATE, ITALY 20871<br>+39 039 66.69.93<br>www.mc-solutions.it                                                                                                                   | <b>Marcos Costilla Aviation Consulting Group, LLC</b><br>501<br>Clariden Ranch Rd Southlake TX<br>76092 mcostilla@mcacg.us                                    |
| <b>Millerbernd Manufacturing Company</b><br>622 6th Street South<br>Winsted, MN 55395                                                                                                                                                    |                                                                                                                                                               |
| <b>Monroe Integro LLC</b><br>30 Peter Court<br>New Britain, Connecticut 06051<br>Tel: (860) 832-8960<br>Fax: (860) 832-8965<br>www.Integro-USA.com                                                                                       |                                                                                                                                                               |
| <b>Multi-Electric Manufacturing, Inc</b><br>4223-43 West Lake Street<br>Chicago, Illinois 60624<br>Tel: (773) 722-1900<br>Fax: (773) 722-5694                                                                                            |                                                                                                                                                               |
| <b>Nehring Electrical Works Company</b><br>PO Box 965<br>813 East Locust Street<br>De Kalb, IL 60115<br>Tel: (800) 435-4481<br>Fax: (815) 756-7048<br>www.info@nehringwire.com                                                           |                                                                                                                                                               |
| <b>Nova Group Inc.</b><br>185 Delvin Road<br>NAPA, CA 94558<br>Tel: (707) 265-1100<br>www.novagrp.com                                                                                                                                    |                                                                                                                                                               |
| <b>OBSTA</b><br>2, rue Troyon<br>92316 Sevres France<br>Tel: 33 1 41 23 50 10                                                                                                                                                            | <b>OBSTA</b><br>10108 USA Today Way<br>Miramar, FL 33025<br>Tel: (954) 430 6310<br>(800) 248-3548<br>Fax: (954)-430-7785<br>www.obsta.us<br>1pecourt@obsta.us |
| <b>OCEM Airfield Technology</b><br><b>a division of Energy Technology S.r.l.</b><br>Via Della Solidarieta 2/1<br>40056 Valsamoggia Localita Crespellano<br>Bologna Italy<br>Tel: 39 051 665 6611<br>Fax: 39 051 665 6099<br>www.ocem.com | <b>Multi Electric Mfg Inc.</b><br>4223-43 West Lake St<br>Chicago, IL 60624                                                                                   |

| Certified Airport Lighting Equipment Manufacturers                                                                                                                                                  | North American Rep                                                                                                                                                                       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Orga B.V.</b><br>Strickledeweg 13<br>3125 At Schiedam<br>The Netherlands<br>Tel: (011) 31 10 415 0333<br>Fax: (011) 31 10 437 8445                                                               | <b>Orga Manufacturing Inc.</b><br>PO Box 5719<br>Kingwood, TX 77325<br>Tel: (281) 358-2544<br>Fax: (281) 358-0788                                                                        |
| <b>Point Lighting Corporation</b><br>P.O. Box 686<br>Simsbury, Connecticut 06070<br>Tel: (860) 243-0600, (800) 900-0433<br>Fax: (860) 243-0665                                                      |                                                                                                                                                                                          |
| <b>Pollite LTD</b><br>38 Borough Rd<br>Darlington DL1 1SW<br>UK<br>Tel: 44 1325 355433                                                                                                              | Robert R Caggiano<br>45 Clarken Dr<br>West Orange, NJ 07052<br>Tel (973) 271-8431                                                                                                        |
| <b>Prysmian Power Cables and Systems USA, LLC</b><br>4 Tesseneer Dr<br>Highland Heights, KY 41076<br>Tel: (859)-572-8000<br><a href="https://na.prysmiangroup.com">https://na.prysmiangroup.com</a> |                                                                                                                                                                                          |
| <b>Quantec Networks GmbH</b><br>Rieselwiese 1<br>38690 Vienenburg<br>GERMANY                                                                                                                        | <b>Einpart LLC</b> 204<br>Valley Lane, Suite B, Kennedale, TX<br>76060                                                                                                                   |
| <b>Rural Electric Inc.</b><br>9502 E Main St<br>Mesa, AZ 85207<br>Tel: (480) 986-1488<br>Fax: (480) 984-0319<br><a href="http://ruralelectric.com/">http://ruralelectric.com/</a>                   |                                                                                                                                                                                          |
| <b>Saudi International Co. (SAINTCO)</b><br>Alkhomrah Industrial Area - Alkaramah Scheme 21442,<br>Kingdom of Saudi Arabia<br><a href="http://www.saint-sa.com">www.saint-sa.com</a>                | <b>JIR Ventures</b><br>Address: 4927 Evening Moon Ln, Katy TX<br>77449.<br>Tel No.: +1 832-874-826.<br>Email: <a href="mailto:b.jiroudy@jirventures.com">b.jiroudy@jirventures.com</a> . |
| <b>Sealite USA LLC bd/a Avlite Systems</b><br>61 Business Park Drive<br>Tilton, New Hampshire 03276<br><a href="https://www.sealite.com/united-states/">https://www.sealite.com/united-states/</a>  |                                                                                                                                                                                          |
| <b>Servicios Condumex S.A. de C.V.</b><br>Carr. Constitución a S.L.P. km 9.6<br>Parque Industrial Jurica<br>Querétaro, México 76127                                                                 | Alex Sanchez<br><a href="mailto:alex@condumex.com">alex@condumex.com</a>                                                                                                                 |

| Certified Airport Lighting Equipment Manufacturers                                                                                                                                        | North American Rep                                                                                                                                                                                                                                    |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Sherwin Industries, Inc.</b><br>2129 W. Morgan Avenue<br>Milwaukee, WI 53221<br>Tel: (414) 281-6400<br><a href="https://sherwinindustriesinc.com">https://sherwinindustriesinc.com</a> |                                                                                                                                                                                                                                                       |
| <b>Southwire Co.</b><br>One Southwire Dr.<br>Carrollton, GA 30119<br>Tel: (770) 832-5092                                                                                                  |                                                                                                                                                                                                                                                       |
| <b>Standard Signs Inc</b><br>9115 Freeway Drive<br>Macedonia, OH 44056<br>Tel: (330) 467-2030<br>Fax: (330)-467 2076                                                                      |                                                                                                                                                                                                                                                       |
| <b>Strobe Approach Lighting Technology</b><br>108 Fairgrounds Drive<br>Manlius, NY 13104<br>Tel: 603 598 4100<br>Fax 603 598 4198                                                         |                                                                                                                                                                                                                                                       |
| <b>Technostrobe</b><br>65 Herbert O'Connell<br>Coteau-du-Lac QC<br>J10P 1B0 Canada<br>Tel: 450 763 2097                                                                                   |                                                                                                                                                                                                                                                       |
| <b>The Okonite Company</b><br>102 Hilltop Road<br>PO Box 340<br>Ramsey, NJ 07445<br>Tel: (201) 825 0300<br>Fax: (201) 327 0273                                                            |                                                                                                                                                                                                                                                       |
| <b>TKH Airport Solutions A/S</b><br>Kobenhavnsvej 1<br>Nykobing Falster, Denmark 4800                                                                                                     | <b>ParkAssist</b><br>57 W 38th Street, 11th Floor<br>New York, NY 10018, USA<br><br>Contact Person:<br>Gary Neff, CEO<br><a href="mailto:NA@parkassist.com">NA@parkassist.com</a><br>+1 917-793-5400 (8am – 5pm EST)                                  |
| <b>TWR Lighting, Inc.</b><br>10810 West Little York Road<br>Suite 130<br>Houston, TX 77041                                                                                                |                                                                                                                                                                                                                                                       |
| <b>Unika Universal Kablo Sanayi ve Tic A.S.</b><br>Velikoy Sanai Bolgesi<br>Sanayi Mah 3 Cadde No. 4<br>Velikoy Gerkezkoy<br>Tekirdag, Turkey 59550                                       | <b>Eutex International, Inc.</b><br>Contact Person: Nick Mair (Operations Director)<br>3409 Brinkman Houston, TX, 77018<br>Tel: (832) 358 1177<br>Fax: (832) 358 1165<br><a href="http://www.eutex.international.com">www.eutex.international.com</a> |

| Certified Airport Lighting Equipment Manufacturers                                                                                                                                                                                  | North American Rep                                                                                         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| <b>Unimar Inc.</b><br>3195 Vickery Rd<br>N Syracuse, NY 13212<br>Tel: (315) 699-4400<br>Fax: (315) 699-3700                                                                                                                         |                                                                                                            |
| <b>Untel Kablolari San ve Tic A.S.</b><br>Makine O.S.B. 6.CAD No = 4<br>Dilovasi-Gebze<br>Kocaeli, Turkey 41455<br>Tel +90 262 722 93 30                                                                                            | <b>Summit Electric Supply</b><br>Ed Dowey<br>621 Time Saver Ave<br>Harahan, LA 70123<br>Tel (888) 326 5174 |
| <b>Valley Illuminators</b><br>PO Box 64095<br>Tacoma, Washington 98464<br>Tel (253) 833-3016<br>Fax (253) 735-5414<br><a href="http://www.valleyilluminators.com">www.valleyilluminators.com</a>                                    |                                                                                                            |
| <b>Valtir, LLC</b><br>15601 Dallas Parkway<br>Addison, TX 75001<br>Tel (312)705-8436                                                                                                                                                |                                                                                                            |
| <b>WANCO, INC.</b><br>5870 Tennyson Street<br>Arvada, CO 80003<br>Tel 800-972-0755<br><a href="http://www.wanco.com">www.wanco.com</a>                                                                                              |                                                                                                            |
| <b>Youyang Airport Lighting Equipment Inc.</b><br>738-2, Kwanyang-dong, Dongan-gu,<br>Anyang-si, Gyeonggi-do, Korea 431-060<br>Tel 82 31 422-0021<br>Fax 82 31 424-6044<br><a href="http://www.youyang.co.kr">www.youyang.co.kr</a> | <b>Pantree Co.</b><br>9 Perryville<br>Irvine, CA 92620<br>Tel: (714) 544-1194<br>Tel: (714) 544-1074       |

June 29, 2023

Andrea Weckmueller-Behringer, City Manager  
16 W 9<sup>th</sup> St.  
Shawnee, Oklahoma 74801

Re: Recommendation of Award  
Improve Airport Drainage  
(AIP No. 3-40-0088-025-2023)  
(OAC SNL-24-FS)

Dear Ms. Weckmueller-Behringer:

We have completed tabulating and analyzing the bids for the above referenced project. As you are aware, one (1) bid was received and Tri City Seal Co., Inc. was the apparent low bidder. A review of the bid was completed and the prices were deemed to be fair and reasonable and under the engineer's opinion of probable costs. We feel the project bidding phase was competitive. In addition, we feel that the proposed amount and respective unit prices submitted by Tri City Seal Co., Inc. represent a fair and reasonable price for the project.

We have reviewed the references provided by Tri City Seal Co., Inc. and contacted several of them by phone. The references noted that Tri City Seal Co., Inc. were able to complete work on schedule, provided quality work, and no major issues are known to have occurred during or after a project they completed. We have also verified that they are an approved DBE to perform in the State of Oklahoma. Therefore, we recommend the City of Shawnee enter into a contract **contingent on grant funding** with the apparent low bidder, Tri City Seal Co., Inc., in the amount of \$635,775.00 for the work associated with Base Bid.

Sincerely,

**H. W. LOCHNER, INC.**



**Patrick Barnas, PE**  
Project Manager, Aviation

## TABULATION OF BIDS

SHAWNEE REGIONAL AIRPORT  
CITY OF SHAWNEE, OKLAHOMA

**BASE BID**  
**IMPROVE AIRPORT DRAINAGE**

FAA PROJECT NO. 3-40-0088-025-2023



Bids Received: 6/20/2023  
Lochner Project No.: 15710

Bids Tabulated By: DMG  
Date: 6/21/2023  
Bids Checked By: RAG

Date: 6/23/2023

Page: 1 of 1

|                                            |           |                                                                                 |               | Engineer's Estimate |               | Tri City Seal Co., Inc.<br>P.O. Box 775<br>Tuttle, OK 73089 |               |
|--------------------------------------------|-----------|---------------------------------------------------------------------------------|---------------|---------------------|---------------|-------------------------------------------------------------|---------------|
| Item No.                                   | Spec. No. | ITEM DESCRIPTION                                                                | Quantity Unit | Unit Price          | Total Price   | Unit Price                                                  | Total Price   |
| <b>BASE BID - IMPROVE AIRPORT DRAINAGE</b> |           |                                                                                 |               |                     |               |                                                             |               |
| 1                                          | TEMP      | Temporary Marking, Lighting & Barricades                                        | 1 L.S.        | \$ 40,000.00        | \$ 40,000.00  | \$ 10,000.00                                                | \$ 10,000.00  |
| 2                                          | C-102     | Temporary Erosion Control                                                       | 1 L.S.        | \$ 25,000.00        | \$ 25,000.00  | \$ 34,000.00                                                | \$ 34,000.00  |
| 3                                          | C-105     | Mobilization (NTE 10% of Total Bid Amount)                                      | 1 L.S.        | \$ 55,000.00        | \$ 55,000.00  | \$ 60,000.00                                                | \$ 60,000.00  |
| 4                                          | P-101     | Remove Inlets/Manholes                                                          | 3 EA.         | \$ 5,000.00         | \$ 15,000.00  | \$ 2,300.00                                                 | \$ 6,900.00   |
| 5                                          | P-101     | Remove 18" Storm Pipe                                                           | 8 L.F.        | \$ 1,000.00         | \$ 8,000.00   | \$ 600.00                                                   | \$ 4,800.00   |
| 6                                          | P-101     | Remove 24" Storm Pipe                                                           | 8 L.F.        | \$ 1,500.00         | \$ 12,000.00  | \$ 600.00                                                   | \$ 4,800.00   |
| 7                                          | P-101     | Remove 60" Storm Pipe                                                           | 16 L.F.       | \$ 3,000.00         | \$ 48,000.00  | \$ 600.00                                                   | \$ 9,600.00   |
| 8                                          | P-101     | Plug 8" Storm Sewer Pipe                                                        | 75 L.F.       | \$ 100.00           | \$ 7,500.00   | \$ 75.00                                                    | \$ 5,625.00   |
| 9                                          | P-101     | Plug 18" Storm Sewer Pipe                                                       | 100 L.F.      | \$ 150.00           | \$ 15,000.00  | \$ 70.00                                                    | \$ 7,000.00   |
| 10                                         | P-101     | Plug 30" Storm Sewer Pipe                                                       | 50 L.F.       | \$ 200.00           | \$ 10,000.00  | \$ 130.00                                                   | \$ 6,500.00   |
| 11                                         | P-101     | Clean End Section                                                               | 16 EA.        | \$ 500.00           | \$ 8,000.00   | \$ 1,500.00                                                 | \$ 24,000.00  |
| 12                                         | P-101     | Clean Headwall                                                                  | 7 EA.         | \$ 500.00           | \$ 3,500.00   | \$ 4,800.00                                                 | \$ 33,600.00  |
| 13                                         | P-101     | Flush and Clean Storm Sewer Pipe                                                | 5,720 L.F.    | \$ 18.00            | \$ 102,960.00 | \$ 11.00                                                    | \$ 62,920.00  |
| 14                                         | P-101     | Rehabilitate Storm Structure                                                    | 17 EA.        | \$ 5,500.00         | \$ 93,500.00  | \$ 4,000.00                                                 | \$ 68,000.00  |
| 15                                         | P-101     | Storm Pipe Camera Inspection                                                    | 2,950 L.F.    | \$ 25.00            | \$ 73,750.00  | \$ 5.00                                                     | \$ 14,750.00  |
| 16                                         | P-151     | Clearing and Grubbing                                                           | 2.2 AC        | \$ 15,000.00        | \$ 33,000.00  | \$ 22,000.00                                                | \$ 48,400.00  |
| 17                                         | P-152     | Unclassified Excavation                                                         | 735 C.Y.      | \$ 20.00            | \$ 14,700.00  | \$ 137.00                                                   | \$ 100,695.00 |
| 18                                         | D-701     | 18" RCP (Class 3)                                                               | 8 L.F.        | \$ 150.00           | \$ 1,200.00   | \$ 300.00                                                   | \$ 2,400.00   |
| 19                                         | D-701     | 24" RCP (Class 3)                                                               | 8 L.F.        | \$ 200.00           | \$ 1,600.00   | \$ 400.00                                                   | \$ 3,200.00   |
| 20                                         | D-701     | 60" RCP (Class 3)                                                               | 16 L.F.       | \$ 500.00           | \$ 8,000.00   | \$ 450.00                                                   | \$ 7,200.00   |
| 21                                         | D-701     | 24" RCP End Section                                                             | 1 EA.         | \$ 5,000.00         | \$ 5,000.00   | \$ 1,900.00                                                 | \$ 1,900.00   |
| 22                                         | D-751     | 5' x 5' Grate Inlet                                                             | 1 EA.         | \$ 20,000.00        | \$ 20,000.00  | \$ 20,000.00                                                | \$ 20,000.00  |
| 23                                         | D-751     | 9' x 5' Grate Inlet                                                             | 1 EA.         | \$ 50,000.00        | \$ 50,000.00  | \$ 30,000.00                                                | \$ 30,000.00  |
| 24                                         | T-904     | Sodding                                                                         | 3,975 S.Y.    | \$ 15.00            | \$ 59,625.00  | \$ 9.00                                                     | \$ 35,775.00  |
| 25                                         | --        | Furnish and Install Solar Powered LED Taxiway Centerline Light (FAA Ineligible) | 242 EA.       | \$ 120.00           | \$ 29,040.00  | \$ 130.00                                                   | \$ 31,460.00  |
| 26                                         | --        | Furnish Solar Powered LED Taxiway Centerline Light (FAA Ineligible)             | 25 EA.        | \$ 80.00            | \$ 2,000.00   | \$ 90.00                                                    | \$ 2,250.00   |
| Base Bid Total (FAA Eligible)              |           |                                                                                 |               |                     | \$ 710,335.00 |                                                             | \$ 602,065.00 |
| Base Bid Total (FAA Ineligible)            |           |                                                                                 |               |                     | \$ 31,040.00  |                                                             | \$ 33,710.00  |
| Base Bid Total (FAA Eligible & Ineligible) |           |                                                                                 |               |                     | \$ 741,375.00 |                                                             | \$ 635,775.00 |

OKCPRJ00001571003 - Drainage Improvements001 - Project#AE04 - ESTIMATE & BUDGET(Master-PayItems (15710).xlsx)BID TAB



**Airport**  
2202 N. Airport Dr.  
Shawnee, OK 74804  
ShawneeOK.org

**Date:** July 17, 2023  
**To:** Shawnee Airport Authority  
**From:** Bonnie Wilson, Airport Manager  
**Subject:** Consideration of a proposal to provide Engineering Services in support of Oklahoma Aeronautics Commission (OAC) Project SNL-24-FS Pavement Condition Rating (PCR) Report - Shawnee Regional Airport.

**Background:** At the July 15, 2019, Regular Meeting, the Shawnee Airport Authority (SAA) accepted and approved the recommendation of staff to award a contract for general engineering services to H.W. Lochner, Inc. (Lochner) based on a review of Statements of Qualifications. Staff is seeking authorization to execute an Addendum to that agreement for professional engineering services in support of a Pavement Condition Rating (PCR) study on the runway, taxiways, taxilanes and apron at the Shawnee Regional Airport for a lump sum fee of \$53,400. The scope of the work of the amendment includes:

1. Coordination with the SAA and the Oklahoma Aeronautics Commission (OAC) regarding Project scope, schedule, and budget.
2. Grant preparation and administration.
3. Prepare geotechnical investigation Scope of Services and Subconsultant Agreement.
4. Conduct site visit for visual evaluation of airfield pavements.
5. Develop Pavement Condition Rating for airfield pavements (Runway 17-35, Parallel Taxiway, Connecting Taxiways, Hangar Taxilane and Apron).
6. Prepare narrative report summarizing findings of pavement evaluation and priorities.
7. Prepare airfield pavement condition map.
8. Submit Preliminary and Final Engineer's Report with consideration of preliminary review comments and submit the Report to the Shawnee Airport Authority and the Oklahoma Aeronautics Commission.

Fees for services will be supported by an Oklahoma Aeronautics Commission grant in the amount of \$50,730, and funds provided by Shawnee Airport Authority in the amount of \$2,670.

Execution of the amendment will be contingent on receipt of grant funds.

**Financial Impact:** Reimbursement of up to \$50,730 in State Grant Revenues deposited in Shawnee Airport Authority Account - 511-41020; Capital Outlay Buildings and Improvements Expense 511-5-0120-54200 \$53,400

**Attachments:** 03 - Lochner Agreement - PCR Study Agreement

**Staff Recommendation:** Authorize execution of the amendment contingent on receipt of grant funding

## **TASK ORDER (05) AGREEMENT (the “Agreement”)**

Owner: City of Shawnee, Oklahoma

Client: Shawnee Regional Airport (SNL)

Consultant: **H.W. Lochner, Inc. (“Lochner”)**

Date: \_\_\_\_\_

Referenced Master-On-Call (MOC) Agreement: **City of Shawnee – 5-Year MOC Agreement Dated July 15, 2019.**

Task Order Project: **Task Order 05 – Conduct assessment of pavements by determination of Pavement Condition Rating (PCR) at the Shawnee Regional Airport (SNL).**

Lochner and the Client (collectively, the “Parties” and individually, a “Party”) agree as follows:

**1. Task Order Agreement.** This Agreement is a contract between Lochner and the Client for Lochner to perform planning services outlining the scope, schedule and fee on the Project. This Task Order assumes the terms and conditions of the above referenced MOC Agreement.

### **ARTICLE I SCOPE OF SERVICES**

WHEREAS, the Owner has agreed to employ the Consultant to perform geotechnical and visual investigations to produce an engineering report providing a summary of the Pavement Condition Ratings of the airfield pavements. The Consultant will assist the Sponsor with administrative services, and coordination with the FAA, hereinafter, the “Project,” for the Shawnee Regional Airport (SNL), Shawnee, OK and the Sponsor has agreed to employ the Consultant to perform the services required to complete the Project.

All services will be performed in accordance with good engineering practice and applicable published design criteria of the FAA, primarily FAA Advisory Circulars (current version as of the date of this Agreement).

- AC 150/5320-6 *“Airport Pavement Design and Evaluation”*
- AC 150/5320-17 *“Airfield Pavement Surface Evaluation and Rating Manuals”*
- AC 150/5335-5D *“Standardized Method of Reporting Airport Pavement Strength – PCR”*

The following is a detailed description of the specific engineering services that are a duty of this Agreement.

#### **A. BASIC SERVICES**

##### **1. Preliminary Phase**

- a. Coordination with the Sponsor and OAC regarding Project scope, schedule, and budget.

- b. Prepare geotechnical investigation Scope of Services and Subconsultant Agreement.

## 2. Design Phase – Engineer’s Report

- a. Conduct site visit for visual evaluation of airfield pavements. *Sponsor to provide record drawings of any past pavement projects if available that they may have on file.*
- b. Develop Pavement Condition Rating for airfield pavements (Runway 17-35, Parallel Taxiway, Connecting Taxiways, Hangar Taxilane and Apron).
- c. Prepare narrative report summarizing findings of pavement evaluation and priorities.
- d. Prepare airfield pavement condition map.
- e. Submit Preliminary Engineer’s Report PDF copies will be submitted electronically with hard copies provided upon request. (This submittal will be considered the 90% complete project submittal.)
- f. Finalize Engineer’s Report with consideration of preliminary review comments and submit Final Engineer’s Report to the Owner and OAC.

## B. **SPECIAL SERVICES**

### 1. Administrative Assistance

- a. Prepare OAC grant application and assist Sponsor in submission of forms to the OAC.
- b. Assist the Sponsor in preparation of Invoice Summary forms as required for requests for reimbursement.
- c. Prepare documents for closeout of OAC grant and assist Sponsor in submission of forms to the OAC.

### 2. Geotechnical Investigation

- a. Representative Sites Core and Bore Schedule.
  - i. Runway 17-35 – 5 Cores/Bores (Asphalt Pavement)
  - ii. Connecting Taxiways – 5 Cores/Bores (Asphalt Pavement)
  - iii. Parallel Taxiway – 3 Cores/Bores (Asphalt Pavement)
  - iv. Aprons – 2 Cores/Bores (Asphalt Pavement on Concrete)
  - v. Taxilane – 2 Core/Bore (Asphalt Pavement)
- b. Coring Procedures – With a 4-inch diameter core barrel, evaluate the thickness of the existing pavement sections and provide access to the subgrade materials. If aggregate base courses are encountered below the pavements, the thickness of the aggregate bases will be measured and recorded per the thickness of each section.
- c. Boring Procedures – A drill rig equipped with continuous flight augers will be used to extend the borings through the subgrade materials to a depth of 5 feet. Sampling will be in accordance with standard procedures. Composite samples of the most representative soil type will be collected at each bore.

- d. Laboratory Testing – The samples will be tested in the laboratory to determine physical engineering characteristics. Testing will be performed under the direction of a geotechnical engineer and will include visual classification and one California Bearing Ratio (CBR) test will be performed on the bulk composite sample obtained from the auger cuttings within each bore.
- e. Engineering Analysis and Report -The results of the field and laboratory programs will be evaluated by a professional geotechnical engineer licensed in the State of Oklahoma. Based on the results of the evaluation, an engineering report will be prepared that details the results of the testing performed, provides logs of the borings, and a diagram of the site/boring layout. The report will include the following:
  - i. Computer generated boring logs with soil stratification based on visual soil classification.
  - ii. Summarized laboratory data.
  - iii. Core Measurements
  - iv. CBR results
  - v. Groundwater levels observed during and after completion drilling.
  - vi. Coring/Boring location plan.
  - vii. Subsurface exploration procedures.
  - viii. Encountered soils conditions.
  - ix. Geologic Information.
  - x. Existing pavement, base, and subgrade information.

**C. CONSTRUCTION SERVICES – N/A**

**ARTICLE II  
TIME SCHEDULE**

The Consultant agrees to proceed with the services immediately upon receipt of a written Notice to Proceed (NTP) by the Owner, and to employ such personnel as required to complete the Scope of Services in accordance with the following time schedule:

**SCHEDULED PERFORMANCE IN CALENDAR DAYS**

**A. BASIC SERVICES**

1. Preliminary Phase ..... As Required
2. Design Phase – Engineer’s Report
  - f. Submit Preliminary Engineer’s Report ..... 90 Calendar Days  
After Receipt of Geotechnical Investigation Report
  - g. Submit Final Engineer’s Report ..... 30 Calendar Days After  
Receipt of Review Comments for Item A.2.f.)

**B. SPECIAL SERVICES**

1. Administrative Assistance ..... As Required
2. Geotechnical Investigation
  - a. Starting of Geotechnical Investigation Field Work ..... 28 Calendar Days  
After Receipt of Notice to Proceed
  - b-c. Geotechnical Investigation Field Work ..... 4 Calendar Days
  - e. Geotechnical Investigation Report ..... 45 Calendar Days  
After Completion of Field Work

**C. CONSTRUCTION SERVICES – N/A**

The schedule presented above does not include review time by the Owner and OAC or other interested agencies.

**ARTICLE III  
COMPENSATION**

The Owner agrees to compensate the Consultant for performing engineering services as described herein on the following basis:

**COMPENSATION SCHEDULE**

**A. BASIC SERVICES**

|                                           |                              |
|-------------------------------------------|------------------------------|
| 1. Preliminary Phase .....                | \$ 4,400.00 Lump Sum         |
| 2. Design Phase – Engineer’s Report ..... | <u>\$ 32,900.00 Lump Sum</u> |
| Subtotal Basic Services                   | \$37,300.00 Lump Sum         |

**B. SPECIAL SERVICES**

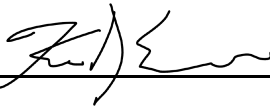
|                                         |                              |
|-----------------------------------------|------------------------------|
| 1. Administrative Assistance .....      | \$ 4,500.00 Lump Sum         |
| 2. Geotechnical Investigation .....     | <u>\$ 11,600.00 Lump Sum</u> |
| Subtotal Special Services               | \$ 16,100.00 Lump Sum        |
| <b>TOTAL BASIC AND SPECIAL SERVICES</b> | <b>\$ 53,400.00 LUMP SUM</b> |

**C. CONSTRUCTION SERVICES – N/A**

The Consultant shall not proceed with the services described herein until written authorization in the form of a Notice to Proceed is received from the Owner.

**H.W. LOCHNER, INC.**

**SHAWNEE REGIONAL AIRPORT**

By: 

By: \_\_\_\_\_

Title: Vice President

Title: \_\_\_\_\_

Date: 5/30/2023

Date: \_\_\_\_\_

# DERIVATION OF CONSULTANT PROJECT COSTS

## BASIC AND SPECIAL SERVICES

Shawnee Regional Airport Pavement Classification Rating (PCR)

SHAWNEE REGIONAL AIRPORT  
SHAWNEE, OKLAHOMA

May 25, 2023

### 1. DIRECT SALARY COSTS:

| <u>TITLE</u>               | <u>HOURS</u> | <u>RATE/HOUR</u> | <u>COST (\$)</u> |
|----------------------------|--------------|------------------|------------------|
| Principal                  | 3            | \$75.00          | \$ 225.00        |
| Project Manager            | 36           | \$65.00          | \$ 2,340.00      |
| Senior Electrical Engineer | 0            | \$65.00          | \$ -             |
| Senior Design Engineer     | 101          | \$50.00          | \$ 5,050.00      |
| Design Engineer            | 29           | \$42.00          | \$ 1,218.00      |
| Senior Airport Planner     | 4            | \$43.00          | \$ 172.00        |
| Environmental Scientist    | 0            | \$40.00          | \$ -             |
| Engineer Intern            | 126          | \$32.00          | \$ 4,032.00      |
| Design Technician          | 44           | \$27.00          | \$ 1,188.00      |
| Administrative Assistant   | 17           | \$23.00          | \$ 391.00        |

Total Direct Salary Costs = \$ 14,616.00

### 2. OVERHEAD, ADMINISTRATIVE EXPENSES, AND PROFIT MULTIPLIER:

Overhead, Administrative Expenses, and Profit Multiplier per Article IV and Attachment "A" - Lochner 2020 Compensation Rates in Five-Year Master On-Call Agreement dated July 15, 2019

3.01

### 3. CONTRACT MULTIPLIER APPLIED TO DIRECT LABOR:

Items 1 and 2 = \$ 43,994.16

### 4. OUT-OF-POCKET EXPENSES:

|                             |     |                        |           |
|-----------------------------|-----|------------------------|-----------|
| a. Mileage                  | 180 | miles @ \$0.655/mile = | \$ 117.90 |
| b. Meals                    | 2   | @ \$59.00/day =        | \$ 118.00 |
| c. Motel                    | 0   | days @ \$113.00/day =  | \$ -      |
| d. Mailing & Misc. Expenses |     | =                      | \$ 159.19 |

Total Out-of-Pocket Expenses = \$ 395.09

### 5. SUBCONTRACT COST:

a. Geotechnical Investigation \$ 9,010.75

### 6. TOTAL FEE:

Items 3, 4 and 5 \$ 53,400.00



**Airport**  
2202 N. Airport Dr.  
Shawnee, OK 74804  
ShawneeOK.org

**Date:** July 17, 2023  
**To:** Shawnee Airport Authority  
**From:** Bonnie Wilson, Airport Manager  
**Subject:** Consideration of a proposal to provide Engineering Services in support of Oklahoma Aeronautics Commission (OAC) Project SNL-24-FS Terminal Area Plan - Shawnee Regional Airport.

**Background:** At the July 15, 2019, Regular Meeting, the Shawnee Airport Authority (SAA) accepted and approved the recommendation of staff to award a contract for general engineering services to H.W. Lochner, Inc. (Lochner) based on a review of Statements of Qualifications. Staff is seeking authorization to execute an Addendum to that agreement for professional engineering services in support of a Terminal Area Development Plan for a lump sum of \$60,700. The scope of services includes:

1. Creation of a development plan reflective of forecasted needs and use over a twenty-year period in coordination with the SAA and the Oklahoma Aeronautics Commission (OAC).
2. Create conceptual Development Plan Alternatives for the Southeast Development Area (minimum of three, maximum of five), to include recommendations for capital development projects and associated costs for:
  - a. Aircraft Hangars
  - b. Auto Parking
  - c. Airport Access
  - d. Aircraft Apron
  - e. Support Facilities
  - f. Land Use(s)
  - g. Utilities
3. Create conceptual Development Plan Alternatives for the Terminal Area (minimum of two, maximum of three), to include recommendations for capital development projects and associated costs for:
  - a. Terminal Building
  - b. Aircraft Hangars
  - c. Auto Parking
  - d. Aircraft Apron
  - e. Fuel Farm System
  - f. Utilities
4. Update the Shawnee Regional Airport's Airport Layout Plan (ALP) for submission to, and approval by, the Federal Aviation Administration.

Fees for services will be supported by an Oklahoma Aeronautics Commission grant in the amount of \$57,665, and funds provided by Shawnee Airport Authority in the amount of \$3,035.

Execution of the amendment will be contingent on receipt of grant funds.

**Financial Impact:** Reimbursement of up to \$57,665 in State Grant Revenues deposited in Shawnee Airport Authority Account - 511-41020; Capital Outlay  
Buildings and Improvements Expense 511-5-0120-54200 \$60,700

**Attachments:** 04 - Lochner Agreement - SNL Terminal Area Plan

**Staff Recommendation:** Authorize execution of the amendment contingent on receipt of grant funding

## **TASK ORDER (06) AGREEMENT (the “Agreement”)**

Owner: City of Shawnee, Oklahoma

Client: Shawnee Regional Airport (SNL)

Consultant: **H.W. Lochner, Inc. (“Lochner”)**

Date:

Referenced Master-On-Call (MOC) Agreement: **City of Shawnee – 5-Year MOC Agreement Dated July 15, 2019.**

Task Order Project: **Task Order 06 – Terminal Area Plan at Shawnee Regional Airport (SNL).**

Lochner and the Client (collectively, the “Parties” and individually, a “Party”) agree as follows:

1. **Task Order Agreement.** This Agreement is a contract between Lochner and the Client for Lochner to perform planning services outlining the scope, schedule and fee on the Project. This Task Order assumes the terms and conditions of the above referenced MOC Agreement.

### **Article I Scope of Services**

WHEREAS, the Owner has agreed to employ the Consultant to provide the aviation planning services required for conducting a Terminal Area Plan, hereinafter, the “Project,” for the Shawnee Regional Airport (SNL), Shawnee, OK and the Sponsor has agreed to employ the Consultant to perform the services required to complete the Project.

All services will be performed in accordance with good engineering practice and applicable published design criteria of the FAA, primarily FAA Advisory Circulars and Southwest Region Guidance publications.

- SOP No. 2.00 “*Standard Procedure for FAA Review and Approval of Airport Layout Plans (ALPs)*” date 010/01/2013
- AC 150/5300-13B “*Airport Design,*” dated 03/31/2022
- AC 150/5070-6B “*Airport Master Plans*” dated 07/29/2005

The following is a detailed description of the specific Planning services that are a duty of this Agreement.

#### **A. PRELIMINARY SERVICES**

##### **PROJECT FORMULATION**

- a. Coordinate with Owner and The Oklahoma Aeronautical Commission (OAC) regarding Project scope, schedule, and budget.
- b. Establish Planning fee and prepare agreement.

## **B. TERMINAL AREA PLAN**

### **ELEMENT 1 – TERMINAL AREA PLAN DRAWINGS**

The terminal area facility needs will be depicted in the conceptualization of development alternatives located at the 1) southeast corner of the airport (minimum of three, maximum of five), and 2) the main terminal area (minimum of two, maximum of three). These development options will be reviewed by the Sponsor and OAC and will encompass size, square footage, locations, accommodations, siting, and configurations of the following terminal area facilities. The Consultant will incorporate revisions based on comments from the Sponsor and the OAC.

#### Southeast Development Area

- a. Aircraft Hangars
- b. Auto Parking
- c. Airport Access
- d. Aircraft Apron
- e. Support Facilities
- f. Land Use (s)
- g. Utilities

#### Terminal Area

- a. Terminal Building
- b. Aircraft Hangars
- c. Auto Parking
- d. Aircraft Apron
- e. Fuel Farm System
- f. Utilities

The Consultant will update the Sponsor's Airport Layout Drawing to reflect the Preferred Development. The Preferred Development will be the development option that is chosen by the Sponsor with input from the OAC and Consultant.

### **ELEMENT 2 – PROJECT COORDINATION AND MANAGEMENT**

The Consultant will coordinate with the Sponsor and OAC throughout the course of the Project. The Consultant will conduct up to on (1) in person meeting and will provide meeting arrangements and notices. The Consultant will conduct any briefings, arrange the facility, prepare notices, prepare sign-in materials, and prepare written responses to questions regarding the Project's findings and recommendations.

### **ELEMENT 3 – DEVELOPMENT COST ESTIMATES**

The Terminal Area Plan will include the compilation of recommended capital improvement development projects, as well as their associated probable costs. The cost estimates will be based upon current dollar value without consideration being given to inflation in later development years. Facility development and construction cost estimates will be generated based upon unit prices that correspond to the breadth and size of the particular capital improvement.

### **ELEMENT 4 - DELIVERABLES**

On the basis of forecast need and the airport facility requirements established in preceding elements, preliminary development concepts will be created. Drawings and cost estimates will be electronically delivered. Each concept will be based on schemes for development within existing or expanded airport boundaries and will show development during the 20-year planning period.

## **ARTICLE II TIME SCHEDULE**

The Consultant agrees to proceed with the services immediately upon receipt of a written Notice to Proceed (NTP) by the Owner, and to employ such personnel as required to complete the Scope of Services in accordance with the following time schedule:

**SCHEDULED PERFORMANCE IN CALENDAR DAYS**

- A. Preliminary Services.....As Required  
B. Terminal Area Plan ..... 120 Days after NTP

The schedule presented above does not include review time by the Owner, FAA or other interested agencies.

**ARTICLE III  
COMPENSATION**

The Owner agrees to compensate the Consultant for performing engineering services as described herein on the following basis:

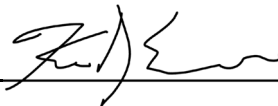
**COMPENSATION SCHEDULE**

- A. Preliminary Services..... \$2,300 Lump Sum  
B. Terminal Area Plan..... \$45,800 Lump Sum  
C. Project Coordination ..... \$5,800 Lump Sum  
E. Development Cost Estimates ..... \$5,700 Lump Sum  
F. Deliverables ..... \$1,100 Lump Sum  
**Total Compensation ..... \$60,700 Lump Sum**

The Consultant shall not proceed with the services described herein until written authorization in the form of a Notice to Proceed is received from the Owner.

**H.W. LOCHNER, INC.**

**CITY OF SHAWNEE, OKLAHOMA**

By:   
Title: Vice President  
Date: 5/30/2023

By: \_\_\_\_\_  
Title: \_\_\_\_\_  
Date: \_\_\_\_\_

# DERIVATION OF CONSULTANT PROJECT COSTS

## TERMINAL AREA PLAN

### SHAWNEE REGIONAL AIRPORT (SNL) SHAWNEE, OK

#### AVIATION PLANNING SERVICES

May 22, 2023

#### 1. DIRECT SALARY COSTS:

| <u>TITLE</u>            | <u>HOURS</u> | <u>RATE/HOUR</u> | <u>COST (\$)</u> |
|-------------------------|--------------|------------------|------------------|
| Principal               | 19           | \$ 75.00         | \$ 1,425.00      |
| Project Manager         | 70           | \$ 65.00         | \$ 4,550.00      |
| Senior Design Engineer  | 0            | \$ 50.00         | \$ -             |
| Design Engineer         | 112          | \$ 42.00         | \$ 4,704.00      |
| Senior Airport Planner  | 188          | \$ 43.00         | \$ 8,084.00      |
| Environmental Scientist | 0            | \$ 40.00         | \$ -             |
| Design Technician       | 44           | \$ 27.00         | \$ 1,188.00      |
| Administrative Asst.    | 4            | \$ 23.00         | \$ 92.00         |

Total Direct Salary Costs = \$ 20,043.00

#### 2. OVERHEAD ADMINISTRATIVE EXPENSES, AND PROFIT MULTIPLIER:

Overhead, Administrative Expenses, and Profit Multiplier per Article IV  
and Attachment "A" - Lochner 2020 Compensation Rates in Five-Year  
Master On-Call Agreement dated July 15, 2019

3.01

3. CONTRACT MULTIPLIER APPLIED TO DIRECT LABOR = \$ 60,329.43

#### 4. OUT-OF-POCKET EXPENSES:

|                             |    |                       |           |
|-----------------------------|----|-----------------------|-----------|
| a. Mileage                  | 88 | miles @ \$0.65/mile = | \$ 57.64  |
| b. Meals                    | 2  | @ \$59.00/day =       | \$ 118.00 |
| c. Motel                    | 0  | days @ \$108.00/day = | \$ -      |
| d. Mailing & Misc. Expenses |    | =                     | \$ 194.93 |

Total Out-of-Pocket Expenses = \$ 370.57

5. TOTAL COST (ITEMS 3 AND 4): \$ 60,700.00



**Airport**  
2202 N. Airport Dr.  
Shawnee, OK 74804  
ShawneeOK.org

**Date:** July 17, 2023  
**To:** Shawnee Airport Authority  
**From:** Bonnie Wilson, Airport Manager  
**Subject:** Consideration of a resolution accepting a grant offer from the U.S. Department of Transportation Federal Aviation Administration (FAA) for the Improve Airport Drainage Project No. 3-40-0088-025-2023 for the Shawnee Regional Airport.

**Background:** The Federal Aviation Administration (FAA) provides grants to airports under the Airport Improvement Program (AIP). Staff is seeking authorization to apply for a grant in the amount of \$504,378, to address the cost of construction in support of the construction phase of a project to repair and improve the airport storm drainage system.

In order to ensure timely response to the grant offer, staff is seeking authorization for the City Manager to accept and execute any grant offers received from the FAA to secure funds for the project.

**Financial Impact:** Reimbursement of up to \$504,378, in Federal Grant Revenues, 511-41010

**Attachments:** Grant Resolution for AIP - Construction Costs

**Staff Recommendation:** Approval of the item

RESOLUTION NO. SAA-2023- \_\_\_\_\_

A RESOLUTION ACCEPTING A GRANT OFFER FROM THE U.S. DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION (FAA) FOR THE IMPROVE AIRPORT DRAINAGE PROJECT NO. 3-40-0088-025-2023 FOR THE SHAWNEE REGIONAL AIRPORT.

WHEREAS, the U.S. Department of Transportation Federal Aviation Administration (FAA) program offers assistance to airports through its Airport Improvement Program (AIP); and

WHEREAS, the FAA will provide \$504,378, in AIP funds which represent seventy-nine percent (79%) of the cost of construction for the project; and

WHEREAS, the City of Shawnee will provide \$65,120, in local funds which represent ten percent (10%) of the cost of construction for the project; and

WHEREAS, the City of Shawnee has procured general contracting and construction services from Tri City Seal Co., Inc., in accordance with FAA terms; and

WHEREAS, Tri City Seal Co., Inc., will provide general contracting and construction services, in accordance with FAA rules and regulations; and

WHEREAS, the Federal Aviation Administration has approved the scope of the Improve Airport Drainage Design for the Shawnee Regional Airport, in accordance with FAA rules and regulations by way of Grant Agreement No. 3-40-0088-025-2023.

WHEREAS, the City of Shawnee has granted authority to the City Manager to sign and accept the Grant Offer from the Federal Aviation Administration in the Mayor's absence.

NOW, THEREFORE, Be It Resolved by the Shawnee Airport Authority, of the State of Oklahoma, Pottawatomie County, that the Grant Offer from the Federal Aviation Administration be hereby accepted.

Passed and approved this \_\_ day of \_\_\_\_\_, 2023.

\_\_\_\_\_  
ED BOLT, MAYOR

ATTEST:

\_\_\_\_\_  
LISA LASYONE, CMC, CITY CLERK



**Airport**  
2202 N. Airport Dr.  
Shawnee, OK 74804  
ShawneeOK.org

**Date:** July 17, 2023  
**To:** Shawnee Airport Authority  
**From:** Bonnie Wilson, Airport Manager  
**Subject:** Consideration of a resolution accepting a grant offer from the State of Oklahoma Aeronautics Commission (OAC) for the Improve Drainage and Install Solar Powered LED Taxiway Centerline Lights; Pavement Condition Rating (PCR) Study; and Terminal Area Plan - OAC Project Number SNL-24-FS for the Shawnee Regional Airport.

**Background:** The Oklahoma Aeronautics Commission (OAC) provides grants to airports to support airport capital development and planning projects. Staff is seeking authorization to apply for a grant in the amount of \$325,626, to address the cost of engineering and construction services in support of Federal Aviation Administration regulations regarding engineering services and construction and planning projects.

1. Independent Fee Estimate Review (FAA regulatory requirement for grant funded projects)
2. Construction phase of a project to repair and improve the airport storm drainage system, and to install Solar Powered LED Taxiway Centerline Lights.
3. Engineering services to conduct a Pavement Condition Rating (PCR) Study.
4. Engineering services to develop a Terminal Area Plan for future development at the Shawnee Regional Airport.

In order to ensure timely response to the grant offer, staff is seeking authorization for the City Manager to accept and execute any grant offers received from the OAC to secure funds for these projects.

**Financial Impact:** Reimbursement of up to \$325,626 in State Grant Revenues, 511-41020

**Attachments:** Grant Resolution for OAC Grant Storm Water PCR and Terminal Plan

**Staff Recommendation:** Approval of the item

RESOLUTION NO. SAA-2023- \_\_\_\_\_

A RESOLUTION ACCEPTING A GRANT OFFER FROM THE OKLAHOMA AERONAUTICS COMMISSION (OAC) FOR THE IMPROVE AIRPORT DRAINAGE AND INSTALL SOLAR POWERED LED TAXIWAY CENTERLINE LIGHTS; PAVEMENT CONDITION RATING (PCR) STUDY, AND TERMINAL AREA PLAN - OAC PROJECT NO. SNL-24-FS FOR THE SHAWNEE REGIONAL AIRPORT.

WHEREAS, the Oklahoma Aeronautics Commission offers financial assistance to airports through its Airport Improvement Grant program; and

WHEREAS, the Oklahoma Aeronautics Commission will provide \$66,277 in grant funds which represent ten percent (10%) of the project cost for construction services for the Improve Airport Drainage project; and

WHEREAS, the City of Shawnee will provide \$65,120 in local funds which represent ten percent (10%) of the project cost for construction services for the Improve Airport Drainage project for the Shawnee Regional Airport; and

WHEREAS, the Oklahoma Aeronautics Commission will provide \$150,955 in grant funds which represent ninety-five percent (95%) of the project cost for engineering services for the Improve Airport Drainage project; and

WHEREAS, the City of Shawnee will provide \$7,945 in local funds which represent five percent (5%) of the project cost for engineering services for the Improve Airport Drainage project for the Shawnee Regional Airport; and

WHEREAS, the OAC will provide \$50,730 in grant funds which represent ninety-five percent (95%) of the cost for engineering services for the Pavement Condition Rating (PCR) Study; and

WHEREAS, the City of Shawnee will provide \$2,670 in local funds which represent five percent (5%) of the cost for engineering services for the Pavement Condition Rating (PCR) Study; and

WHEREAS, the OAC will provide \$57,665 in grant funds which represent ninety-five percent (95%) of the cost for engineering services for the Terminal Area Plan; and

WHEREAS, the City of Shawnee will provide \$3,035 in local funds which represent five percent (5%) of the cost for engineering services for the Terminal Area Plan; and

WHEREAS, the City of Shawnee has procured general contracting and construction services from Tri City Seal Co., Inc., in accordance with Oklahoma Aeronautics Commission terms; and

WHEREAS, H.W. Lochner, Inc., will provide engineering planning services, in accordance with Oklahoma Aeronautics Commission rules and regulations; and

WHEREAS, the Oklahoma Aeronautics Commission has approved the scope for Improve Airport Drainage, Pavement Condition Rating (PCR) Study, and the Terminal Area Plan by way of Oklahoma Aeronautics Commission Project No. SNL-24-FS; and

WHEREAS, the City of Shawnee has granted authority to the City Manager to sign and accept the Grant Offer from the Oklahoma Aeronautics Commission in the Mayor's absence.

NOW, THEREFORE, Be It Resolved by the Shawnee Airport Authority, of the State of Oklahoma, Pottawatomie County, that the Grant Offer from the Oklahoma Aeronautics Commission be hereby accepted.

Passed and approved this \_\_\_ day of July, 2023.

---

ED BOLT, MAYOR

ATTEST:

---

LISA LASYONE, CMC, CITY CLERK