

December 22, 2022

To: Plan Holders for Improvements to the
Farmington Regional Airport
Farmington, Missouri
Project No. 22-061C-1

Transmitted herewith is Addendum **No. 1** to the Issued for Bid Contract Documents, Specifications and Plans dated December for Improvements to the Farmington Regional Airport.

Schedule I Runway Lighting Rehabilitation and Runway Pavement Marking

Schedule II Obstruction Removal

Sincerely,

Jvation, a Woolpert Company



Zach Ambariantz, P.E.
Project Manager



**ADDENDUM NO. 1
TO
CONTRACT DOCUMENTS, SPECIFICATIONS AND PLANS
FOR IMPROVEMENTS TO THE
FARMINGTON REGIONAL AIRPORT
FARMINGTON, MO
PROJECT NO. 22-061C-1**

To All Bidders: You are requested to make all changes and/or additions contained in this addendum to the Bidding Documents. Failure to acknowledge this Addendum in Proposal shall result in rejection of bid. Bidders are informed that the above referenced Contract Documents, Specifications and Plans are modified as follows as of December 22, 2022:

1. CONTRACT DOCUMENTS/SPECIFICATIONS

Contract Documents –Contract Work Items

Section: Section 1-1, Contract Work Items

Revision: The typo of “bade” was revised to “base”. “Bid Alternate No. 3 does not affect the overall calendar days for Schedule II.”

Justification: To fix a typographical error. To clarify that the addition of Bid Alternate No. 3 does not affect the overall calendar days allotted for Schedule II.

Contract Documents –Summary of Approximate Quantities

Section: Section 1-2, Contract Work Items, Summary of Approximate Quantities table

Revision: The table has been updated.

Justification: The table has been updated to reflect the bid item and quantity updates.

Contract Documents –Award of Contract

Section: Section 1-3, Award of Contract (b) & Section 3-13, 30-02 Award of Contract

Revision: The typos of 90 days were updated to match 120 calendar days.

Justification: Bid bold updated to reflect 120 calendar days.

Contract Documents – Proposal sheets

Sections: Bid Proposal

Revision: Quantities were updated for Items P-151a, P-151b, P-151c, P-151d, L-108a, L-108b, L-108c, L-110a, L-115b, L-125g and L-125i.

Justification: Quantities were updated to reflect the drawings and bid alternate no. 3 addition.

Specifications. L-101 Airport Rotating Beacons

Sections: Basis of Payment

Revision: Update the bid item L-101b to read “Item L-101b Install L-801A LED Airport Rotating Beacon – per each”

Justification: Updated item description to add LED.

Specifications. L-108 Underground Power Cable for Airports

Sections: Basis of Payment

Revision: Add the bid item L-108c to read “Item L-108c Install #8 AWG Ground Wire – per linear foot”

Justification: Added a bid item for ground wire for clarity.

Specifications. L-109 Airport Transformer Vault and Vault Equipment

Sections: Basis of Payment

Revision: Update the bid item L-109a to read “Install L-829 Constant Current Regulator, 5KW, Ferroresonant Type– per each”.

Justification: Updated item description for clarity.

Specifications. L-125 Installation of Airport Lighting Systems

Sections: Basis of Payment

Revision: Update the bid items L-125b, L-125d, L-125f, L-125h, L-125j, L-125k, L-125m, and L-125n. The L-125 bid items shall read as follows,

Payment will be made under:

Item L-125a	Remove Stake Mounted Runway Edge Light, Complete – per each
Item L-125b	Install L-861 LED Runway Edge Light, Base Mounted – per each
Item L-125c	Remove Stake Mounted Runway Threshold Light, Complete – per each
Item L-125d	Install L-861E LED Runway Threshold Light, Base Mounted – per each
Item L-125e	Remove Stake Mounted Taxiway Edge Light, Complete – per each
Item L-125f	Install L-861T LED Taxiway Edge Light, Base Mounted - per each
Item L-125g	Remove REIL System, Complete – per each
Item L-125h	Install L-849I LED REIL, Style E, Complete – per each
Item L-125i	Remove PAPI System, Complete – per each

Item L-125j	Install L-880 LED PAPI System, Complete – per each
Item L-125k	Remove In-Pavement Runway Light – per each
Item L-125l	Remove In-Pavement Runway Light, Install Blank Cover – per each
Item L-125m	Remove Guidance Sign – per each
Item L-125n	Install L-858 LED Guidance Sign, Size 1, Style 2, Complete – per each

Justification: Updated item descriptions for clarity.

Specifications – P-151 CLEARING AND GRUBBING

Section. 151-1.1, 151-2.1, 151-3.1, 151-3.2, 151-4.1, and 151-4.2

Revision: The revision of removing “tree removal”, adding “tree topping”, and making payment of per each.

Justification: The removal of trees shall be considered as under “tree clearing”. The specification was updated to show the method of measurement for mobilization shall be included under the base bid (even for alternate no. 3). It was also updated to show the method of measurement and payment are per each for each line item and also that there are new line items to group the trees being topped.

Specifications – P-152 EXCAVATION AND EMBANKMENT

Section Entire specification

Revision: Added specification.

Justification: This specification was added, but will not be a line item, as this will be incidental to the project.

Specifications – P-153 CONTROLLED LOW-STRENGTH MATERIAL (CLSM) 3721

Section Entire specification

Revision – Added specifications.

Justification: This specification was added, but will not be a line item, as this will be incidental to the project.

Specifications – P-610 Concrete for Miscellaneous Structures

Section P-610-4.1

Revision: Revise paragraph 610.4.1, the second sentence. The “contractor” will sample the concrete in accordance with ASTM C172; make and one cure compressive strength specimens in accordance with ASTM C31; and test in accordance with ASTM C39.

Justification: It was noted the “RPR” will sample the concrete in accordance with ASTM C172; make and one cure compressive strength specimens in accordance with ASTM C31; and test in accordance with ASTM C39.

Specifications – L-620 RUNWAY AND TAXIWAY PAINTING

Section: 620-2.2

Revision: Revise Table 1. Marking Materials, glass beads are removed from black paint.

Justification: *Removed black paint from table (glass beads are only used on white or yellow paint)*

2. PLANS

G005 - (6 of 51) – SUMMARY OF APPROXIMATE QUANTITIES

Justification: The approximate quantities table has been updated to reflect the changes.

G050 – (8 of 51) – Updated to show obstruction circles. Base bid obstructions and alternate obstructions are identified by two separate colors.

Justification: To better clarify the difference in the base bid vs Alternate No. 3 obstructions.

G054 – (12 of 51) – Updated to show the base bid and alternate no. 3.

Justification: To better clarify the difference in the base bid vs Alternate No. 3 obstructions. To also include the updated obstructions.

C250 - (28 of 51) – Remove General Marking note #3 & #6 from sheet C250

Justification: To clarify there are no striated runway markings nor temporary paint.

C300 and C301 - (29 & 30 of 51)– The trees have been updated per base bid and alternate

Justification: Some trees were removed and added. The trees were split into base bid and alternate no. 3. The “future” easement was removed as it is no longer applicable.

C302 – (31 of 51) – added this sheet to include tables for topped trees.

*One table for the base bid

*One table for the Alternate No. 3

*Note stating – “Approximate locations and height of trees. The contractor is responsible for field verifying the appropriate amount of the tree has been topped. The contractor is to coordinate with the RPR on the identification and location of the trees prior to removal/topping.

Justification: The sheet was added to clarify the approximate amount that is to be removed from each tree.

3. QUESTIONS

A. *Is the Contractor allowed to plow or bore instead of trenching?*

Answer: The Engineer cannot specify the Contractor's means and methods. However, the Contractor must be able to meet the plans and specifications. This includes meeting the compaction requirements as well as conduit, counterpoise and safety tape placement.

B. *Will there be just one Notice to Proceed (NTP)? Does Schedule I have to start within the time Schedule II starts?*

Answer: Not necessarily. There may be another NTP issued for the start of Schedule I. It is recommended that all of the materials be obtained prior to starting the construction of Schedule I.

C. *Will it be the Contractor's or the Engineer/City's responsibility for marking the trees?*

Answer: The City plans to mark the trees to be removed with caution tape. It is the responsibility of the Contractor to inspect the site and verify the trees prior to bidding. The Contractor may contact the City for site visits.

D. *Due to long lead times for materials, does construction have to be started/completed by the end of 2023?*

Answer: It is recommended construction start as soon as all of the materials are received. It is preferred construction be started/completed in 2023, however if there are anticipated issues, a later start date may be discussed with the RPR/City.

E. *Since there are long lead times on materials, can a change order be made to adjust for the increase in material/bid item costs?*

Answer: No, change orders to compensate a change in price after bidding are not allowed on a federally funded project.

F. *If the Contractor is able to complete the Schedule I, Phase 2 pavement remarking in under the allotted 15 calendar days (for the base bid), can the Contractor still utilize those runway closure calendar days for work?*

Answer: As long as it does not impact critical aircraft flight schedules and the City is ok with it, then the Contractor may continue working for the duration of Schedule I, Phase 2.

G. *Can the Contractor use another mix material instead of the P-610 Concrete for Miscellaneous Structures?*

Answer: The Contractor is required to meet the requirements of the P-610 specification. If another concrete mix passes all the requirements of that specification, then, as reviewed and approved by the RPR, it may be used.

4. PRE-BID MEETING AGENDA AND SIGN-IN SHEET

The pre-bid meeting minutes, sign-in sheet, and plan holder's list are attached to this addendum.

The final questions will be accepted until **10:00 a.m.(C.S.T.) Tuesday, December 27, 2022.**

**** END OF ADDENDUM NO. 1 ****

SECTION 1

NOTICE TO BIDDERS

Farmington Regional Airport
Farmington, MO
State Block Grant Project No. 22-061C-1

Sealed bids subject to the conditions and provisions presented herein will be received until 10:00 a.m., Thursday, December 29, 2022, and then publicly opened and read at Farmington City Hall, 110 W Columbia Street, Farmington, Missouri 63640, for furnishing all labor, materials, equipment and performing all work necessary to

Schedule I - Runway Lighting Rehabilitation and Runway Pavement Marking
Schedule II - Obstruction Removal

Contract Documents. The complete set of Specifications and Contract Documents can be downloaded from Jviation, Inc.'s bid site (<http://bid.jviation.com>), beginning on December 1, 2022. In order to submit a responsive bid as a Prime Contractor and to receive all necessary addendum(s) for this project, you must be on the Planholder's List. To view all planholder documents (contract documents, plans and addendums) you must fill out the online form located at (<https://jviation.com/bid-request>). By filling out and submitting this form, you agree to be publicly listed on the bid site with your contact information as a planholder for all projects requested. **It is the planholder's responsibility to review the site for addendums and changes before submitting their proposal. This includes review for environmental changes. Environmental changes during construction could take up to four weeks for approval.** For additional information, please contact us via email at bidinfo@Woolpert.com.

*Note that contractors will NOT be automatically added to new projects. You will need to re-submit the online form for access to new projects. Once granted access, additional projects will use your same login credentials. **Note:** Plan ahead when submitting the online request form and allow up to 2 business days for approval and access to projects.

Pre-Bid Conference. The pre-bid conference for this project will be held on Thursday, December 15, 2022 at 10:00 a.m., at Farmington Regional Airport, 1436 Perrine Road, Farmington, Missouri. All bidders are required to examine the site to become familiar with all site conditions.

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.

The base bid for Schedule I shall be bid for night work. Schedule 1 Alternate 2 shall be a cost savings for a full runway closure (day work).

Bid Alternate No. 1 does not have additional calendar days associated with it, instead the line item will be a substitution for Item L-1251 Install L-858 Guidance Signs, Size 1, Style 4, Complete. All associated work will be incidental to the base bid. Bid Alternate No. 2 does not affect the overall calendar days for Schedule I. Bid Alternate No. 3 does not affect the overall calendar days for Schedule II. See plan sheets G050 through G054 for more details on scheduling.

SUMMARY OF APPROXIMATE QUANTITIES				
Item No.	Item Description	Unit	Schedule I	Schedule II
			Estimate	Estimate
C-105a	Mobilization	LS	1	1
P-151a	Tree Clearing – Individual	EA		3
P-151b	Tree Topping– Individual (40' to 65')	EA		15
P-605a	Remove and Replace Damaged Joint Sealant	LF	5,500	
P-620a	Marking (Yellow)	SF	2,200	
P-620b	Marking (Black)	SF	10,200	
P-620c	Marking (White)	SF	27,100	
P-620d	Marking Obliteration	SF	45,000	
L-101a	Remove Existing Airport Rotating Beacon	EA	1	
L-101b	Install L-801A LED Airport Rotating Beacon	EA	1	
L-108a	Install #8 AWG, L-824C, 5000V, Wire	SF	22,000	
L-108b	Install #6 AWG, Base Copper Counterpoise Including Ground Rods and Terminations	LF	12,000	
L-108c	Install #8 AWG Ground Wire	LF	4,000	
L-109a	Install L-128 Constant Current Regulator, 5KW, Ferroresonant Type	EA	1	
L-109b	Install L-854 Radio Controller in Existing Vault	EA	1	
L-110a	Install 1-2" SCH 40 PVC Conduit, Direct Earth Buried (DBE)	LF	11,500	
L-115a	Remove L-867 Junction Box, Complete	EA	4	
L-115b	Install L-867B Junction Box, Complete	EA	3	
L-125a	Remove Stake Mounted Runway Edge Light, Complete	EA	39	
L-125b	Install L-861 LED Runway Edge Light, Base Mounted	EA	40	
L-125c	Remove Stake Mounted Runway Threshold Light, Complete	EA	24	
L-125d	Install L-861E LED Runway Threshold Light, Base Mounted	EA	16	
L-125e	Remove Stake Mounted Taxiway Edge Light, Complete	EA	38	
L-125f	Install L-861T LED Taxiway Edge Light, Base Mounted	EA	46	
L-125g	Remove REIL System, Complete	EA	1	
L-125h	Install L-849I LED REIL, Style E, Complete	EA	2	
L-125i	Remove PAPI System, Complete	EA	1	
L-125j	Install L-880 LED PAPI System, Complete	EA	2	
L-125k	Remove In-Pavement Runway Light, Install Blank Cover	EA	3	
L-125l	Install L-858 Guidance Sign, Size 1, Style 4, Complete	EA	5	
L-125m	Remove Guidance Sign, Complete	EA	5	

	SCHEDULE I ALTERNATE NO. 1			
L-125n	Install L-858 LED Lighted Guidance Sign, Size 1, Style 2, Complete	EA	5	
	SCHEDULE I ALTERNATE NO. 2			
ALT-2	Cost Savings for Full Runway Closure	LS	1	
	SCHEDULE II ALTERNATE NO. 3			
P-151a	Tree Topping – Individual	EA		10
P-151b	Tree Topping – Individual – (10' to 20')	EA		11
P-152c	Tree Topping – Individual – (20' to 40')	EA		12
P-152d	Tree Topping – Individual – (40' to 65')	EA		4

183

184

Contract Time. The owner has established a contract perform time of 40 calendar day(s) for Schedule I and 15 calendar day (s) for Schedule II 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 in the project manual.

Bid Security. No bid will be considered unless accompanied by a certified check or cashier's check on any bank or trust company insured by the Federal Deposit Insurance Corporation, payable to the Owner, for not less than five (5) percent of the total amount of the bid, or by a bid bond secured by an approved surety or sureties, payable to the City of Farmington, for not less than five (5) percent of the total amount of the bid.

Bonding Requirements. The successful bidder will be required to furnish separate performance and payment bonds each in an amount equal to 100% of the contract price at the time of contract execution.

Award of Contract. The Owner intends to award a contract resulting from this solicitation to the lowest, responsive, responsible bidder, whose offer, conforming to the solicitation, will be most advantageous to, and in the best interest of, the Owner, cost or price and other factors considered.

- a. In addition to other factors, bid offers will be evaluated on the basis of advantages and disadvantages to the Owner that might result from offers received.
- b. The Owner reserves the right to reject any or all proposals and to waive informalities and/or irregularities in the bid offer. Bids may be held by the owner for a period not to exceed 120 calendar days from the date of the bid opening for the purpose of conducting the bid evaluation.
- c. Total bid will be evaluated and awarded as follows: It is the Owner's intent to award this bid based on the **TOTAL BASE BID FOR ALL ITEMS, split awards will not be made.**
- d. The Owner will determine which Schedules and/or Bid Alternates will be awarded based on the received bid prices and available funding. The project award will be based on the low bid sum of the Schedules and Bid Alternates awarded by the Owner. Not all Schedules and/or Bid Alternates may be awarded. A combination of Schedules and Bid Alternates may be awarded, including only a single Schedule. The bids will be evaluated and awarded on either the base bid or the base bid with the alternate. The numbering of the Schedules or Bid Alternates does not necessarily indicate the order of award.
- e. The project award is contingent on the availability of funding.

Federal Provision. This project is subject to the following Federal provisions, statutes and regulations;

Equal Employment Opportunity - Executive Order 11246 and 41 CFR Part 60: The Bidder's attention is called to the "Equal Opportunity Clause" and the "Standard Federal Equal Employment Opportunity Construction Contract Specifications" set forth within the supplementary provisions. The successful Bidder shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The Contractor will take affirmative action to ensure the applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex, or national origin.

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

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:

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 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 the Section 20, paragraph 20-09, *IRREGULAR PROPOSALS*.
- b. If the bidder is disqualified for any of the reasons specified in the 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 120 calendar days of the date specified for publicly opening proposals, unless otherwise specified herein.

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

30-03 CANCELLATION OF AWARD. The Owner reserves the right to cancel the award without liability to the bidder, except return of proposal guaranty, at any time before a contract has been fully executed by all parties and is approved by the Owner in accordance with the paragraph 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 the 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 the paragraph 30-05, *REQUIREMENTS OF CONTRACT BONDS* of this section, within 30 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

\$ _____

\$ _____

\$ _____

\$ _____

SCHEDULE I						
Item No.	Description		Units	Estimated Quantity	Unit Price	Total
C-105a	Mobilization	at the unit price of: _____ dollars and _____ cents.	LS	1	\$	\$
P-605a	Remove and Replace Damaged Joint Sealant	at the unit price of: _____ dollars and _____ cents.	LF	5,500	\$	\$
P-620a	Marking (Yellow)	at the unit price of: _____ dollars and _____ cents.	SF	2,200	\$	\$
P-620b	Marking (Black)	at the unit price of: _____ dollars and _____ cents.	SF	10,200	\$	\$
P-620c	Marking (White)	at the unit price of: _____ dollars and _____ cents.	SF	27,100	\$	\$
P-620d	Marking Obliteration	at the unit price of: _____ dollars and _____ cents.	SF	45,000	\$	\$
L-101a	Remove Existing Airport Rotating Beacon	at the unit price of: _____ dollars and _____ cents.	EA	1	\$	\$
L-101b	Install L-801A LED Airport Rotating Beacon	at the unit price of: _____ dollars and _____ cents.	EA	1	\$	\$
L-108c	Install #8 AWG Ground Wire	at the unit price of: _____ dollars and _____ cents.	LF	22,000	\$	\$
L-108b	Install #6 AWG, Base Copper Counterpoise Including Ground Rods and Terminations	at the unit price of: _____ dollars and _____ cents.	LF	12,000	\$	\$
L-108c	Install #8 AWG Ground Wire	at the unit price of: _____ dollars and _____ cents.	LF	4,000	\$	\$
L-109a	Install New L-828 Constant Current Regulator, 5KW, Ferroresonant Type	at the unit price of: _____ dollars and _____ cents.	EA	1	\$	\$
L-109b	Install L-854 Radio Controller in Existing Vault	at the unit price of: _____ dollars and _____ cents.	EA	1	\$	\$
L-110a	Install 1-2" SCH 40 PVC Conduit, Direct Earth Buried (DEB)	at the unit price of: _____ dollars and _____ cents.	LF	11,500	\$	\$
L-115a	Remove L-867 Junction Box, Complete	at the unit price of: _____ dollars and _____ cents.	EA	4	\$	\$
L-115b	Remove L-867B Junction Box, Complete	at the unit price of: _____ dollars and _____ cents.	EA	3	\$	\$
L-125a	Remove Stake Mounted Runway Edge Light, Complete	at the unit price of: _____ dollars and _____ cents.	EA	39	\$	\$
L-125b	Install L-861 Runway Edge Light, Base Mounted	at the unit price of: _____ dollars and _____ cents.	EA	40	\$	\$
L-125c	Remove Stake Mounted Runway Threshold Light, Complete	at the unit price of: _____ dollars and _____ cents.	EA	24	\$	\$
L-125d	Install L-861E Runway Threshold Light, Base Mounted	at the unit price of: _____ dollars and _____ cents.	EA	16	\$	\$
L-125e	Remove Stake Mounted Taxiway Edge Light, Complete	at the unit price of: _____ dollars and _____ cents.	EA	38	\$	\$
L-125f	Install L-861T LED Taxiway Edge Light, Base Mounted	at the unit price of: _____ dollars and _____ cents.	EA	46	\$	\$

SCHEDULE I						
Item No.	Description		Units	Estimated Quantity	Unit Price	Total
L-125g	Remove REIL System, Complete	at the unit price of: _____ dollars and _____ cents.	EA	1	\$	\$
L-125h	Install L-849I REIL, Style E, Complete	at the unit price of: _____ dollars and _____ cents.	EA	2	\$	\$
L-125i	Remove PAPI System, Complete	at the unit price of: _____ dollars and _____ cents.	EA	1	\$	\$
L-125j	Install L-880 LED PAPI System, Complete	at the unit price of: _____ dollars and _____ cents.	EA	2	\$	\$
L-125k	Remove In-Pavement Runway Light, Install Blank Cover	at the unit price of: _____ dollars and _____ cents.	EA	3	\$	\$
L-125l	Install L-858 Guidance Sign, Size 1, Style 4, Complete	at the unit price of: _____ dollars and _____ cents.	EA	5	\$	\$
L-125m	Remove Guidance Sign, Complete	at the unit price of: _____ dollars and _____ cents.	EA	5	\$	\$

SCHEDULE I TOTAL \$ _____

SCHEDULE I ALTERNATE NO. 1						
Item No.	Description		Units	Estimated Quantity	Unit Price	Total
L-125n	Install L-858 LED Guidance Sign, Size 1, Style 2, Complete	at the unit price of: _____ dollars and _____ cents.	EA	5	\$	\$

ALTERNATE NO. 1 TOTAL \$ _____

SCHEDULE I + ALTERNATE NO. 1 \$ _____

SCHEDULE I ALTERNATE NO. 2						
Item No.	Description		Units	Estimated Quantity	Unit Price	Total
ALT-2	Cost Savings for Full Runway Closure	at the unit price of: _____ dollars and _____ cents.	LS	1	\$	\$

ALTERNATE NO. 2 TOTAL \$ _____

SCHEDULE I + ALTERNATE NO. 2 \$ _____

SCHEDULE II							
Item No.	Description		Units	Estimated Quantity		Unit Price	Total
C-105a	Mobilization	at the unit price of: _____ dollars and _____ cents.	1	1			
P-151a	Tree Clearing - Individual	at the unit price of: _____ dollars and _____ cents.	EA	3	\$		\$
P-151d	Tree Topping - Individual (40' to 65')	at the unit price of: _____ dollars and _____ cents.	EA	15	\$		\$

SCHEDULE II TOTAL \$ _____

SCHEDULE II ALTERNATE NO. 3							
Item No.	Description		Units	Estimated Quantity		Unit Price	Total
P-151a	Tree Clearing - Individual	at the unit price of: _____ dollars and _____ cents.	EA	10	\$		\$
P-151b	Tree Topping - Individual (10' to 20')	at the unit price of: _____ dollars and _____ cents.	LS	11	\$		\$
P-151c	Tree Topping - Individual (20' to 40')	at the unit price of: _____ dollars and _____ cents.	LS	12	\$		\$
P-151d	Tree Topping - Individual (40' to 65')	at the unit price of: _____ dollars and _____ cents.	LS	4			

photoelectric switch should de-energize when the illumination rises to 50 to 60 foot-candles (538 to 646 lux). The photoelectronic switch shall be installed, connected, and adjusted per the manufacturer's instructions.

101-3.12 OBSTRUCTION LIGHTS. Unless otherwise specified, the Contractor shall install on the top of the beacon tower or mounting platform two L-810 obstruction lights on opposite corners. These lights shall be mounted on conduit extensions to a height of not less than 4 inches (100 mm) above the top of the beacon.

101-3.13 PAINTING. If construction of a wooden mounting platform is stipulated in the proposal as part of this item, all wooden parts of the platform shall be given one priming coat of white or aviation-orange paint after fabrication but before erection and one body and one finish coat of international-orange paint after erection. Steel mounting platforms shall be given one priming coat of corrosion-inhibiting primer before erection and one body and one finish coat of international-orange paint after erection. All equipment installed under this contract and exposed to the weather shall be given one body and one finish coat of international-orange (per Federal Standard 595, Number 12197) or white paint as required. This shall include the beacon (except glass surfaces), beacon base, breaker cabinet, all conduit, and transformer cases. It shall not include lightning protection system air terminals or obstruction light globes.

Apply the paint uniformly at the proper consistency. The finished paint shall be free from sags, holidays, and smears. Each coat of paint shall be given ample time to dry and harden before the next coat of paint is applied. A minimum of three (3) days shall be allowed for drying on wood surfaces, and a minimum of four (4) days shall be allowed for drying on metal surfaces. Painting shall not be performed in cold, damp, foggy, dusty, or frosty atmospheres, or when the air temperature is below 40°F (4°C), nor started when the weather forecast indicates such conditions for the day.

All surfaces shall be cleaned before painting. The surfaces shall be dry and free from scale, grease, rust, dust, and dirt. All knots in wood surfaces shall be covered with shellac immediately before applying the priming coat of paint. Nail holes and permissible imperfections shall be filled with putty. The ready-mixed paint shall be thinned for the priming and body coats per the manufacturer's recommendations. In the absence of such recommendations, the following shall apply:

- a. Body coats (for both wood and steel surfaces) - add 1/2 pint (0.24 liter) of turpentine to each gallon (liter) of ready-mixed paint for body coats.
- b. Finish coats (for both wood and steel surfaces) the ready-mixed paint shall be used as it comes from the container for finish coats.

101-3.14 TESTING. The beacon installation shall be fully tested as a completed unit prior to acceptance. These tests shall include operation of the lamp-changer and performing insulation resistance and voltage readings. The insulation resistance to ground of the beacon power supply circuit shall be not less than 100 megohms when measured ungrounded. The Contractor must furnish testing equipment. Tests shall be conducted in the presence of the RPR and shall be to the RPR's satisfaction.

METHOD OF MEASUREMENT

101-4.1 The quantity to be paid for shall be the number of beacons installed as completed units in place, accepted, and ready for operation.

BASIS OF PAYMENT

101-5.1 Payment will be made at the contract unit price for each completed and accepted job. This price shall be full compensation for removal of existing beacon; furnishing all materials and for all preparation, assembly,

and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete this item.

Payment will be made under:

Item L-101a Remove Existing Airport Rotating Beacon - per each

Item L-101b Install L-801A Airport Rotating Beacon— per each

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Advisory Circulars (AC)

AC 150/5345-7 Specification for L-824 Underground Cable for Airport Lighting Circuits

AC 150/5345-12 Specification for Airport and Heliport Beacons

AC 150/5340-30 Design and Installation Details for Airport Visual Aids

AC 150/5345-53 Airport Lighting Equipment Certification Program

AC 150/5390-2 Heliport Design

Commercial Item Description

A-A-59544A Cable and Wire, Electrical (Power, Fixed Installation)

Federal Specification (FED SPEC)

FED SPEC W-P-115 Panel, Power Distribution

Federal Standard (FED STD)

FED STD 595 Colors Used in Government Procurement

Master Painter Institute (MPI)

MPI Reference #9 Alkyd, Exterior, Gloss (MPI Gloss Level 6)

Mil Spec

MIL-DTL-24441C/19C Paint, Epoxy-Polyamide, Zinc Primer, Formula 159, Type III

National Fire Protection Association (NFPA)

NFPA-70 National Electric Code (NEC)

NFPA-780 Standard for the Installation of Lightning Protection Systems

- f. That all affected circuits (existing and new) are operable. Tests shall be conducted that include operating each control not less than 10 times and the continuous operation of each lighting and power circuit for not less than 1/2 hour.
- g. That the impedance to ground of each ground rod does not exceed 25 ohms prior to establishing connections to other ground electrodes. The fall-of-potential ground impedance test shall be used, as described by American National Standards Institute/Institute of Electrical and Electronic Engineers (ANSI/IEEE) Standard 81, to verify this requirement. As an alternate, clamp-on style ground impedance test meters may be used to satisfy the impedance testing requirement. Test equipment and its calibration sheets shall be submitted for review and approval by the RPR prior to performing the testing.

Two copies of tabulated results of all cable tests performed shall be supplied by the Contractor to the RPR. Where connecting new cable to existing cable, insulation resistance tests shall be performed on the new cable prior to connection to the existing circuit.

There are no approved "repair" procedures for items that have failed testing other than complete replacement.

METHOD OF MEASUREMENT

108-4.1 The cost of all excavation, backfill, dewatering and restoration regardless of the type of material encountered shall be included in the unit price bid for the work **108-4.2**. Cable or counterpoise wire installed in trench, duct bank or conduit shall be measured by the number of linear feet (meters) installed and grounding connectors, and trench marking tape ready for operation, and accepted as satisfactory. Separate measurement shall be made for each cable or counterpoise wire installed in trench, duct bank, or conduit. The measurement for this item shall not include additional quantities required for slack. Cable and counterpoise slack is considered incidental to this item and is included in the Contractor's unit price. No separate measurement or payment will be made for cable or counterpoise slack.

108-4.3 No separate payment will be made for ground rods.

BASIS OF PAYMENT

108-5.1 Payment will be made at the contract unit price for trenching, cable and bare counterpoise wire installed in trench (direct-buried), or cable and equipment ground installed in duct bank or conduit, in place by the Contractor and accepted by the RPR. This price shall be full compensation for furnishing all materials and for all preparation and installation of these materials, and for all labor, equipment, tools, and incidentals, including ground rods and ground connectors and trench marking tape, necessary to complete this item.

Payment will be made under:

Item L-108a	Install #8 AWG, L-824C, 5000V – per linear foot
Item L-108b	Install #6 AWG, Bare Copper Counterpoise including Ground Rods and Terminations – per linear foot

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

BASIS OF PAYMENT

109-7.1 Payment will be made at the contract unit price for each completed and accepted vault or prefabricated metal housing equipment installation. This price shall be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item L-109a	Install New L-828 Constant Current Regulator, Ferroresonant Type – per each
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Item L-109b	Install L-854 Radio Controller in Existing Vault – per each
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REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Advisory Circulars (AC)

AC 150/5340-30	Design and Installation Details for Airport Visual Aids
AC 150/5345-3	Specification for L-821, Panels for Remote Control of Airport Lighting
AC 150/5345-5	Circuit Selector Switch
AC 150/5345-7	Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits
AC 150/5345-10	Specification for Constant Current Regulators and Regulator Monitors
AC 150/5345-13	Specification for L-841 Auxiliary Relay Cabinet Assembly for Pilot Control of Airport Lighting Circuits
AC 150/5345-49	Specification L-854, Radio Control Equipment;
AC 150/5345-53	Airport Lighting Equipment Certification Program

American National Standards Institute / Insulated Cable Engineers Association (ANSI/ICEA)

ANSI/ICEA S-85-625	Standard for Telecommunications Cable Aircore, Polyolefin Insulated, Copper Conductor Technical Requirements
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ASTM International (ASTM)

ASTM A615	Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
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Precision Approach Path Indicator shall be measured by each system installed as a completed unit, in place, ready for operation, and accepted by the RPR. Abbreviated Precision Approach Path Indicator shall be measured by each system installed as a completed unit, in place, ready for operation, and accepted by the RPR.

BASIS OF PAYMENT

125-5.1 Payment will be made at the Contract unit price for each complete runway or taxiway light, guidance sign, reflective marker, runway end identification light, precision approach path indicator, or abbreviated precision approach path indicator installed by the Contractor and accepted by the RPR. This payment will be full compensation for furnishing all materials and for all preparation, assembly, and installation of these materials, and for all labor, equipment, tools and incidentals necessary to complete this item.

Payment will be made under:

Item L-125a	Remove Stake Mounted Runway Edge Light, Complete – per each
Item L-125b	Install L-861 LED Runway Edge Light, Base Mounted – per each
Item L-125c	Remove Stake Mounted Runway Threshold Light, Complete – per each
Item L-125d	Install L-861E LED Runway Threshold Light, Base Mounted – per each
Item L-125e	Remove Stake Mounted Taxiway Edge Light, Complete – per each
Item L-125f	Install L-861T LED Taxiway Edge Light, Base Mounted – per each
Item L-125g	Remove REIL System, Complete – per each
Item L-125h	Install L-849I LED REIL, Style E, Complete – per each
Item L-125i	Remove PAPI System, Complete – per each
Item L-125j	Install L-880 LED PAPI System, Complete – per each
Item L-125k	Remove In-Pavement Runway Light – per each
Item L-125l	Remove In-Pavement Runway Light, Install Blank Cover – per each
Item L-125m	Remove Guidance Sign – per each
Item L-125n	Install L-858 LED Guidance Sign, Size 1, Style 2, Complete – per each

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

Advisory Circulars (AC)

AC 150/5340-18	Standards for Airport Sign Systems
AC 150/5340-26	Maintenance of Airport Visual Aid Facilities
AC 150/5340-30	Design and Installation Details for Airport Visual Aids
AC 150/5345-5	Circuit Selector Switch
AC 150/5345-7	Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits
AC 150/5345-26	Specification for L-823 Plug and Receptacle, Cable Connectors
AC 150/5345-28	Precision Approach Path Indicator (PAPI) Systems
AC 150/5345-39	Specification for L-853, Runway and Taxiway Retroreflective Markers

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 tree shall be cut flush with the ground and graded. 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 Topping.** Tree topping shall consist of the trimming of isolated single trees or isolated groups of trees. The removal of all the tree trimmings 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 “topped” or “removed” 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. When embankments are constructed of such material, this material shall be placed in accordance with requirements for formation of embankments. Any broken concrete or masonry that cannot be used in construction and all other materials not considered suitable for use elsewhere, shall be disposed of by the Contractor. In no case, shall any discarded materials be left in windrows or piles adjacent to or within the airport limits. The manner and location of disposal of materials shall be subject to the approval of the RPR and shall not create an unsightly or objectionable view. When the Contractor is required to locate a disposal area outside the airport property limits, the Contractor shall obtain and file with the RPR permission in writing from the property owner for the use of private property for this purpose.

151-2.1.2 BLASTING. Blasting shall not be allowed.

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 TREE TOPPING. Trees shall be topped to the elevation, in the areas, as shown on the plans..

The contractor shall protect the nearby property and structures. Any damage to property or structures to remain in place that are damaged by the contractor shall be repaired by the contractor at the contractor's expense.

METHOD OF MEASUREMENT

151-3.1 The quantities of tree clearing as shown on the plans shall be the number of trees per each removed.

Mobilization shall be incidental to the base bid.

151-3.2 The quantities of tree topping as shown on the plans shall be the number of trees per each specifically topped.

BASIS OF PAYMENT

151-4.1 Payment shall be made at the contract unit price per each for tree clearing. This price shall be full compensation for furnishing all materials and for all labor, equipment, tools, and incidentals necessary to complete the item.

151-4.2 Payment shall be made at the contract unit price per each for tree topping. This price shall be full compensation for furnishing all materials and for all labor, equipment, tools, and incidentals necessary to complete the item.

Payment will be made under:

Item P-151a	Tree Clearing - Individual - per each
Item P-151b	Tree Topping – Individual (10' to 20') – per each
Item P-151c	Tree Topping – Individual (20' to 40')- per each
Item P-151d	Tree Topping – Individual (40' to 65') – per each

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

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 which is not otherwise classified and paid for under one of the following items.

152-1.3 UNSUITABLE EXCAVATION. Unsuitable material shall be disposed in designated waste areas as shown on the plans. Materials containing vegetable or organic matter, such as muck, peat, organic silt, or sod shall be considered unsuitable for use in embankment construction. Material suitable for topsoil may be used on the embankment slope when approved by the RPR.

CONSTRUCTION METHODS

152-2.1 GENERAL. Before beginning excavation, grading, and embankment operations in any area, the area shall be cleared or cleared and grubbed in accordance with Item P-151.

The suitability of material to be placed in embankments shall be subject to approval by the RPR. All unsuitable material shall be disposed of in waste areas as shown on the plans. All waste areas shall be graded to allow positive drainage of the area and adjacent areas. The surface elevation of waste areas shall be specified on the plans or approved by the RPR.

When the Contractor's excavating operations encounter artifacts of historical or archaeological significance, the operations shall be temporarily discontinued and the RPR notified per Section 70, paragraph 70-20. At the direction of the RPR, the Contractor shall excavate the site in such a manner as to preserve the artifacts encountered and allow for their removal. Such excavation will be paid for as extra work.

Areas outside the limits of the pavement areas where the top layer of soil has become compacted by hauling or other Contractor activities shall be scarified and disked to a depth of 4 inches (100 mm), to loosen and pulverize the soil. Stones or rock fragments larger than 4 inches (100 mm) in their greatest dimension will not be permitted in the top 6 inches (150 mm) of the subgrade.

If it is necessary to interrupt existing surface drainage, sewers or under-drainage, conduits, utilities, or similar underground structures, the Contractor shall be responsible for and shall take all necessary precautions to preserve them or provide temporary services. When such facilities are encountered, the Contractor shall notify the RPR, who shall arrange for their removal if necessary. The Contractor, at their own expense, shall satisfactorily repair or pay the cost of all damage to such facilities or structures that may result from any of the Contractor's operations during the period of the contract.

- a. **Blasting.** Blasting shall not be allowed.

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.

All areas to be excavated shall be stripped of vegetation and topsoil. Topsoil shall be stockpiled for future use in areas designated on the plans or by the RPR. All suitable excavated material shall be used in the formation of embankment, subgrade, or other purposes as shown on the plans. All unsuitable material shall be disposed of as shown on the plans.

The grade shall be maintained so that the surface is well drained at all times.

When the volume of the excavation exceeds that required to construct the embankments to the grades as indicated on the plans, the excess shall be used to grade the areas of ultimate development or disposed as directed by the RPR. When the volume of excavation is not sufficient for constructing the embankments to the grades indicated, the deficiency shall be obtained from borrow areas.

a. **Selective grading.** Not used.

b. **Undercutting.** Rock, shale, hardpan, loose rock, boulders, or other material unsatisfactory for safety areas, subgrades, roads, shoulders, or any areas intended for turf shall be excavated to a minimum depth of 12 inches (300 mm) below the subgrade or to the depth specified by the RPR. Muck, peat, matted roots, or other yielding material, unsatisfactory for subgrade foundation, shall be removed to the depth specified. Unsuitable materials shall be disposed of at locations shown on the plans disposed off the airport. The cost is incidental to this item. This excavated material shall be paid for at the contract unit price per cubic yard (per cubic meter) for unclassified excavation. The excavated area shall be backfilled with suitable material obtained from the grading operations or borrow areas and compacted to specified densities. The necessary backfill will constitute a part of the embankment. Where rock cuts are made, backfill with select material. Any pockets created in the rock surface shall be drained in accordance with the details shown on the plans. Undercutting will be paid as unclassified excavation.

c. **Over-break.** Not used.

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, or under any areas to be paved, the top 12 inches (300 mm) of subgrade shall be compacted to not less than 100 % of maximum density for non-cohesive soils, and 95% of maximum density for cohesive soils as determined by ASTM **D698**. 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 **Contractor** will take samples of excavated materials which will be used in embankment for testing and develop a Moisture-Density Relations of Soils Report (Proctor) in accordance with ASTM D 698. A new Proctor shall be developed for each soil type based on visual classification.

Density tests will be taken by the **Contractor** for every 3,000 square yards of compacted embankment for each lift which is required to be compacted, or other appropriate frequencies as determined by the RPR.

If the material has greater than 30% retained on the 3/4-inch (19.0 mm) sieve, follow AASHTO T-180 Annex Correction of maximum dry density and optimum moisture for oversized particles.

Rolling operations shall be continued until the embankment is compacted to not less than 100% of maximum density for non-cohesive soils, and 95% of maximum density for cohesive soils as determined by ASTM **D698**. 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 **D698**. As used in this specification, "non-cohesive" shall mean those soils having a plasticity index (PI) of less than 3 as determined by ASTM D4318.

On all areas outside of the pavement areas, no compaction will be required on the top 4 inches (100 mm) which shall be prepared for a seedbed in accordance with Item T-901.

The in-place field density shall be determined in accordance with ASTM D1556 or 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 **Contractor** 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, 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, after compaction is completed, the subgrade area shall be proof rolled with a 20 ton (18.1 metric ton) Tandem axle Dual Wheel Dump Truck loaded to the legal limit with tires inflated to 80/100/150 psi (0.551 MPa/0.689 MPa/1.034 in the presence of the RPR. Apply a minimum of **50%** coverage, or as specified by the RPR, under pavement areas. A coverage is defined as the application of one tire print over the designated area. Soft areas of subgrade that deflect more than 1 inch (25 mm) or show permanent deformation greater than 1 inch (25 mm) shall be removed and replaced with suitable material or reworked to conform to the moisture content and compaction requirements in accordance with these specifications. Removal and replacement of soft areas is incidental to this item.

152-2.10 COMPACTION REQUIREMENTS. The subgrade under areas to be paved shall be compacted to a depth of 12 inches (300 mm) and to a density of not less than 100 percent of the maximum dry density as determined by ASTM D1557. The subgrade in areas outside the limits of the pavement areas shall be compacted to a depth of 12 inches (300 mm) and to a density of not less than 95 percent of the maximum density as determined by ASTM 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 **500** S.Y. of subgrade. All quality assurance testing shall be done by the **Contractor**.

The in-place field density shall be determined in accordance with ASTM D1556 or ASTM D6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938 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.

METHOD OF MEASUREMENT

152-3.1 The excavation and embankment quantities shall be considered incidental to other pay items and no separate payment will be made for this material.

BASIS OF PAYMENT

152-4.1 The excavation and embankment quantities shall be considered incidental to other pay items and no separate payment will be made for this material.

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
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ASTM International (ASTM)

ASTM D698	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft ³ (600 kN-m/m ³))
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ASTM D1556	Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method
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ASTM D1557	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft ³ (2700 kN-m/m ³))
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ASTM D6938	Standard Test Methods for In-Place Density and Water Content of Soil and Soil-Aggregate by Nuclear Methods (Shallow Depth)
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Advisory Circulars (AC)

AC 150/5370-2	Operational Safety on Airports During Construction Software
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Software

FAARFIELD	– FAA Rigid and Flexible Iterative Elastic Layered Design
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U.S. Department of Transportation

FAA RD-76-66	Design and Construction of Airport Pavements on Expansive Soils
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****END OF ITEM P-152****

Item P-153 Controlled Low-Strength Material (CLSM) 3721

DESCRIPTION

153-1.1 This item shall consist of furnishing, transporting, and placing a controlled low-strength material (CLSM) as flowable backfill in trenches or at other locations shown on the plans or as directed by the Resident Project Representative (RPR).

MATERIALS

153-2.1 Materials.

- a. **Cement.** Cement shall conform to the requirements of ASTM C150 Type II.
- b. **Fly ash.** Fly ash shall conform to ASTM C618, Class C or F.
- c. **Fine aggregate (sand).** Fine aggregate shall conform to the requirements of ASTM C33 except for aggregate gradation. Any aggregate gradation which produces the specified performance characteristics of the CLSM and meets the following requirements, will be accepted.

Sieve Size	Percent Passing by weight
3/4 inch (19.0 mm)	100
No. 200 (75 µm)	0 - 12

- d. **Water.** Water used in mixing or curing shall be from potable water sources. Other sources shall be tested in accordance with ASTM C1602 prior to use.

MIX DESIGN

153-3.1 Proportions. The Contractor shall submit, to the RPR, a mix design including the proportions and source of aggregate, fly ash, cement, water, and approved admixtures. No CLSM mixture shall be produced for payment until the RPR has given written approval of the proportions. The proportions shall be prepared by a laboratory and shall remain in effect for the duration of the project. The proportions shall establish a single percentage or weight for aggregate, fly ash, cement, water, and any admixtures proposed. Laboratory costs are incidental to this item.

- a. **Compressive strength.** CLSM shall be designed to achieve a 28-day compressive strength of 100 to 200 psi (690 to 1379 kPa) when tested in accordance with ASTM D4832, with no significant strength gain after 28 days.
- b. **Consistency.** Design CLSM to achieve a consistency that will produce an approximate 8-inch (200 mm) diameter circular-type spread without segregation. CLSM consistency shall be determined per ASTM D6103.

CONSTRUCTION METHODS

153-4.1 Placement.

- a. **Placement.** CLSM may be placed by any reasonable means from the mixing unit into the space to be filled. Agitation is required during transportation and waiting time. Placement shall be performed so structures or pipes are not displaced from their final position and intrusion of CLSM into unwanted areas is avoided. The material shall be brought up uniformly to the fill line shown on the plans or as directed by the RPR. Each placement of CLSM shall be as continuous an operation as possible. If CLSM is placed in more than one lift, the base lift shall be free of surface water and loose foreign material prior to placement of the next lift.
- b. **Contractor Quality Control.** The Contractor shall collect all batch tickets to verify the CLSM delivered to the project conforms to the mix design. The Contractor shall verify daily that the CLSM is consistent with 153-3.1a and 153-3.1b. Adjustments shall be made as necessary to the proportions and materials as needed. The Contractor shall provide all batch tickets to the RPR.
- c. **Limitations of placement.** CLSM shall not be placed on frozen ground. Mixing and placing may begin when the air or ground temperature is at least 35°F (2°C) and rising. Mixing and placement shall stop when the air temperature is 40°F (4°C) and falling or when the anticipated air or ground temperature will be 35°F (2°C) or less in the 24-hour period following proposed placement. At the time of placement, CLSM shall have a temperature of at least 40°F (4°C).

153-4.2 Curing and protection

- a. **Curing.** The air in contact with the CLSM shall be maintained at temperatures above freezing for a minimum of 72 hours. If the CLSM is subjected to temperatures below 32°F (0°C), the material may be rejected by the RPR if damage to the material is observed.
- b. **Protection.** The CLSM shall not be subject to loads and shall remain undisturbed by construction activities for a period of 48 hours or until a compressive strength of 15 psi (105 kPa) is obtained. The Contractor shall be responsible for providing evidence to the RPR that the material has reached the desired strength. Acceptable evidence shall be based upon compressive tests made in accordance with paragraph 153-3.1a.

153-4.3 Quality Assurance (QA) Acceptance. CLSM QA acceptance shall be based upon batch tickets provided by the Contractor to the RPR to confirm that the delivered material conforms to the mix design.

METHOD OF MEASUREMENT

153-5.1 Measurement.

No separate measurement for payment shall be made for controlled low strength material (CLSM). CLSM shall be considered necessary and incidental to the work of this Contract

BASIS OF PAYMENT

153-6.1 Payment.

No payment will be made separately or directly for controlled low strength material (CLSM). CLSM shall be considered necessary and incidental to the work of this Contract.

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 C33 Standard Specification for Concrete Aggregates

ASTM C150 Standard Specification for Portland Cement

ASTM C618 Standard Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete

ASTM C595 Standard Specification for Blended Hydraulic Cements

ASTM D4832 Standard Test Method for Preparation and Testing of Controlled Low-Strength Material (CLSM) Test Cylinders

****END OF ITEM P-153****

QUALITY ASSURANCE (QA)

610-4.1 QUALITY ASSURANCE SAMPLING AND TESTING. Concrete for each day's placement will be accepted on the basis of the compressive strength specified in paragraph 610-3.2. The contractor will sample the concrete in accordance with ASTM C172; test the slump in accordance with ASTM C143; test air content in accordance with ASTM C231; make and cure compressive strength specimens in accordance with ASTM C31; and test in accordance with ASTM C39. The QA testing agency will meet the requirements of ASTM C1077.

The Contractor shall provide adequate facilities for the initial curing of cylinders.

610-4.2 DEFECTIVE WORK. Any defective work that cannot be satisfactorily repaired as determined by the RPR, shall be removed and replaced at the Contractor's expense. Defective work includes, but is not limited to, uneven dimensions, honeycombing and other voids on the surface or edges of the concrete.

METHOD OF MEASUREMENT

610-5.1 Concrete shall be considered incidental and no separate measurement shall be made.

BASIS OF PAYMENT

610-6.1 Payment shall be considered incidental and no separate payment shall be made

REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to within the text by the basic designation only.

ASTM International (ASTM)

ASTM A184	Standard Specification for Welded Deformed Steel Bar Mats for Concrete Reinforcement
ASTM A615	Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
ASTM A704	Standard Specification for Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement
ASTM A706	Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement
ASTM A775	Standard Specification for Epoxy-Coated Steel Reinforcing Bars
ASTM A884	Standard Specification for Epoxy-Coated Steel Wire and Welded Wire Reinforcement
ASTM A934	Standard Specification for Epoxy-Coated Prefabricated Steel Reinforcing Bars

ITEM P-620 RUNWAY AND TAXIWAY MARKING

DESCRIPTION

620-1.1 This item shall consist of the preparation and painting of numbers, markings, and stripes on the surface of runways, taxiways, and aprons, in accordance with these specifications and at the locations shown on the plans, or as directed by the Resident Project Representative (RPR). The terms “paint” and “marking material” as well as “painting” and “application of markings” are interchangeable throughout this specification.

MATERIALS

620-2.1 MATERIALS ACCEPTANCE. The Contractor shall furnish manufacturer’s certified test reports, for materials shipped to the project. The certified test reports shall include a statement that the materials meet the specification requirements. This certification along with a copy of the paint manufacturer’s surface preparation; marking materials, including adhesion, flow promoting and/or floatation additive; and application requirements must be submitted and approved by the Resident Project Representative (RPR) prior to the initial application of markings. The reports can be used for material acceptance or the RPR may perform verification testing. The reports shall not be interpreted as a basis for payment. The Contractor shall notify the RPR upon arrival of a shipment of materials to the site. All material shall arrive in sealed containers that are easily quantifiable for inspection by the RPR.

620-2.2 MARKING MATERIALS.

TABLE 1. MARKING MATERIALS

Paint ¹				Glass Beads ²	
Type	Color	Fed Std. 595 Number	Application Rate Maximum	Type	Application Rate Minimum
*Waterborne Type I	Yellow	33538 or 33655	115ft ² /gal (2.8 m ² /l)	* Type I, Gradation A	*7lb/gal (0.85 kg/l)
Waterborne Type I*	White	37925	115ft ² /gal (2.8 m ² /l)*	** Type I, Gradation	**7lb/gal (0.85 kg/l)

¹See paragraph 620-2.2a

²See paragraph 620-2.2b

a. Paint. Paint shall be waterborne in accordance with the requirements of this paragraph. Paint colors shall comply with Federal Standard No. 595.

Waterborne. Paint shall meet the requirements of Federal Specification TT-P-1952F, Type I. The non-volatile portion of the vehicle for all paint types shall be composed of a 100% acrylic polymer as determined by infrared spectral analysis.

White and Yellow Paint on Concrete Surfaces. White and yellow paint to be placed on concrete pavements shall include a mold/algae inhibitor to enhance the paint's algae and mold resistance properties. This may be in the form of a biocide, antifouling agent, or other approved algae/mold resistant formula as approved by the Engineer.

b. Reflective media. Glass beads for white and yellow paint shall meet the requirements for Federal Specification TT-B-1325D Type I, Gradation A.

Glass beads shall be treated with all compatible coupling agents recommended by the manufacturers of the paint and reflective media to ensure adhesion and embedment.

Glass beads shall not be used in black and green paint.

Type III glass beads shall not be used in red and pink paint.

CONSTRUCTION METHODS

620-3.1 WEATHER LIMITATIONS. Painting shall only be performed when the surface is dry, and the ambient temperature and the pavement surface temperature meet the manufacturer's recommendations in accordance with paragraph 620-2.1. Painting operations shall be discontinued when the ambient or surface temperatures does not meet the manufacturer's recommendations. Markings shall not be applied when the wind speed exceeds 10 mph unless windscreens are used to shroud the material guns. Markings shall not be applied when weather conditions are forecasts to not be within the manufacturers' recommendations for application and dry time.

620-3.2 EQUIPMENT. Equipment shall include the apparatus necessary to properly clean the existing surface, a mechanical marking machine, a bead dispensing machine, and such auxiliary hand-painting equipment as may be necessary to satisfactorily complete the job.

The mechanical marker shall be an atomizing spray-type or airless type marking machine with automatic glass bead dispensers suitable for application of traffic paint. It shall produce an even and uniform film thickness and appearance of both paint and glass beads at the required coverage and shall apply markings of uniform cross-sections and clear-cut edges without running or spattering and without over spray. The marking equipment for both paint and beads shall be calibrated daily.

620-3.3 PREPARATION OF SURFACES. Immediately before application of the paint, the surface shall be dry and free from dirt, grease, oil, laitance, or other contaminants that would reduce the bond between the paint and the pavement. Use of any chemicals or impact abrasives during surface preparation shall be approved in advance by the RPR. After the cleaning operations, sweeping, blowing, or rinsing with pressurized water shall be performed to ensure the surface is clean and free of grit or other debris left from the cleaning process.

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SUMMARY OF APPROXIMATE QUANTITIES						
ITEM NO.	ITEM DESCRIPTION	UNITS	SCHEDULE I		SCHEDULE II	
			ESTIMATE	AS BUILT	ESTIMATE	AS BUILT
C-105a	Mobilization	LS	1		1	
P-151a	Tree Clearing - Individual	EA			3	
P-151d	Tree Topping - Individual (40' to 65')	EA			15	
P-605a	Remove and Replace Damaged Joint Sealant	LF	5,500			
P-620a	Marking (Yellow)	SF	2,200			
P-620b	Marking (Black)	SF	10,200			
P-620c	Marking (White)	SF	27,100			
P-620d	Marking Obliteration	SF	45,000			
L-101a	Remove Existing Airport Rotating Beacon	EA	1			
L-101b	Install L-801A LED Airport Rotating Beacon	EA	1			
L-108a	Install #8 AWG, L-824C, 5000V, Wire	SF	22,000			
L-108b	Install #6 AWG, Base Copper Counterpoise Including Ground Rods and Terminations	LF	12,000			
L-108c	Install #8 AWG Ground Wire	LF	4,000			
L-109a	Install L-829 Constant Current Regulator, 5KW, Ferroresonant Type	EA	1			
L-109b	Install L-854 Radio Controller in Existing Vault	EA	1			
L-110a	Install 1-2" SCH 40 PVC Conduit, Direct Earth Buried (DEB)	LF	11,500			
L-115a	Remove L-867 Junction Box, Complete	EA	4			
L-115b	Install L-867B Junction Box, Complete	EA	3			
L-125a	Remove Stake Mounted Runway Edge Light, Complete	EA	39			
L-125b	Install L-861 LED Runway Edge Light, Base Mounted	EA	40			
L-125c	Remove Stake Mounted Runway Threshold Light, Complete	EA	24			
L-125d	Install L-861E LED Runway Threshold Light, Base Mounted	EA	16			
L-125e	Remove Stake Mounted Taxiway Edge Light, Complete	EA	38			
L-125f	Install L-861T LED Taxiway Edge Light, Base Mounted	EA	46			
L-125g	Remove REIL System, Complete	EA	1			
L-125h	Install L-849I LED REIL, Style E, Complete	EA	2			
L-125i	Remove PAPI System, Complete	EA	1			
L-125j	Install L-880 LED PAPI System, Complete	EA	2			
L-125k	Remove In-Pavement Runway Light, Install Blank Cover	EA	3			
L-125l	Install L-858 Guidance Sign, Size 1, Style 4, Complete	EA	5			
L-125m	Remove Guidance Sign, Complete	EA	5			
SCHEDULE I ALTERNATE NO. 1						
L-125n	Install L-858 LED Guidance Sign, Size 1, Style 2, Complete	EA	5			
SCHEDULE I ALTERNATE NO. 2						
ALT-2	Cost Savings for Full Runway Closure	LS	1			
SCHEDULE II ALTERNATE NO. 3						
P-151a	Tree Topping - Individual	EA			10	
P-151b	Tree Topping - Individual (10' to 20')	EA			11	
P-151c	Tree Topping - Individual (20' to 40')	EA			12	
P-151d	Tree Topping - Individual (40' to 65')	EA			4	

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ZACHARY C. AMBARIANTZ PE-2021009380 12/1/2022

FOR AND ON BEHALF OF JVIATION , INC.



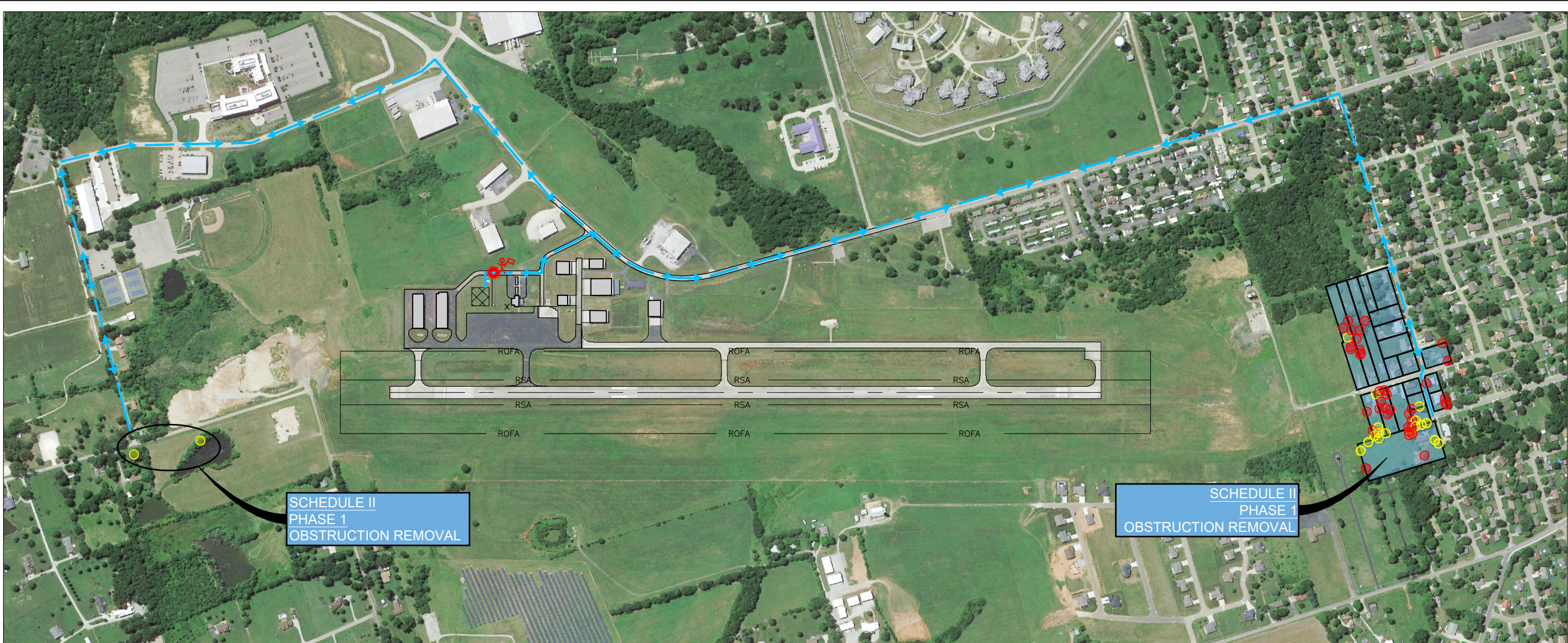
A WOOLPERT COMPANY

DES: Z.A.C.	ISSUE RECORD			
DR: E.H.M.	NO.	BY	DATE	DESCRIPTION
CH: C.L.G.	1	Z.C.A.	12/1/2022	ISSUED FOR BID
APP: Z.C.A.	2	Z.C.A.	12/22/2022	ADDENDUM NO. 1

RUNWAY 2/20 LIGHTING REHABILITATION

SUMMARY OF APPROXIMATE QUANTITIES	
MoDOT PROJ. NO. 22-061C-1	JVIATION PROJ. NO. 2021.FAM.01

SHEET NAME G005
SHEET NO. 6 of 51



PHASING LEGEND

CONTRACTOR HAUL ROUTE
(2 WAY TRAFFIC)

RSA

CONTRACTOR STAGING AREA

ROFA

CONTRACTOR GATE ACCESS

X

FLAGMAN / GATE GUARD

AOA FENCE

SCHEDULE II - BASE BID

FLASHER BARRICADE

SCHEDULE II - ALTERNATE NO. 3

CONSTRUCTION PHASING NOTES		
SCHEDULE II / PHASE 1	MAJOR WORK TO BE COMPLETED	NOTES
<div><div>DURATION</div><div>15 CALENDAR DAYS</div><div>TREE REMOVAL SHALL ONLY TAKE PLACE BETWEEN NOVEMBER 1ST AND MARCH 31ST.</div><div>THE AWARD OF BID ALTERNATE NO. 3 SHALL NOT AFFECT THE CALENDAR DAY DURATION FOR SCHEDULE II.</div><div>CONTRACTOR ACCESS TIMES</div><div>24 HOUR ACCESS TO APPROVED WORK AREAS</div><div>ALL AIRPORT OPERATIONS AREAS SHALL REMAIN OPEN AND UNAFFECTED DURING THIS SCHEDULE</div></div>	<div><div>SITE</div><div>1. REMOVAL OF OBSTRUCTIONS (TREES). WHERE SOME TREES WILL BE TOPPED AND SOME CUT OFF FLUSH WITH THE GROUND DEPENDING ON THEIR LOCATION ON PROPERTY AND EASEMENT.</div><div>2. SEE SHEETS C300, C301, & C302 FOR MORE OBSTRUCTION REMOVAL DETAILS.</div></div>	<div><div>1. NO WORK, OPEN EXCAVATIONS, EQUIPMENT, STOCKPILES, OR PERSONNEL ARE ALLOWED IN THE SAFETY AREAS OR OBJECT FREE AREAS FOR ANY ACTIVE TAXIWAY OR SAFETY AREAS FOR AN ACTIVE RUNWAY WHEN THE AIRPORT IS OPEN.</div><div>2. PRIOR TO OPENING A RUNWAY OR TAXIWAY, ALL EXCAVATIONS AND TRENCHES IN THE SAFETY AREAS SHALL BE BACKFILLED AND COMPACTED TO P-152 SPECIFICATIONS. GRADING WITHIN THE SAFETY AREA SHALL CONFORM TO AC 150/5300-13B, CHAPTER 3.</div><div>3. ALL STOCKPILES OR EQUIPMENT ADJACENT TO OBJECT FREE AREAS SHALL BE MARKED AND LIGHTED PER AC 150/5370-2G.</div><div>4. THE CONTRACTOR SHALL PROVIDE A TRAFFIC CONTROL PLAN APPROVED BY THE AIRPORT AND LOCAL JURISDICTION, AND A WORK PLAN FOR THIS SCHEDULE OF WORK.</div><div>5. THE CONTRACTOR SHALL HAVE A SWEEPER ON SITE AT ALL TIMES TO CLEAN DEBRIS FROM HAUL ROUTES, CONSTRUCTION ACCESS POINTS, OR AREAS ADJACENT TO CONSTRUCTION.</div><div>6. THE CONTRACTOR SHALL KEEP ALL CONSTRUCTION TRAFFIC LIMITED TO THE APPROVED HAUL ROUTES AS SHOWN ON THE PLANS OR AS APPROVED BY THE ENGINEER. THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGE CAUSED ALONG THE HAUL ROUTES OR CONSTRUCTION ACCESS ROUTES TO THE PROJECT SITE. HAUL ROADS WILL BE MAINTAINED AND RESTORED TO THEIR ORIGINAL CONDITION BY THE CONTRACTOR AT NO EXPENSE TO THE SPONSOR.</div><div>7. PRIOR TO ACCEPTANCE AND OPENING OF AN AREA TO AIRCRAFT, ALL FINAL GRADING MUST BE COMPLETED. THIS INCLUDES ROCK REMOVAL, FINE GRADING, AND SEED PLACEMENT.</div><div>8. ACCESS TO WORK AREAS WILL BE BY HAUL ROUTES ONLY.</div><div>9. UNICOM - MONITOR 122.8 MHZ AT ALL TIMES.</div><div>10. AIRFIELD SIGNS PROVIDING DIRECTIONS TO CLOSED AREAS SHALL BE COVERED. ALL AREAS CLOSED TO AIRCRAFT SHALL NOT BE LIGHTED. EDGE LIGHTS IN CLOSED AREAS SHALL BE TURNED OFF USING JUMPERS OR COVERED. ADEQUATE LIGHTING, IN THE OPINION OF THE RESIDENT ENGINEER, SHALL BE PROVIDED TO DELINEATE THE ACTIVE AND CLOSED AREAS OF THE AOA. THE ABOVE ITEMS ARE CONSIDERED INCIDENTAL TO THE VARIOUS BID ITEMS. CONTRACTOR METHOD FOR COVERING OF LIGHTS AND SIGNS SHALL BE APPROVED BY ENGINEER. SHALL PREVENT DAMAGE TO THE EQUIPMENT AND SHALL BE SECURED TO PROTECT AGAINST JET BLAST AND MUD.</div><div>11. ALL COMPONENTS OF THE AIRFIELD LIGHTING SYSTEM OUTSIDE OF THE PROJECT AREA SHALL BE OPERATIONAL AT THE END OF EACH WORK SHIFT AND FOR EVERY PERIOD OF LOW VISIBILITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL TEMPORARY JUMPERS AND OTHER EQUIPMENT NECESSARY TO MAINTAIN AN OPERATIONAL SYSTEM DURING CONSTRUCTION. TEMPORARY JUMPERS SHALL BE CONSIDERED INCIDENTAL TO THE VARIOUS BID ITEMS. ALL TEMPORARY JUMPERS SHALL BE INSTALLED IN CONDUIT.</div><div>12. PRIOR TO BEGINNING ELECTRICAL DEMOLITION THE CONTRACTOR SHALL PROVIDE A PLAN TO THE ENGINEER DETAILING THE INSTALLATION OF ALL REQUIRED TEMPORARY JUMPERS. THE PLAN SHALL SHOW THE LOCATIONS AND INSTALLATION TECHNIQUES OF ALL JUMPERS AND SHALL DEMONSTRATE TO THE ENGINEER THE CONTRACTOR'S PLAN TO MAINTAIN THE INTEGRITY OF THE AIRFIELD CIRCUITS FOR THE DURATION OF CONSTRUCTION. ALL CIRCUITS THAT WILL BE WORKED ON SHOULD BE MEGGERED AND THE RESULTS REPORTS TO THE ENGINEER BEFORE WORK BEGINS AND AFTER WORK IS COMPLETE.</div><div>13. MATERIAL STORAGE WITHIN THE PROJECT LIMITS MUST BE APPROVED BY THE ENGINEER.</div><div>14. HAUL ROUTES TO AND FROM THE PROJECT SITE MUST BE APPROVED BY THE ENGINEER.</div><div>15. OPERATIONS WITHIN THE AIRPORT OPERATIONS AREA (A.O.A.) MUST BE APPROVED BY THE ENGINEER. SUFFICIENT NOTICE OF THE OPERATIONS MUST BE GIVEN TO THE ENGINEER.</div><div>16. SEE SAFETY PLAN FOR SPECIFIC SAFETY REQUIREMENTS.</div><div>17. THE CONTRACTOR SHALL COORDINATE WITH THE RPR TO VERIFY THE REMOVAL/TOPPING OF TREES PRIOR TO CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING NEARBY PROPERTY. THE CONTRACTOR SHALL SEED AND MULCH ANY AREAS WHERE TREES WERE REMOVED/AREA HAS BEEN DISTURBED.</div><div>18. TREES LOCATED ON AIRPORT PROPERTY OR FEE BY WARRANTY DEED AREAS SHALL BE REMOVED. TREES LOCATED ON EASEMENT PROPERTIES SHALL ONLY BE TOPPED PER THE PLANS AND SPECIFICATIONS.</div></div>

GRAPHIC SCALE

350 0 350 700

(IN FEET)

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ZACHARY C. AMBARIANTZ PE-2021009380 12/1/2022

FOR AND ON BEHALF OF JVIATION , INC.

RE-ISSUE ENTIRE SHEET

JVIATION®

A WOOLPERT COMPANY

DES: Z.C.A.

DR: E.H.M.

CH: C.L.G.

APP: Z.C.A.

ISSUE RECORD

NO.	BY	DATE	DESCRIPTION
1	Z.C.A.	12/1/2022	ISSUED FOR BID
2	Z.C.A.	12/22/2022	ADDENDUM NO. 1

RUNWAY 2/20 LIGHTING REHABILITATION

CONSTRUCTION SAFETY DRAWING SCHEDULE II / PHASE 1

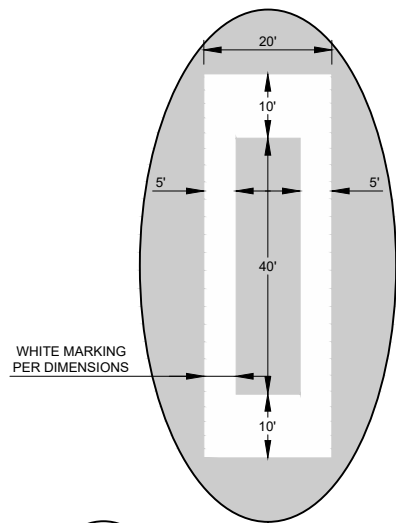
MoDOT PROJ. NO. 22-061C-1

JVIATION PROJ. NO. 2021.FAM.01

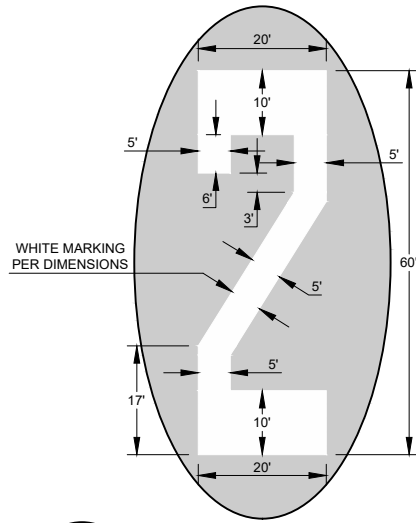
SHEET NAME G054

SHEET NO. 12 of 51

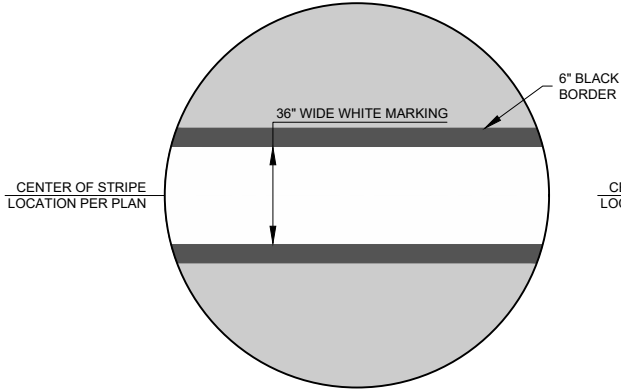
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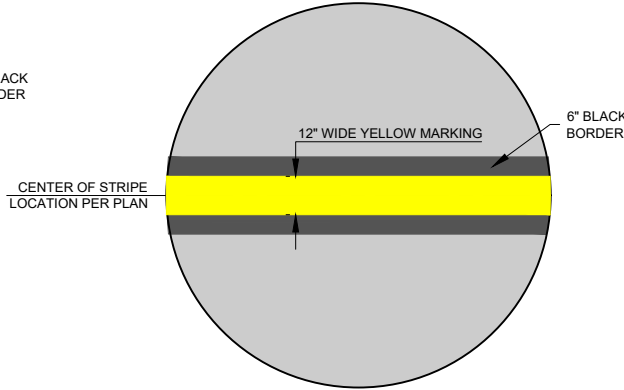
1 DESIGNATION "0" DETAIL
DETAIL SCALE: 1" = 30'



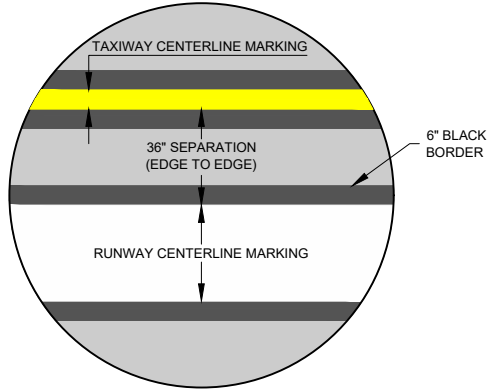
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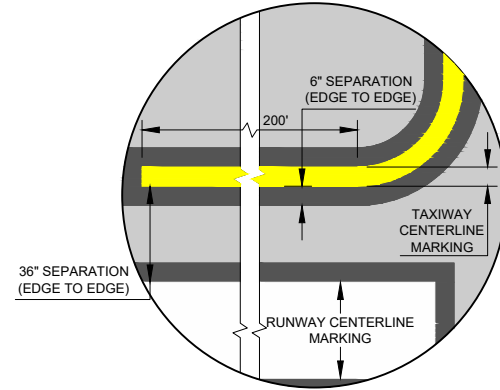
3 RUNWAY CENTERLINE DETAIL
NOT TO SCALE



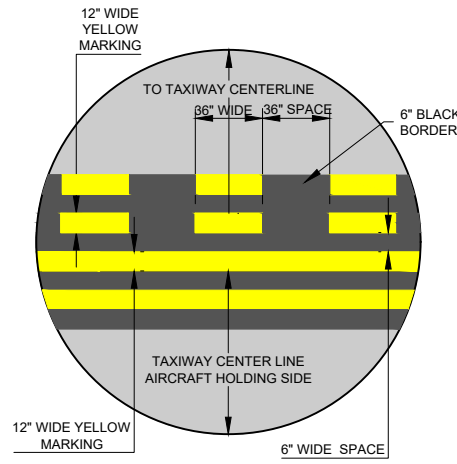
4 TAXIWAY CENTERLINE DETAIL
NOT TO SCALE



5 PARALLEL RUNWAY & TAXIWAY CENTERLINE SEPARATION DETAIL
NOT TO SCALE



6 TAXIWAY LEAD IN LINE DETAIL
NOT TO SCALE



7 TAXIWAY HOLD LINE DETAIL
NOT TO SCALE

GENERAL MARKING NOTES

- ADJUST RUNWAY CENTERLINE STRIPE AND SPACING BETWEEN STRIPES AT CENTER POINT OF RUNWAY TO ACCOMMODATE RUNWAY LENGTH. THE SPACING SHALL BE AS SHOWN ON SHEET C203
- PAINT SHOULD BE STORED IN A CLIMATE-CONTROLLED ENVIRONMENT IN ORDER TO MEET MANUFACTURERS RECOMMENDED TEMPERATURES BEFORE IT IS APPLIED. MATERIAL THAT DOES NOT MEET REQUIRED TEMPERATURE REQUIREMENTS WILL BE WARMED TO THE MINIMUM TEMPERATURE FOR 24 HOURS BEFORE IT IS APPLIED OR AS APPROVED BY THE RESIDENT ENGINEER.
- UNLESS OTHERWISE SPECIFIED, ALL TAXIWAY MARKINGS ARE 6" WIDE (YELLOW).
- UNLESS OTHERWISE SPECIFIED, ALL RUNWAY MARKINGS ARE 3'-0" WIDE (WHITE).
- RUNWAY MARKINGS HAVE PRECEDENCE OVER THE TAXIWAY LEAD IN LINES ON CENTERLINE MARKINGS.
- FINAL PAINT LAYOUT WILL BE CONFIRMED BY THE AIRPORT PRIOR TO CONSTRUCTION.
- THE CONTRACTOR SHALL MATCH THE EXISTING PAINT LAYOUT. EXISTING MARKINGS SHALL BE SURVEY VERIFIED PRIOR TO PAVEMENT REMOVAL.
- ALL CURING COMPOUND SHALL BE REMOVED, AND ALL AREAS THOROUGHLY CLEANED PRIOR TO PLACING PAINT MARKINGS.
- ENHANCED TAXIWAY CENTERLINE SHALL MATCH EXISTING LAYOUT.
- NUMBERED STENCILS SHALL BE ORDERED TO COMPLETE THE SURFACE PAINTED SIGN INSCRIPTIONS. THE CONTRACTOR SHALL SUBMIT DIMENSIONAL AND GRAPHICAL INFORMATION ON EACH STENCIL TO THE ENGINEER FOR APPROVAL PRIOR TO ORDERING. STENCILS SHALL BE MANUFACTURED TO THE DIMENSIONS OF THE DETAILS AND CONFORM TO THE DIMENSIONS OF AC 150/5340-1k (CHANGE 1). STENCILS SHALL BECOME THE PROPERTY OF THE AIRPORT UPON COMPLETION OF THE PROJECT. IF THE AIRPORT HAS STENCILS TO USE TO KEEP AIRPORT CONSISTENT, CONTRACTOR SHALL UTILIZE AIRPORT PROVIDED STENCILS FOR THE SURFACE PAINTED HOLDING POSITION SIGNS. THE CONTRACTOR SHALL MAINTAIN THE STENCILS THROUGHOUT USE AND WILL BE RESPONSIBLE FOR REPLACEMENT IF ANY DAMAGE OCCURS.
- IF CONTRACTOR USES STENCILS FOR SURFACE PAINTED HOLD SIGNS, GAPS BETWEEN STENCILS ARE PROHIBITED.
- ANY DISCREPANCIES BETWEEN THESE PLANS AND THE ACTUAL STRIPING PRESENT IN THE FIELD SHALL BE BROUGHT TO THE ATTENTION OF RESIDENT ENGINEER.
- SEE MARKING NOTES ON SHEETS C200 TO C206.
- YELLOW AND WHITE PAINT SHALL INCLUDE MOLD INHIBITOR. SEE SPECIFICATION P-620 RUNWAY AND TAXIWAY MARKING FOR MORE DETAILS.

ISSUED FOR BID

THESE DRAWINGS ARE FOR BIDDING PURPOSES ONLY. THEY WERE PREPARED BY OR UNDER THE SUPERVISION OF:

ZACHARY C. AMBARIANTZ PE-2021009380 12/1/2022

FOR AND ON BEHALF OF JVIATION, INC.

JVIATION
A WOOLPERT COMPANY



DES: Z.A.C.	ISSUE RECORD			
	NO.	BY	DATE	DESCRIPTION
DR: E.H.M.	1	Z.C.A.	12/1/2022	ISSUED FOR BID
CH: C.L.G.	2	Z.C.A.	12/22/2022	ADDENDUM NO. 1
APP: Z.C.A.				

RUNWAY 2/20 LIGHTING REHABILITATION

MARKING DETAILS

MoDOT PROJ. NO.
22-061C-1

JVIATION PROJ. NO.
2021.FAM.01

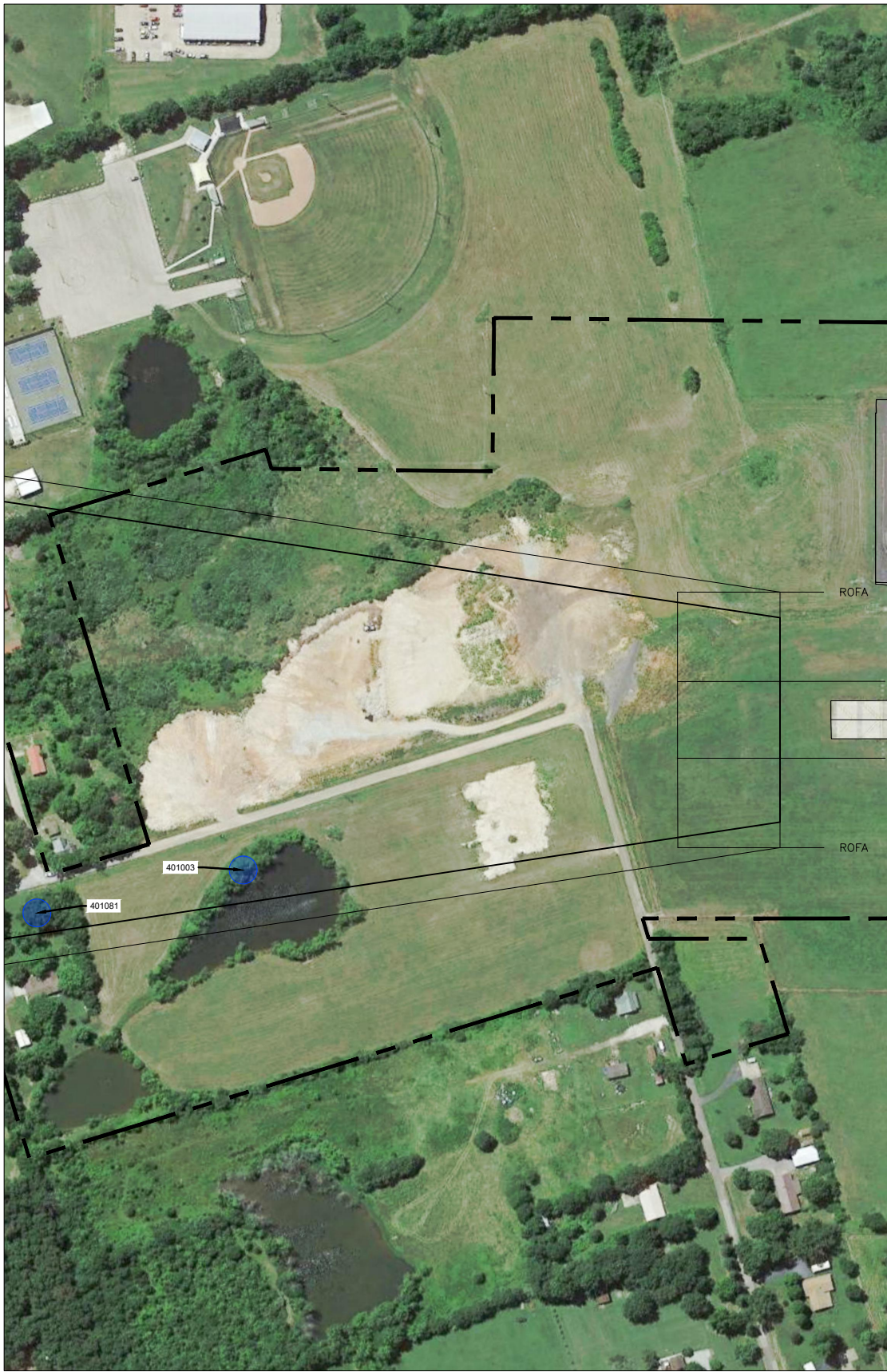
SHEET NAME

C250

SHEET NO.

28 of 51

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RUNWAY 2 END



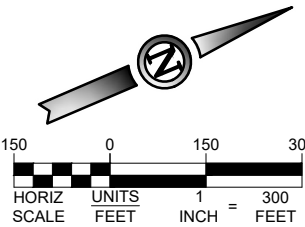
RUNWAY 20 END

RE-ISSUE ENTIRE SHEET

OBSTRUCTION LEGEND

- AIRPORT PROPERTY LINE
- TREES TO BE REMOVED INSIDE AIRPORT PROPERTY SCHEDULE II BASE BID
- TREES TO BE TOPPED OUTSIDE AIRPORT PROPERTY (INSIDE AVIGATION EASEMENT) SCHEDULE II ALTERNATE NO. 3
- TREES TO BE TOPPED OUTSIDE AIRPORT PROPERTY (INSIDE FUTURE AVIGATION EASEMENT) SCHEDULE II BASE BID
- TREES TO BE REMOVED IN AIRPORT FEE BY WARRANTY DEED AREA SCHEDULE II ALTERNATE NO. 3
- AIRPORT EASEMENT BOUNDARY
- FEE BY WARRANTY DEED PARCEL
- AVIGATION EASEMENT PARCEL

- NOTE:
- TREES THAT MUST BE REMOVED ARE DENOTED IN YELLOW CIRCLES. ALL NEARBY TREES OF SIMILAR HEIGHT WITHIN THE PROJECT SCOPE ARE TO BE REMOVED AS WELL.
 - ALL TREES MUST BE VERIFIED BY THE RPR PRIOR TO REMOVAL.
 - THE CONTRACTOR IS RESPONSIBLE FOR PROTECTING NEARBY PROPERTY, BUILDINGS, ETC.



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ZACHARY C. AMBARIANTZ PE-2021009380 12/1/2022

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DES: Z.C.A.	ISSUE RECORD			
	NO.	BY	DATE	DESCRIPTION
DR: E.H.M.	1	Z.C.A.	12/1/2022	ISSUED FOR BID
CH: C.L.G.	2	Z.C.A.	12/22/2022	ADDENDUM NO. 1
APP: Z.C.A.				

RUNWAY 2/20 LIGHTING
REHABILITATION

OBSTRUCTION REMOVAL

MoDOT PROJ. NO.
22-061C-1

JVIATION PROJ. NO.
2021.FAM.01

SHEET NAME

C301

SHEET NO.

30 of 51

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Schedule II - Base Bid				
Point #	Northing	Easting	Existing Tree Elevation	Proposed Tree Elevation
P-151d Tree Topping – Individual – (40’ to 65')				
400537	705261.28	842379.30	1020.47	978.82
400680	705403.42	842655.93	1032.03	985.93
400690	705472.64	842665.81	1035.13	987.91
400625	705152.88	842607.67	1026.05	978.61
400627	705181.80	842604.09	1027.15	979.35
400626	705168.68	842632.72	1027.15	979.33
400679	705418.07	842624.56	1034.12	985.95
400628	705192.63	842570.56	1028.24	979.23
400694	705489.43	842807.59	1041.38	990.04
700072	705474.21	842555.58	1038.62	986.64
700330	705441.04	842662.92	1039.94	987.02
700060	705220.27	842622.27	1038.31	980.59
700059	705101.53	842628.35	1037.12	977.47
700070	705476.86	842779.49	1054.33	989.37
400539	705038.68	842658.05	1015.02	976.13

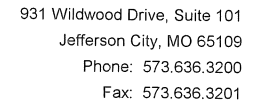
NOTE: APPROXIMATE LOCATIONS AND HEIGHT OF TREES. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING THE APPROPRIATE AMOUNT OF THE TREE HAS BEEN TOPPED. THE CONTRACTOR IS TO COORDINATE WITH THE RPR ON THE IDENTIFICATION AND LOCATION OF THE TREES PRIOR TO REMOVAL/TOPPING.

Schedule II - Bid Alternative No. 3				
Point #	Northing	Easting	Existing Tree Elevation	Proposed Tree Elevation
P-151b Tree Topping – Individual – (10’ to 20’)				
400629	705154.73	842574.48	988.76	978.27
400670	705396.98	842571.45	996.19	984.75
700074	705740.74	842371.09	1004.45	991.63
400546	705382.43	842840.18	1000.43	987.54
400659	705568.75	842444.16	1001.93	987.87
400796	705626.00	842601.43	1006.14	991.28
400794	705636.26	842571.56	1007.24	991.20
400538	705168.08	842455.25	993.55	977.22
400664	705282.18	842478.54	997.57	980.56
400666	705250.43	842470.90	997.84	979.62
400665	705308.84	842497.20	1001.93	981.50
P-151c Tree Topping – Individual – (20’ to 40’)				
400534	705628.22	842611.77	1015.52	991.45
400813	705756.38	842260.64	1015.09	990.75
400682	705361.86	842642.46	1010.47	984.65
400660	705321.66	842403.29	1007.21	980.73
400683	705353.89	842669.41	1011.46	984.76
400662	705293.17	842368.31	1007.74	979.55
400661	705318.31	842379.84	1013.55	980.37
400536	705273.41	842520.52	1014.64	980.82
400669	705423.96	842550.03	1019.73	985.23
400663	705273.92	842427.15	1014.60	979.73
400689	705367.63	842688.71	1022.94	985.35
700071	705345.96	842689.41	1022.91	984.77
P-151d Tree Topping – Individual – (40’ to 65')				
400681	705379.59	842650.16	1025.98	985.22
400691	705397.37	842613.13	1026.33	985.26
400540	705025.30	842767.64	1023.49	977.07
700284	705379.12	841945.52	1031.65	976.86



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ZACHARY C. AMBARIANTZ PE-2021009380 12/1/2022
FOR AND ON BEHALF OF JVIATION , INC.

<div><div>JVIATION®</div><div>A WOOLPERT COMPANY</div></div>		DES: Z.C.A.	ISSUE RECORD				RUNWAY 2/20 LIGHTING REHABILITATION	OBSTRUCTION REMOVAL TABLES		SHEET NAME
		DR: E.H.M.	NO.	BY	DATE	DESCRIPTION				C302
		CH: C.L.G.	1	Z.C.A.	12/1/2022	ISSUED FOR BID				SHEET NO.
			2	Z.C.A.	12/22/2022	ADDENDUM NO. 1				
		APP: Z.C.A.								
								MoDOT PROJ. NO. 22-061C-1	JVIATION PROJ. NO. 2021.FAM.01	31 of 51



Pre-Bid Meeting Sign In

MoDOT Project #: 22-061C-1

Name	Company	Telephone No.	E-mail
Laura Riegel, Project Manager	Jviation, a Woolpert Company	573-418-1767	laura.riegel@woolpert.com
STEVE TIERKE	TOB INC	314-664-4444	Steve@tgbinco.com
Jim McElreath	KT Power Systems	573-388-4524	JiMac@KTPOWERSYSTEMS.COM
Leah Keller	Meyer Electric	573-893-2335	Leah@meyerelectric.net
Shawn Koch	Koch Electric, Inc.	573-313-2444	shawn@kochelectricinc.net
GREGORY BEAVERS	CITY OF FARMINGTON		
BRIAN HANSON	MODOT	573-631-1852	BHANSON@FARMINGTON-MO.GOV
Andy Hanks (Phone)			

FARMINGTON REGIONAL AIRPORT

MoDOT PROJECT NO. 22-061C-1

DATE: December 15, 2022

TIME: 10:00 A.M.

PRE-BID CONFERENCE- MINUTES

1. RECORDING OF ATTENDEES

- A. Recording of attendees, firm represented, address, phone number and email. The sign in sheet will be included in the meeting minutes.

2. INTRODUCTIONS & PROJECT DESCRIPTION

- A. City of Farmington Representatives
- Greg Beavers, City Administrator – (573-701-1898)
 - Brian Hinson, Airport Manager – (573-631-1852) Cell
- B. Airport Engineering – Jviation, a Woolpert Company
- Laura Riegel – Project Manager (573-418-1767)
 - Joe Pestka – Project Director (537-418-0983)
- C. MoDOT Aviation
- Andy Hanks, Aviation Programs Manager (573-751-7478)
- D. Project Schedule (Sch. I 40 Calendar Days, Sch. II 15 Calendar Days)
- Schedule I – Runway Lighting Rehabilitation and Runway Pavement Marking
 - Schedule II – Obstruction Removal

E. Work Items – FAA Specifications

Item No.	Item Description	Unit	Schedule I	Schedule II
			Estimate	Estimate
C-105a	Mobilization	LS	1	1
P-151a	Tree Clearing - Individual	EA		10
P-151b	Tree Topping– Individual	EA		40
P-605a	Remove and Replace Damaged Joint Sealant	LF	5,500	
P-620a	Marking (Yellow)	SF	2,200	
P-620b	Marking (Black)	SF	10,200	
P-620c	Marking (White)	SF	27,100	
P-620d	Marking Obliteration	SF	45,000	
L-101a	Remove Existing Airport Rotating Beacon	EA	1	
L-101b	Install L-801A Airport Rotating Beacon	EA	1	
L-108a	Install #8 AWG, L-824C, 5000V, Wire	SF	25,000	
L-108b	Install #6 AWG, Base Copper Counterpoise Including Ground Rods and Terminations	LF	16,000	
L-109a	Install New L-128 Constant Current Regulator, Ferroresonant Type	EA	1	
L-109b	Install L-854 Radio Controller in Existing Vault	EA	1	
L-110a	Install 1-2" SCH 40 PVC Conduit, Direct Earth Buried (DBE)	LF	16,000	
L-115a	Remove L-867 Junction Box, Complete	EA	4	
L-115b	Install L-867B Junction Box, Complete	EA	4	
L-125a	Remove Stake Mounted Runway Edge Lighting	EA	39	
L-125b	Install L-861 Runway Edge Light, Base Mounted	EA	40	
L-125c	Remove Stake Mounted Runway Threshold Light, Complete	EA	24	
L-125d	Install L-861E Runway Threshold Light, Base Mounted	EA	16	
L-125e	Remove Stake Mounted Taxiway Edge Light, Complete	EA	38	
L-125f	Install L-861T (L) Taxiway Edge Light, Base Mounted	EA	46	
L-125g	Remove REIL System, Complete	EA	2	
L-125h	Install L-849I REIL	EA	2	
L-125i	Remove PAPI System, Complete	EA	2	
L-125j	Install L-880 PAPI System	EA	2	
L-125k	Remove In-Pavement Runway Light	EA	3	
L-125l	Install L-858 Guidance Sign, Size 1, Style 4, Complete	EA	5	
L-125m	Remove Guidance Sign	EA	5	

SCHEDULE I ALTERNATE NO. 1				
L-125n	Install L-858 Lighted Guidance Sign, Complete	EA	5	
SCHEDULE I ALTERNATE NO. 2				
ALT-2	Cost Savings for Full Runway Closure	LS	1	

3. BID OPENING

- A. Date: Thursday, December 29, 2022 10:00 a.m. (CST)
- B. Location: Farmington City Hall
110 W Columbia Street
Farmington, MO 63640.
- C. Bid Bond: 5% of bid amount – Section 2, Instructions to Bidders, Paragraph 4 and Section 20-10 Bid Guarantee.
- D. Contract Proposal: Proposal Form starts on page B-1 through B-35.
All pages B-1 through B-21 will need to be submitted with bid.
- E. Addenda: Addendum No. 1 includes paint marking notes, Glass beads, typos, and P-610 Contractor testing.
- F. Award: Notice to Bidders, Section 1, Page ` – lowest qualifying bidder for either the base bid or base bid with addenda.
– No split awards

4. DBE GOALS

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

Contract shall provide a certified statement signed by the subcontractors, indicating actual amounts paid to the Disadvantaged Business Enterprise (DBE) subcontractors and/or suppliers that were used on the project through race neutral mean.

5.00% of Contract Amount Required.

5. QUALIFICATION OF BIDDERS

- A. Qualifications shall be furnished per Section 20-02. Each bidder shall furnish the Owner satisfactory evidence of his or her competency and financial responsibility to perform the proposed work. This includes resumes of key personnel, equipment list and a list detailing experience on similar construction projects.

6. ESTIMATED CRITICAL CONTRACT DATES

- A. Contract Award: Early 2023 (ESTIMATED) –The signature of the bidder on the proposal form indicates that within thirty (30) calendar days from acceptance of its bid offer it will execute a contract with the Owner and, if indicated in this solicitation, furnish a project specific Certificate of Insurance naming the Owner as Additional Insured, furnish Performance and Payment Bonds and any other documents required by the Contract Documents.
- B. Award date will depend on receipt of federal funds. Bids can be held up to 120 calendar days.
- C. Notice to Proceed: February 2023 (ESTIMATED), Refer to Section 80-02.

Project Time: 40 Calendar Days total for Schedule I; 15 Calendar Days total for Schedule II. Refer to Section 80-08 for more information.

7. BONDING

- A. Payment Bond: 100% of Bid Amount, Refer to Section 30-05
- B. Performance Bond: 100% of Bid Amount, Refer to Section 30-05

8. BUY AMERICA REQUIREMENTS

- A. See Section 4 – Supplementary Provisions, Part A Federal and State Provisions for Buy American Requirements. Buy America Certification required to be submitted as part of the Bid Proposal Form.

9. INSURANCE REQUIREMENTS

Refer to Section 4, Part C Local Provisions, Paragraph 10 for Contractor's Liability Insurance.

- A. The Contractor shall pay for and maintain during the life of this contract adequate Workmen's Compensation, Public Liability and Property Damage Insurance. The Contractor is charged with the responsibility for adequate and proper coverage for all his subcontract operations. Contractor shall furnish to the Sponsor satisfactory proof of carriage of the insurance required.

10. FEDERAL AND STATE WAGE RATES (DAVIS BACON ACT)

- A. The higher of the Federal wage and State wage rates are required for this project for work completed under all Schedules. Refer to Section 4, Parts D, Federal and State Wage Rates.

11. LIQUIDATED DAMAGES

- A. As compensation for non-use, the Contractor shall be assessed a liquidated damage of **\$750/calendar day(s)** for each day that the work remains uncompleted beyond the contract period for **all Schedules**. expenses. Reference SECTION 80-08 FAILURE TO COMPLETE ON TIME.

SCHEDULE	LIQUIDATED DAMAGES COST	ALLOWED CONSTRUCTION TIME
Schedule I	\$750/Calendar Day(s)	40 Calendar Days
Schedule II	\$750/Calendar Day(s)	15 Calendar Days

In addition, up to **\$1,800 per calendar day for the Construction manager, and up to \$1,400 per calendar day for each RPR, plus any incurred expenses** (additional testing, per diem, lodging, etc.) will be charged to the Contractor for that time which exceeds the number of calendar day(s) allowed. Reference the LOCAL PROVISIONS in Section 4, Part C for more information.

Please see the Phasing Sheets, G050 through G054, of the Construction Drawings for more information on the scheduling/sequencing of work.

- B. 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 waiver on the part of the Owner of any of its rights under the contract.
- C. The Engineer and City have attempted to estimate the amount of time needed for construction management services by the Engineer. **If unusually long working days or extended working days are required, reimbursement for unscheduled employment of the engineer may be required as shown in Section 4 of the Contract Documents, under “Liquidated Damages”.**

12. PROJECT PHASING

- A. Reference the Phasing Sheets, G050 through G054, of the Construction Drawings.
- B. Project Bid Phasing.
 - Base Bid
 - Schedule I, Phase 1: Night work (40 Calendar Days)
 - Runway will be open during the day each day from 6 a.m. to 6 p.m.
 - Schedule I, Phase 2: Day Work (15 Calendar Days)
 - Schedule II, Phase 1: Day Work (15 Calendar Days)

- Alternate No. 1
 - Substitution for L-125I Guidance Signs
 - No change to phasing/calendar days
- Alternate No. 2
 - Cost savings for switching to day work (runway is closed for the whole Schedule I, Phase 1 duration.
 - Schedule I, Phase 1: Day work (40 Calendar Days)
 - Schedule I, Phase 2: Day Work (to be completed within the Phase 1 duration)
 - Schedule II, Phase 1: Day Work (15 Calendar Days) (unchanged)

C. CONSTRUCTION SAFETY AND PHASING PLAN (CSPP) - The Contractor shall submit a Safety Plan Compliance Document (SPCD) (Refer to Appendices A and B) to the engineer and airport operator for approval PRIOR to the issuance of Notice to Proceed as required by FAA Advisory Circular (AC) 150/5370-2G "Operational Safety on Airports During Construction".

13. MISCELLANEOUS

- A. Survey Requirements – Refer to Section 50-06, Construction Layout and Stakes.
- B. Contractor Access: as shown on the Phasing sheets.
 - a. Gate Opening (possibly electric gate)
 - b. Haul Roads
- C. Acceptance Testing: Responsibility of the Contractor – **Addendum No. 1**
- D. Haul Route- Sheet G050 through Sheet G054 notes. The Contractor shall be responsible for any damage to existing facilities or roads. Repairs shall be made at no additional cost to the Sponsor.
- E. Mold Inhibitor in Paint
- F. Not all trees in Schedule II will be complete removal (Addendum Alternate)
 - a. Some may be topped
 - b. A portion of the obstruction removal quantity may be reduced, depending on available funding.
- G. Airport radios shall be required and must be monitored at all times.
 - a. Questions will be taken via written format until **Tuesday, December 27, 2022 at 10:00 a.m. (CST)** by email to bid.info@woolpert.com (CC: laura.riegel@woolpert.com).

14. ADDENDUM

*L-125j states to install an L-881, this should be L-880 (Contract Docs: Update Item Quantity table on Section 1-2; Update Proposal sheet Schedule I

*Award of Contract, changed from 90 days to 120 days; Section 1-3, Award of Contract; Section 3-13, Award of Contract

*P-610 Concrete for Miscellaneous Structures will be the “contractor’s” responsibility to sample the concrete in accordance with ASTM

*Tree topping/removing that are not the mandatory yellow ones will be listed in a bid alternate no. 3.

*Tree penetration elevations will be included in a table for the trees that will be topped. The “future” easement will be changed to “existing” easement.

15. QUESTIONS

Is boring acceptable? – Counterpoise shall be placed per the plans at 4 inches above the conduit, therefore, the Contractor shall perform whatever methods they need to meet the specifications and plans.

A Change Order for additional cost based on increase in price after the fact is not allowable with a federally funded project.

Will Schedule I need to start right after the Notice to Proceed (NTP) for Schedule II? No. Schedule II is expected to be given a NTP before

Will marking the trees be the responsibility of the Contractor or Jviation/City? – Jviation and the City will tape the trees that need to be topped and removed prior to construction. The Contractor shall coordinate with the City if they would like to see the trees prior to bidding. The Contractor shall meet with Jviation prior to starting construction for Schedule II to make sure all the trees are identified properly. It is the responsibility of the Contractor to understand which trees shall be topped and which shall be removed.

Does the construction have to start in 2023? Due to expected long lead times for materials, it is possible construction may start in 2024. It is expected that all of the materials be received before starting construction for Schedule I. The Contractor must start construction within a reasonable time after receiving all of the material.

Can the whole 15 calendar days be used even if paint is done early? As long as the Airport does not need to have aircraft that urgently need to fly out. The runway may be closed for the whole duration of the 15 calendar days for Schedule I, Phase 2, if the base bid is awarded.

Will the Contractor be charged engineers fees for working 7 days a week? The Contractor may be charged liquidated damages, including engineering fees, if the construction goes beyond the allotted calendar days for the project.

Will there be a line item for Traffic Control? No, due to the small size of this project, traffic control shall be incidental to the bid items.

Is there any available subsurface data for the existing ground conditions? The RPR will research the historical subsurface documentation and provide it to the contractor if available.

The City requires contractor licensing for construction. The Contractor shall be responsible for obtaining that license and any city permits.

The City will supply a meter for the onsite hydrant, if the Contractor needs water for the project.

What are the expected utilities in the area? There are no underground utilities (water, sewer, etc.) near the work area. There is a marked gas line on the north end, but should be outside the project limits.

Is the existing wire direct earth buried? The existing condition of the wire is noted in the plans as DEB, however the Contractor shall verify in the field.

16. PROJECT SITE TOUR

FAM Airport
AIP XX Project Title
Plan Holder's List

	ROLE	Company Name	CONTACT	STREET ADDRESS	CITY	STATE	ZIP	TELEPHONE NO.	EMAIL ADDRESS	FAX NUMBER	
1		MODOT	Andrew Hanks								
2		Airport	Greg Beavers								
3		Airport	Brian Hinson								
4		Jviation	Laura Riegel							Laura Riegel@woolpert.com	
5		Jviation	Joe Pestka							Joe.pestka@woolpert.com	
6	Prime	KT Power Systems	Jim McElreath	433 County Road 638	Cape Girardeau	MO	63701	(573) 388-4524	j.mac@ktpowersystems.com		
7	Prime	Meyer Electric Co., Inc.	Leon Keller	3513 North Ten Mile Drive	Jefferson City	MO	65109	(573) 893-2335	leon@meyerelectric.net		
8	Prime	Lejas Corporation	Randy Ringleb	6202 S. Maple Avenue, Suite 127	Tempe	AZ	85283	(480) 775-1152	rringleb@lejascorp.com	(480) 775-1153	
9	Subcontractor	Airport Lighting Company	Steve Shaw	108 Fairgrounds Drive	Manlius	NY	13104	(832) 226-4179	steves@airportlightingcompany.com	315-682-6469	
10	Prime	R. L. Persons Construction, Inc.	Shaun Crook	3025 Cravens Road	Poplar Bluff	MO	63901	573-686-1323	scrook@rlpersons.com	573-686-1397	
11	Plan Room	ADB Safegate Americas, LLC	Jason Watson	977 Gahanna Parkway	Columbus	OH	43230	(614) 506-9750	jason.watson@adbsafegate.com		
12	Prime	TGB, Inc.	Steven Tielke	1104 S. Jefferson Ave	St. Louis	MO	63122	(314) 664-4444	steve@tgbinc.com		
13	Plan Room	Multi Electric Manufacturing	Frank Kazienko	4223 W. Lake Street	Chicago	IL	60624	773-722-1900	fkazienko@multielectric.com	779-722-5694	
14	Subcontractor	Hi-Lite Airfield Services, LLC	Logan Marolf	20128 NYS Route 12F	Watertown	NY	13601	315-583-6111	logan.marolf@hi-lite.com		
15	Plan Room	ePlan	Taylor H	1400 Forum Blvd Suite 7B	Columbia	MO	65203	573-447-7130	eplan@eplanbidding.com	573-355-5404	
16	Plan Room	Construct Connect	Desirree Sibala	30 Technology Parkway South Suite 100	Norcross	GA	30092	(323) 602-5079	desirree.sibala@constructconnect.com		
17	Subcontractor	Meyer Electric Co., Inc.	William Smith	3513 North Ten Mile Drive	Jefferson City	MO	65109	(314) 365-1267	wmralphsmith2@gmail.com		
18	Prime	Putz Construction	Andrew Stone	9257 State Highway 72	Millersville	MO	63766	(573) 243-6164	putzconstruction@hotmail.com		
19	Prime	Koch Electric Incorporated	Shawn Koch	26688 U.S. Highway 61	Scott City	MO	63780	573-313-2444	shawn@kochelectricinc.net	573-313-2445	
20	Prime	Reinhold Electric	Kris Schmittgens	2511 Lemay Ferry Rd	Saint Louis	MO	63125	314-631-6750	kris@reinholdelectric.com	314-631-6750	
21	Prime	CSD Environmental Services, Inc.	Frank Pinkley	1409 Washington Ave, Suite 517	St. Louis	MO	63103	(314) 435-4720	frank@csdenviron.com		