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www.GarverUSA.com

April 21, 2025

Project: FTW Apron B and Taxiway G Reconstruction Project
TxDOT CSJ No. 2502MCHAM
Addendum No. 1
To Plans and Contract Documents

This addendum shall be a part of the Contract Documents and Plans to the same extent as though it were originally included therein, and it shall supersede anything contained in the Contract Documents and Plans with which it might conflict. Acknowledgement of receipt of this Addendum must be provided on the TxDOT bid form included in the contract documents.

The pre-bid meeting minutes have been included along with the sign-in sheet. The pre-bid meeting minutes include all questions asked during the pre-bid and the pre-bid site visit.

Bidders can obtain the revised bid form Addendum No. 1 on the TxDOT website 'Plans Online'
https://ftp.txdot.gov/plans/Airport/2025/April/Fort%Worth%20Meacham/2502MCHAM/

Bidders must fill out the bid form electronically, print, sign and submit a hard copy as part of their bid package.

Revisions or additions made to the Contract Documents and Plans:

Contract Documents:
SS-140 Demolition and Disposal
SS-307 Airport Lighting Control Systems
P-152 Excavation, Subgrade, and Embankment
L-125 Installation of Airport Lighting Systems

Plans:
Sheet: GC-003 Batch Plant Location Plan
Sheet: GC-202 CSPP – Phase 2B Overview
Sheet: GC-502 Construction Safety Details 2
Sheet: GC-503 Construction Safety Details 3
Sheet: CD-101 Existing Condition and Demolition Plan 1
Sheet: CC-501 Storm Drain Details 1
Sheet: CR-501 Pavement Rehabilitation Details 1 – Add Alt
Sheet: EL-502 Lighting Details 2

April 21, 2025
Addendum No.1

Attachments:
Pre-Bid Meeting Minutes
Revised Plan Sheet: GC-003 Batch Plant Location Plan
Revised Plan Sheet: GC-202 CSPP – Phase 2B Overview
Revised Plan Sheet: GC-502 Construction Safety Details 2
Revised Plan Sheet: GC-503 Construction Safety Details 3
Revised Plan Sheet: CD-101 Existing Condition and Demolition Plan 1
Revised Plan Sheet: CC-501 Storm Drain Details 1
Revised Plan Sheet: CR-501 Pavement Rehabilitation Details 1 – Add Alt
Revised Plan Sheet: EL-502 Lighting Details 2
Revised Specification: SS-140 Demolition and Disposal
Revised Specification: SS-307 Airport Lighting Control Systems
Revised Specification: P-152 Excavation, Subgrade, and Embankment
Revised Specification: L-125 Installation of Airport Lighting Systems
Revised Bid Form - see TxDOT plans online link above.

Digitally Signed 04/21/2025

PRE-BID MEETING MINUTES

ADDENDUM NO. 1

Garver Project No. 2301497

3000 Internet Blvd.
Suite 400
Frisco, TX 75034

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www.GarverUSA.com

MEETING MINUTES

To: Attendees **Date:** April 22, 2025
From: Alex Jessop, PE
RE: Fort Worth Meacham International Airport (FTW)
Apron Bravo and Taxiway G Reconstruction
Pre-Bid Meeting Minutes

On Tuesday, April 15, 2025 at 2:00pm, a pre-bid meeting was held to discuss the FTW Apron B and Taxiway G construction project at Fort Worth Meacham International Airport. The following items were discussed:

1) Introductions and Roles

a) Sign-in sheet is attached

2) Bidding Procedures

a) Sealed Bids for the construction of airport improvements at Fort Worth Meacham International Airport need to be addressed and delivered to Kelle Chancey, TxDOT Aviation Division, 6230 E. Stassney Lane, 2nd Floor, Austin, Texas 78744. The delivered package must be clearly marked as "Bid Proposal."

b) Bids will be received until 2:00pm, Wednesday April 30, 2025, then publicly opened and read. Any bid received after closing will be returned unopened.

c) Technical questions regarding the plans and specifications should be directed to Alex Jessop, PE at AMJessop@GarverUSA.com. Please call Kelle Chancey, TxDOT Aviation at 512-633-0253 for questions concerning the bid document or further information.

d) The deadline for questions is 5:00pm on Friday April 18, 2025. Answers will be provided by 5:00pm on Tuesday, April 22, 2025.

e) Bidder Qualifications

i. If Contractor is Pre-Qualified with the Texas Department of Transportation, the Contractor shall include the necessary Full Prequalification with the Bid Proposal.

ii. If Contractor is not Pre-Qualified, the Contractor shall include the bidder's qualifications per General Provision 20-02, Pre-qualification of Bidder along with the Bid Proposal.

f) Required Documents:

i) Bid Form
ii) Bid Bond
iii) Required Language in Proposal for AIP Contracts
iv) Certification Regarding Debarment, Suspension, Ineligibility, and Voluntary Exclusion
v) Buy American Certification
vi) DBE Participation Plan – Submitted no later than 5 calendar days from bid opening

g) Contract Time:

i) Base Bid = 126 Calendar Days
ii) Base Bid + Additive Alternate 1 = 156 Calendar Days
iii) Base Bid + Additive Alternate 2 = 191 Calendar Days
iv) Additive Alternate 3 is accounted for in Base Bid time frame and does not add additional time.

3) Federal Provisions

a) DBE goal is 8.00%
   i) Documentation required to complete DBE requirements:
      (1) DBE Commitment Agreement Form No. SMS.4901
      (2) DBE Program Material/Supplier Form No. SMS.4901-MS
      (3) DBE Trucking Commitment Form No. SMS.4901-T
      (4) Form 4000 Contractor's Certification Good Faith Effort (**if unable to meet specified goal**)
   ii) Please download the appropriate DBE Commitment Agreement or Good faith effort form from the TxDOT website at http://www.txdot.gov/business/partnerships/dbe-forms.html.
   iii) It is highly encouraged that bidders submit required documentation at the time of bid submission.
b) Contractor shall follow all Davis Bacon Wage Rate Requirements.
c) Contractor shall follow all Buy American clauses.

4) Construction Plans

a) Drawing GI-101 was reviewed to discuss the overall project and construction items.
   i) **The base bid** consists of 126 calendar days or work to construct a portion of Apron B and the realignment of Taxiway G. This bid schedule includes the following items
      (1) Rock excavation – anticipated to be approximately 6,700 CY
      (2) 6,300 CY unclassified excavation
      (3) 4,500 SY of concrete pavement removal ≤ 10 inch
      (4) 1,900 SY of concrete pavement removal > 10 inch
      (5) 6,300 SY of asphaltic concrete pavement ≤ 6 inch over concrete ≤ 8 inch pavement removal
      (6) 2,600 SY of asphaltic concrete pavement removal
      (7) 13,800 SY of 6-inch flexible base course
      (8) 13,600 SY of 5 inch cement-treated base course
      (9) 13,200 SY of 14 inch concrete pavement
      (10) 3 acres of seeding
      (11) 2,400 SY sodding
      (12) Drainage improvements
      (13) Electrical improvements
   ii) **Additive alternate 1** consists of 30 calendar days in addition to the base bid. This bid schedule is for the rehabilitation of pavement within the Apron B area. Work includes the following items
      (1) 650 SF of partial depth concrete pavement repair
      (2) 1,600 SY of full depth concrete pavement repair
      (3) 400 LF of concrete crack repair
      (4) 15,000 LF of joint sealant rehabilitation
   iii) **Additive alternate 2** includes 65 calendar days in addition to the base bid and includes the complete reconstruction of the Apron B area. Work consists of the following items
      (1) 10,200 SY of concrete pavement removal ≤ 10 inch
      (2) 4,100 CY of unclassified excavation
      (3) 10,200 SY of 6 inch flexible base course

(4) 10,200 SY of 5 inch cement-treated base course
(5) 10,200 SY of 14-inch concrete pavement

iv) **Additive alternate 3** includes the construction of vehicles service road pavement stubs. This work does not include an alteration to the contract time. The work consists of the following items:
(1) Rock excavation
(2) 200 CY of unclassified excavation
(3) 560 SY of 6-inch flexible base course
(4) 490 SY of 5-inch cement-treated base course
(5) 400 SY of 8 inch concrete pavement for the vehicle service road stubs
(6) 350 SY of sodding
(7) Electrical improvements

b) The construction safety and phasing plan was also reviewed, including sheets GC-100 through GC-104. Emphasis was placed on the following items
i) Airport safety and security requirements, including access routes as notated on the plans
ii) Phasing plans including required night work for sub-phases in Phase 2 and Phase 4.
iii) The location of the staging area, haul routes, and contractor access, as noted in the plans.

c) The typical sections were reviewed (Sheet CP-001)
i) The apron and taxiway pavement will consist of 14" P-501 concrete pavement on 5" P-304 cement-treated base on 6" TX-247 flexible base course.

5) Construction Specifications

a) The following construction specifications were reviewed:
i) C-100 Contractor Quality Control Program
(1) The contractor's QC program must meet the requirements of section 100. There is a separate pay item provided for this.
ii) C-105 Mobilization
(1) This pay item covers payment for item SS-120 Construction Safety and Security.
(2) This item is capped at 10% of the total bid and paid in increments
iii) P-152 Excavation, Subgrade, and Embankment
(1) Earthwork is quantified and quantities are provided on the earthwork summary table on sheet CG-101.
(2) Earthwork is quantified and only paid for the larger (cut vs fill) value, refer to the earthwork summary table.
(3) Earthwork quantities were determined using DTM comparison surfaces.
(4) The modified proctor is to be used below pavement and the standard proctor may be used in areas outside paving limits.

6) Pre-Bid Meeting & Post Pre-Bid Meeting Bidder Questions

1. What is the anticipated Notice to Proceed (NTP) and project Start Date? Will there be a delayed start following issuance of the NTP?
    a. The anticipated start date for construction will be late June/early July dependent on the bidding process.

2. Does the 8% DBE goal apply only to the Base Bid amount?
    a. No, the 8% DBE goal applies to the entire project.

3. Are the taxiway closure markers lighted?
    a. No, the taxiway closure markers are vinyl yellow temporary markers that will be placed and secured in place. See sheet GC-501 detail 1.

4. Is the contractor required to follow the E-Verify process?
    a. Yes, the E-Verify process will apply for this project.

5. What is the maximum equipment height? Can a pug mill be used?
    a. The maximum equipment height is 15-ft or less per note 9.E on sheet GC-001. A pug mill may be used if it does not exceed this height. If desired the contractor may request use of equipment taller than this height, however it is subject to FAA air-spacing approval and approval by the engineer.

6. Are there utilities provided in the staging yard?
    a. There are no utilities directly located in the staging yard, however there is a hydrant located along the contractor access route near Gate 1.

7. Will a vacuum truck or broom truck be required?
    a. Yes, the contractor is required to always have an approved vacuum or broom truck on site per note 4, sheet GC-100.

8. Is demolition of Apron B pavement all 8”?
    a. The range of thicknesses of existing concrete pavement varies. Borings taken in Apron B provide an estimated concrete thickness between 7 and 8 inches. See sheet CB-001 and the geotechnical investigation in the technical specifications for boring information.

9. What is the utility allowance?
    a. This allowance will be $40,000. See the revised bid form included with this addendum.

10. Will a batch plant be allowed at the airport?
    a. No, a batch plant will not be permitted on the airport. See revised sheet GC-003 for potential batch plant location.

11. Is badging required for all contractor employees?
    a. Badging or background checks are not required for each individual employee, however any individual operating equipment inside the AOA will be required to sign and return to airport operations the equipment operation agreement found on the airport website. Airport Operations – Welcome to the City of Fort Worth
    b. The contractor will be provided with a company specific gate code for access to Gate 1.

12. Are radios required to be provided for the RPR?
    a. No, the RPR will provide their own radios. However, the contractor is responsible for maintaining their own radio for contractor personnel to monitor per note 5B on sheet GC-001.

13. Will night work be allowed?
    a. Night work may be permitted on a limited basis at the discretion of airport operations. Further coordination will take place between the low bidder and airport operations if night work is desired.

14. Will the airport have someone on site during work?
    a. Yes, airport operations will be on-site during all construction activities. The contractor will also be required to be onsite any time they, or a subcontractor is performing any work. The contractor will not be required to provide any compensation for the airport operations staff.

15. Will the panels included in additive alternate 1 require reinforcement? What thickness will these be?
    a. Yes, the panels will be reinforced. The thickness of these proposed panels will match the existing concrete thickness removed. See revised sheet CR-501 included in this addendum.

16. Our earthwork model indicates over 11,000 CY of excavation and haul-off will be required to reach the bottom of the Flex Base course. Per Note 3 on Sheet CP-001, this depth must be achieved even if rock is encountered. Please clarify, as the Bid Item only accounts for 6,300 CY.
    a. The estimated quantity for total excavation from the site is approximately 13,000 CY for the base bid. This is split between unclassified excavation (6,300 CY, Item P-152-4.2) and rock excavation (6,700 CY, Item P-152-4.1). The rock excavation quantity is based on available subgrade information provided in the boring logs, and is paid as a lump sum item based on the provided quantity in the plans as a best estimate. See earthwork summary table on sheet CG-101 and note 3 on sheet CD-501 for additional information.

17. According to Sheet 189 in the Notice to Bidders, Item 152-1.3 states that unsuitable excess material must be disposed of in a designated waste area shown on the plans. Please identify the location of this designated waste area.
    a. Unsuitable material shall be hauled and disposed of offsite per P-152-2.2.

18. Excavated material (including spoils) from the airport site may be contaminated. Please provide a designated haul-off location or outline the procedures for handling and disposing of potentially contaminated material.
    a. Contaminated soil must be profiled and disposed of at a licensed facility approved by TxDOT and should not be reused as clean fill. Options for dealing with contaminated soil include off-site disposal, treatment, or containment. This work shall be considered subsidiary to the appropriate P-152 pay item.

19. Drawings CD-101 (Sheet 29) and CC-101A (Sheet 32) indicate an existing inlet to be removed; however, there is no Bid Item associated with this work. Please advise on how this removal will be compensated.
    a. This work will be covered under Item SS-140-5.1. See the revised bid form included with this addendum.

20. Drawing CC-101 (Sheet 39) shows Proposed Structure A2 connecting to an existing 24" drain line. The Storm Drain Details do not include information on the connection or collar detail for tying into the existing pipe. Please provide these details.
    a. This connection shall be per section 751-3.6 of the specifications and detail 2 of revised sheet CC-501 included with this addendum. The contractor may submit a collar for use for this connection that will be subject to approval by the engineer.

21. Can a time determination schedule be provided for the project? Are there any additional restricted workdays or holidays beyond those listed on the standard TxDOT calendar?
    a. Contract time determination will not be provided at this time. There are no additional workday restrictions. Refer to the contract time schedule on sheet GC-100.

22. Is electronic bid submission available for this project?
    a. No, hard copy bids only are to be submitted.

23. How many workdays per week are assumed in the current schedule? Are there any other restrictions regarding workdays or working hours?
    a. 7 days/week on a calendar day basis.

24. Where will the low-profile barricades and other temporary safety components be paid for? There is no Bid item to SS-120 Construction Safety and Security.
    a. Compensation for this will be covered under Item C-105-6.1 Mobilization. See section 120-3.1 of the specifications.

25. Referencing drawing EL-502, note 4 is calling for a 1" drain conduit from the light base can. Detail 2 on the same sheet is showing a 2" conduit for the drain. What is the correct drain conduit size?
    a. The drain conduit shall be 2" PVC. The drawing showing the 1" conduit will be revised to show 2" conduit.

26. Is the contractor to provide a drain sump, per note 4, for every new edge light base can or only the base cans installed in non-paved shoulder?
    a. Drainage conduit is only required where shown on the plan view drawings. Note 4 for detail 1, sheet EL-502 will be revised to reflect this change.

27. Please confirm if the existing L-861T edge lights to be relocated are incandescent quartz or LED.
    a. The existing lights to be relocated along the existing Taxiway G are LED. The existing lights to be relocated along Taxiway A are incandescent.

28. Bid item SS-300-5.2 “ALCMS Control Equipment Modifications” has a unit of measure of ALLOW. There is no allowance denoted in the unit price.
    a. The amount for this allowance will be $40,000 per the revised bid form included in this addendum.

29. Referencing drawing GC-202 “CSPP-Phase 2B Overview”; is it the engineer’s intent that the temporary electrical jumper be installed during daytime work hours or at night? Please note that if the jumper is to be installed at night all the edge lights on the taxiway A circuit will be locked out until the jumper is in place. This same scenario applies to the removal of the jumper during phase 2C.
    a. The contractor will coordinate with the airport and the engineer to determine an appropriate time for the shutdown of the Taxiway A circuit to install the jumpers. The jumpers will be installed prior to Phase 2B. It is anticipated that the jumpers will be installed and removed during daytime work hours and not during the night-time closures for Phase 2A and Phase 2C, respectively.

30. How deep is the base course shown on sheet 53 in all three sections?
    a. The existing base course thickness varies; however, the base course is expected to be approximately 3.25”. See the borings on sheet CB-001 for additional information.

31. Please confirm bid items P-152-4.1 Rock Excavation in the base bid and additive alternate 3 are to be measured by the lump sum with a quantity of 1. Since these are lump sum items, what is the basis of measurement for payment? Will a quantity of less than 1 lump sum be paid for either item?
    a. See the earthwork summary table on sheet GC-101 for the anticipated rock excavation quantities for each bid schedule. Rock excavation will be paid at the lump sum contract unit price for work as measured by section 152-3.2 of the specifications. Payment for rock excavation will be made for a quantity of one lump-sum item, and no adjustment will be made upward or downward due to differences between the rock quantity estimated and the actual rock excavation necessary to construct the project in accordance with the contract documents.

32. Please confirm what is required for the P-304 bond breaker required as subsidiary to the cement-treated base item.
    a. The bond breaker shall be in conformance with section 304-2.8 of the specifications. No additional payment shall be made for this, but shall be considered subsidiary to Item P-304-8.1

33. Please clarify the demolition quantity for the base bid. There seems to be a discrepancy in quantity between the concrete removal less than 10” thickness and greater than 10” thickness.
    a. Please see the revised sheet CD-101 which includes delineation for concrete thickness removal areas.

34. Under Item P-101-5.6, will the contractor be asked to replicate the existing pavement depth and design (including any reinforcing steel encountered) or replace the damaged areas with 14" pavement?
    a. See revised sheet CR-501 included with this addendum. The thickness of these proposed panels will match the existing concrete thickness removed. See revised sheet CR-501 included in this addendum.

35. With Item P-101-5.6 in mind, what is the design of the existing pavement at Apron B? Is there any reinforcing steel in the existing pavement?
    a. Refer to the geotechnical investigation included in the technical specifications and sheet CB-001 for approximate pavement thicknesses in Apron B. Reinforcing steel is expected to be encountered in the existing pavement.

36. Sheet 53 states that voids in base material may be replaced with flowable backfill or other approved materials. Will either cold mix asphalt or additional ready-mix concrete be approved for this purpose?
    a. Additional ready-mix concrete may be approved at the engineer's discretion. Cold mix asphalt will not be accepted for this purpose.

37. P-101 is titled "Preparation/Removal of Existing Pavements" in the FAA spec book. To clarify, Items 101-5.5, 101-5.6, 101-5.7, and 101-5.8 are intended as full compensation for the removal AND replacement of pavement, joint sealing, etc., correct?
    a. These items cover the complete removal of existing spalled pavement, joint sealant material, and routing as necessary, as well as cleaning of existing material, and installation of repair material.

38. What are the material requirements for the silicone joint sealant under Item P-101-5.7 & P-101-5.8?
    a. Silicone joint sealants shall comply with the requirements set forth in specification P-605, as well as details on sheet CJ-501.

39. What are the material requirements for the two-part epoxy required to fill concrete overcuts in partial slab repairs (Sheet 53 Section B-B Note 6)?
    a. This material shall meet the requirements of section 501-2.11 of the specifications.

40. Under Item P-101-5.6, do dowel bars, tie bars, and/or potential reinforcing steel need to be epoxy-coated?
    a. Yes, see section 501-2.7 of the specifications for the requirements regarding reinforcing bars.

41. Regarding Concrete Pavement P-501, will the owner extend the discharge time if needed, by using a retarder / hydration stabilizer?
    a. The discharge times as noted in section 501-4.6 shall be utilized for this project.

42. What are the insurance requirements inside the AOA?
    a. The contractor is subject to the insurance requirements as specified in the Bidder Qualifications section of the front-end documents.

43. Are we allowed to swap Type E joints with Type C joints?
    a. Type E joints and Type C joints may be swapped, provided there is a dowel bar installed at the joint. See note 3 on the joint layout plans. The contractor may submit proposed changes to the joint layout plan a minimum of 14 days prior to pavement construction. The proposed changes are subject to approval by the engineer.

Attachments:	Sign-In Sheet	**Pages(incl.): 2**
Copy to File:	2301497	**Copies to Garver: AMJ, RJT, MCL**

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FTW Apron B and Taxiway G Reconstruction Project

Pre-Bid Meeting

April 15, 2025, 2:00 pm

SIGN-IN SHEET

Name	Representing	Phone #	Email
TY BROCK	D. TREVINO CONSTRUCTION	979-255-3537	ty@dtconst.com
STEVEN AARON	D. TREVINO CONSTRUCTION	469-554-9790	steven@dtconst.com
Colton Phillips	CFW Aviation	682-287-3543	James.Phillips@fortworthtexas.gov
Konner Young	CFW Aviation	817-988-6779	Konner.young@fortworthtexas.gov
Tyler Dale	CFW Aviation	817-392-5416	tyler.dale@fortworthtexas.gov
LAWRENCE PINZEL	EAS CONTRACTING	214-354-3161	lrp@easlp.com
Eugene Vorobiev	Granite Construction	945-364-2657	eugene.vorobiev@gcinc.com
Christian Cox	TxDOT	512 496 8557	christian.cox@txdot.gov
Stan Allen	Ed Bell Constr.	469-951-0303	Estimating@EdBellConstruction.com
JAISON CHERIAN	ZACHRY Constr.	203-512-3475	JAISON.CHERIAN@ZACHRYCORP.com
MATT MILLER	ZACHRY	281-908-3329	MATTHEW.MILLER@ZACHRYCORP.com

FTW Apron B and Taxiway G Reconstruction Project

Pre-Bid Meeting

April 15, 2025, 2:00 pm

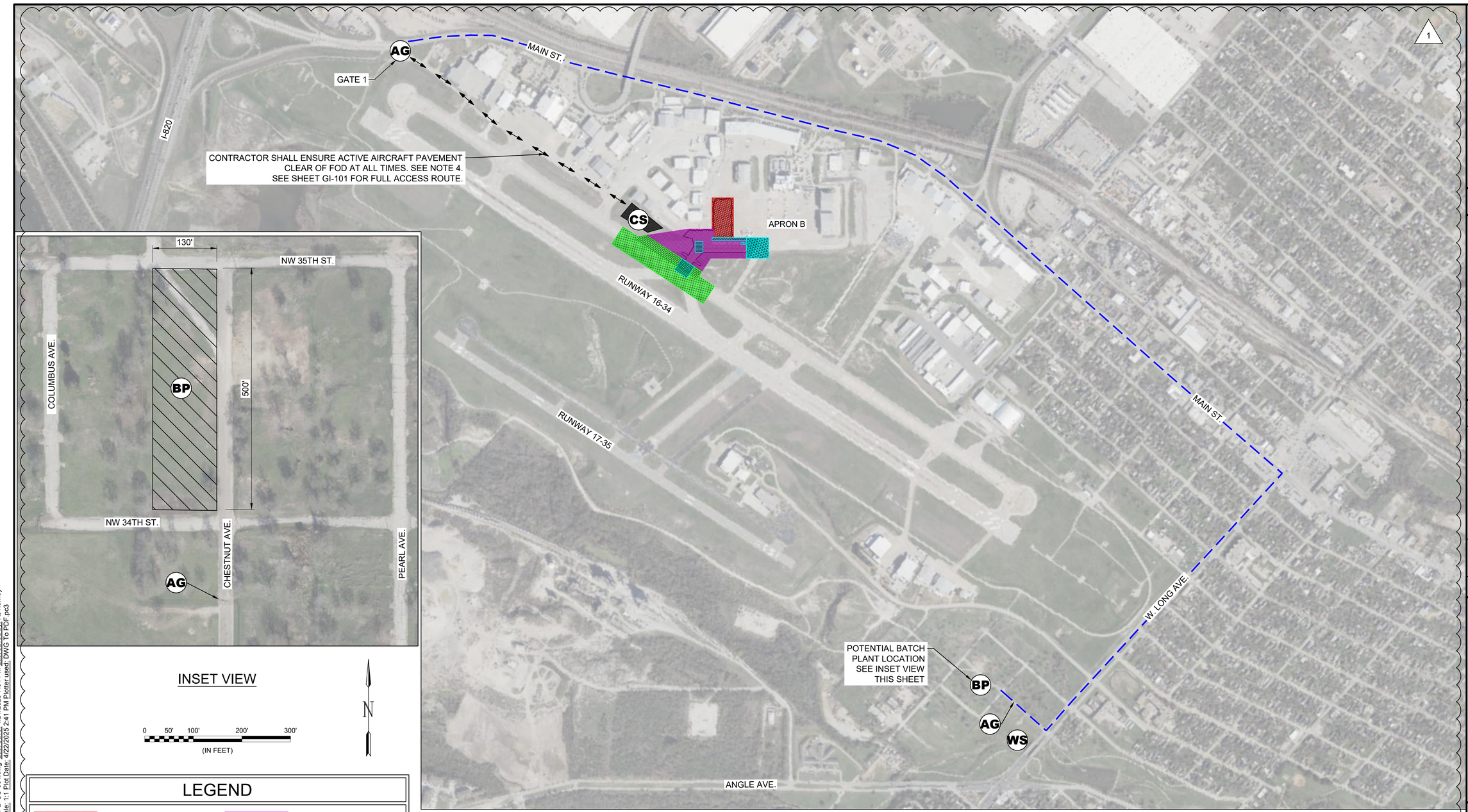
SIGN-IN SHEET

Name	Representing	Phone #	Email
Albert Martinez	Rebcon, LLC	(469) 704-5291	estimating@rebcon.com
Wade Cannon	Shiel Creek	214-549-1392	wade@scci1992.com
Anthony Fonseca	Urban Infraconstruction	813-295-5205	afonseca@urbaniconstruct.com
Scott Seitrich	GRANITE CONST.		GC.ESTIMATING@GCINC.COM
Ryan Hindman	TXDOT Aviation		Ryan.Hindman@txdot.gov
Eli Lopez	TXDOT Aviation		Eli.Lopez@txdot.gov
Matthew Lemay	Garver		MCLemay@GarverUSA.com
Jim Tierney	Garver		RJTierney@GarverUSA.com

REVISED PLAN SHEETS

ADDENDUM NO. 1

Garver Project No. 2301497



INSET VIEW

0 50' 100' 200' 300'
(IN FEET)

N

LEGEND

	PHASE 1 WORK AREA		PHASE 3 WORK AREA
	PHASE 2A WORK AREA		PHASE 4A WORK AREA
	PHASE 2B WORK AREA		PHASE 4B WORK AREA
	PHASE 2C WORK AREA		PHASE 4C WORK AREA
CS	CONSTRUCTION STAGING AREA		PHASE 4D WORK AREA
BP	CONSTRUCTION ENTRANCE		CONTRACTOR STAGING LOCATION
AG	MATERIAL STOCKPILE LOCATION		CONTRACTOR HAUL ROUTE (INSIDE AOA)
WS	WATER SOURCE LOCATION		CONTRACTOR HAUL ROUTE (OUTSIDE AOA)

1. PRINT NOTE: SHEET INTENDED TO BE PRINTED IN COLOR.
2. SEE CONSTRUCTION SAFETY AND PHASING NOTES FOR ADDITIONAL INFORMATION.
3. SEE SHEETS GC-100 - GC-503 FOR CONSTRUCTION SAFETY AND PHASING PLANS.
4. CONTRACTOR SHALL HAVE AN APPROVED PAVEMENT BROOM OR VACUUM TRUCK AVAILABLE ON SITE AT ALL TIMES. HYDRANTS TO FILL VACUUM TRUCK WILL BE AVAILABLE ON AIRPORT PROPERTY.
5. IN NO EVENT SHALL CONSTRUCTION VEHICLES, EQUIPMENT, OR MATERIALS BE PARKED/STORED WITHIN 50' OF BARRICADES OR ACTIVE AIRFIELD PAVEMENT.
6. PERIMETER FENCE SHALL BE MAINTAINED AT ALL TIMES.
7. IF THE CONTRACTOR ELECTS TO CONSTRUCT A TEMPORARY BATCH PLANT, THE CLEARING, GRUBBING, STABILIZATION, EROSION CONTROL MEASURES, AND SITE PREPARATION OF THE SITE WILL NOT BE MEASURED AND PAID FOR SEPARATELY AND SHALL BE SUBSIDIARY TO THE ITEM CONTAINED. THE CONTRACTOR IS RESPONSIBLE FOR RESTORING THE BATCH PLANT LOCATION SITE TO THE ORIGINAL CONDITION AT NO ADDITIONAL COST. RESTORATION OF THE SITE SHALL NOT BE MEASURED AND PAID FOR SEPARATELY.
8. ACCESS TO THE BATCH PLANT SITE SHALL BE COORDINATED WITH THE AIRPORT STAFF. THE CONTRACTOR SHALL MAINTAIN ACCESS CONTROL AT ALL TIMES THE GATE IS OPEN FOR CONCRETE OPERATIONS. WHEN NOT IN OPERATION THE CONTRACTOR WILL BE RESPONSIBLE FOR SECURING THE SITE.
9. THE CONTRACTOR SHALL TAKE CARE TO NOT DISTURB ANY TREES AT THE BATCH PLANT LOCATION SITE.

N

0 250' 500' 1000' 1500'
(IN FEET)

REGISTRATION NO. F-5713

STATE OF TEXAS
ALEX M. JESSOP
145409
LICENSED PROFESSIONAL ENGINEER

Digitally Signed 04/21/2025

REV	DATE	DESCRIPTION	BY
1	04/22/25	ADDENDUM 1	AMJ

FORT WORTH MEACHAM INTERNATIONAL AIRPORT
FORT WORTH, TEXAS

APRON B AND TAXIWAY G RECONSTRUCTION

BATCH PLANT LOCATION PLAN

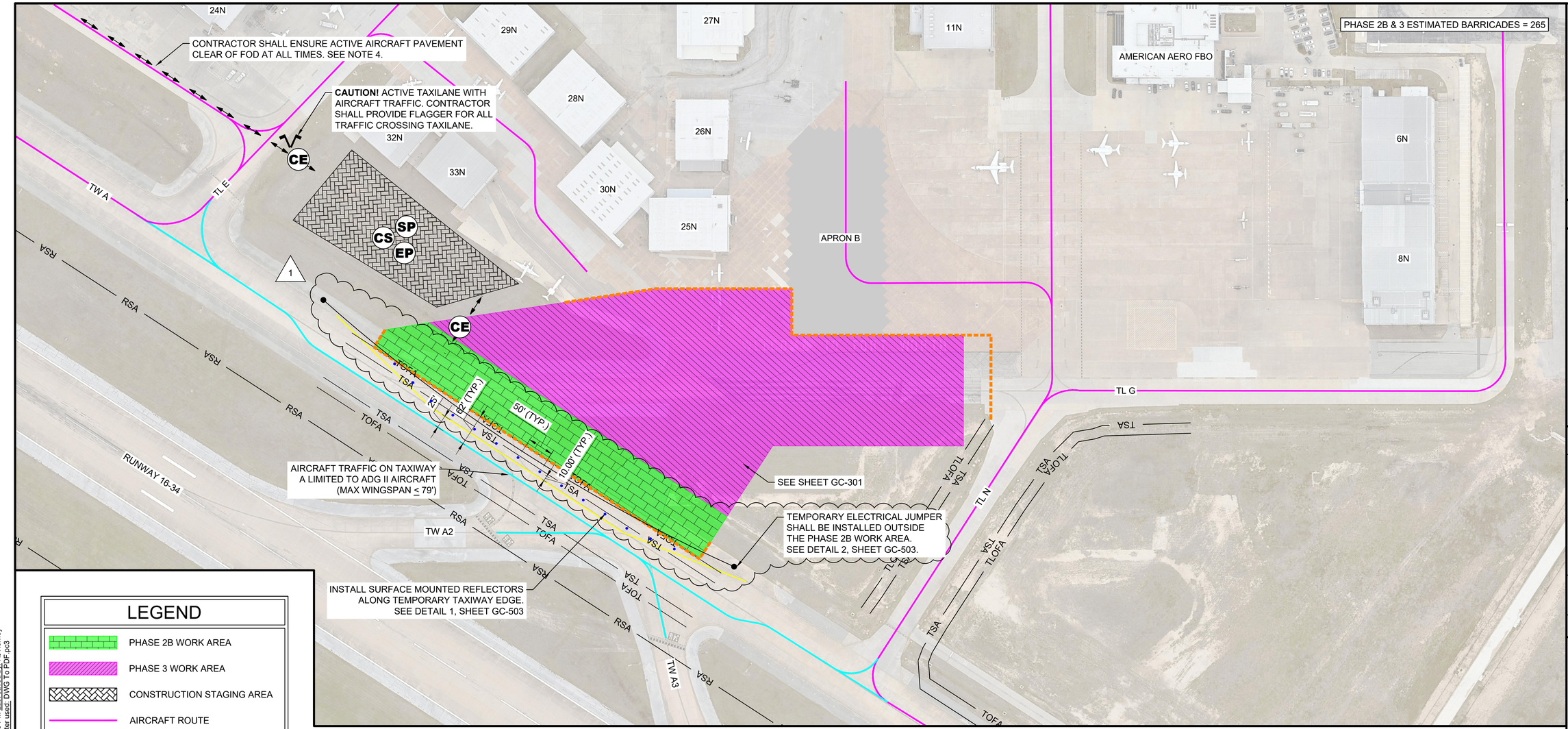
JOB NO.: 2301497
DATE: JAN 2025
DESIGNED BY: RJT
DRAWN BY: JAH

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
GC-003

SHEET NUMBER 7

File: L:\2023\A11-2301497 - FTW - Apron Bravo\Drawings\FTW_APB-GC-004.dwg Last Save: 4/21/2025 7:04 PM Last saved by: RJTierney
Last plotted by: Tierney, R. (Jim) Plot Style: AECmono.ctb Plot Date: 4/22/2025 2:41 PM Plotter used: DWG To PDF.pc3

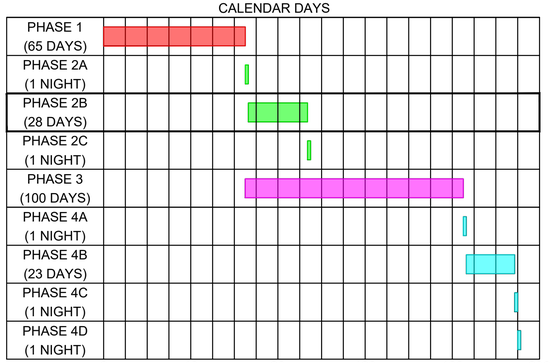


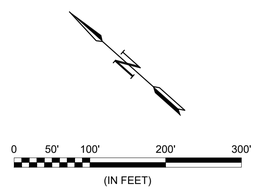
LEGEND

- PHASE 2B WORK AREA
- PHASE 3 WORK AREA
- CONSTRUCTION STAGING AREA
- AIRCRAFT ROUTE
- AIRCRAFT ROUTE (ADG II - MAX A/C WINGSPAN 79')
- CS — CONSTRUCTION STAGING AREA
- CE — CONSTRUCTION ENTRANCE
- SP — MATERIAL STOCKPILE LOCATION
- EP — EMPLOYEE PARKING
- CONTRACTOR ROUTE
- LIGHTED BARRICADE
- RSA — RUNWAY SAFETY AREA
- TSA — RUNWAY SAFETY AREA
- TOFA — TAXIWAY OBJECT FREE AREA
- TLOFA — TAXILANE OBJECT FREE AREA
- FLAGGER
- TEMPORARY ELECTRICAL JUMPER

CONTRACT TIME

CALENDAR DAYS





ITEMS OF WORK

2B — CONTRACTOR SHALL COORDINATE WITH ENGINEER AND AIRPORT OPERATIONS TO ISSUE APPROPRIATE NOTAMS. PLACE LOW PROFILE BARRICADES. PERFORM DEMOLITION OF EXISTING PAVEMENT STRUCTURE AND ELECTRICAL EQUIPMENT. PERFORM EARTHWORK OPERATIONS. CONSTRUCT DRAINAGE IMPROVEMENTS, PAVEMENT SECTION, AND INSTALL PROPOSED MARKINGS. REMOVE LOW PROFILE BARRICADES.

1. PRINT NOTE: SHEET SHALL BE PRINTED IN COLOR.
2. SEE CONSTRUCTION SAFETY AND PHASING NOTES FOR ADDITIONAL INFORMATION.
3. LIGHTED BARRICADES SHOWN ARE FOR GRAPHIC PURPOSES ONLY. THE CONTRACTOR SHALL DETERMINE THE QUANTITY OF LIGHTED BARRICADES REQUIRED TO COMPLETE THE WORK AS SHOWN AND MUST BE IN ACCORDANCE WITH CURRENT FAA ADVISORY CIRCULARS.
4. CONTRACTOR SHALL HAVE AN APPROVED PAVEMENT BROOM OR VACUUM TRUCK AVAILABLE ON SITE AT ALL TIMES. HYDRANTS TO FILL VACUUM TRUCK WILL BE AVAILABLE ON AIRPORT PROPERTY.
5. IN NO EVENT SHALL CONSTRUCTION VEHICLES, EQUIPMENT, OR MATERIALS BE PARKED/STORED WITHIN 50' OF BARRICADES OR ACTIVE AIRFIELD PAVEMENT.
6. PERIMETER FENCE SHALL BE MAINTAINED AT ALL TIMES. TEMPORARY FENCING IS NOT ANTICIPATED IN THIS PROJECT.

REGISTRATION NO. F-5713

STATE OF TEXAS
ALEX M. JESSOP
145409
LICENSED PROFESSIONAL ENGINEER
Digitally Signed 04/21/2025

REV.	DATE	DESCRIPTION	BY
1	04/22/25	ADDENDUM 1	AMJ

FORT WORTH MEACHAM INTERNATIONAL AIRPORT
FORT WORTH, TEXAS

APRON B AND TAXIWAY G RECONSTRUCTION

CSPP - PHASE 2B OVERVIEW

JOB NO.: 2301497
DATE: JAN 2025
DESIGNED BY: RJT
DRAWN BY: JAH

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
GC-202

SHEET NUMBER 11

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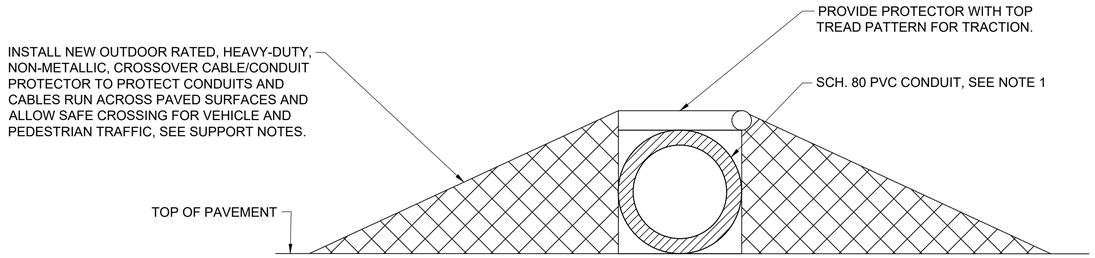
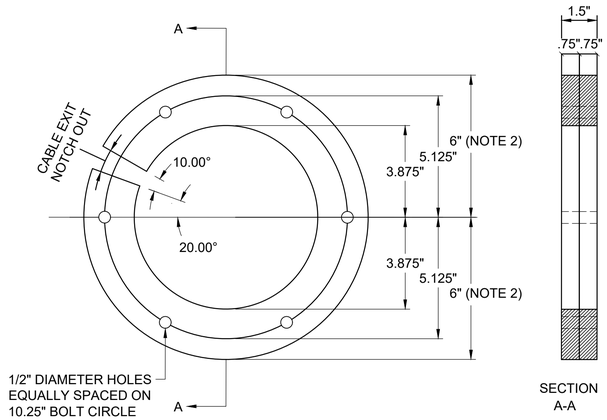
Last plotted by: Tierney, R. (Jim) Plot Style: AECmono.ctb Plot Scale: 1:1 Plot Date: 4/18/2025 11:36 AM Plotter used: DWG To PDF.pc3



SUPPORT NOTES:

1. SIZE CONDUIT PER NUMBER OF CABLES.
2. SIZE PROTECTOR PER CONDUIT NUMBER AND SIZES.
3. PROTECTOR SHALL EXTEND PARALLEL TO THE CONDUIT FOR THE ENTIRE LENGTH OF THE CONDUIT WHERE SUBJECT TO LIGHT VEHICULAR TRAFFIC.
4. BOLTS SHALL BE INSTALLED AND TORQUED PER MANUFACTURERS RECOMMENDATIONS TO SECURE AND ANCHOR THE COMPLETE PROTECTION SYSTEM.

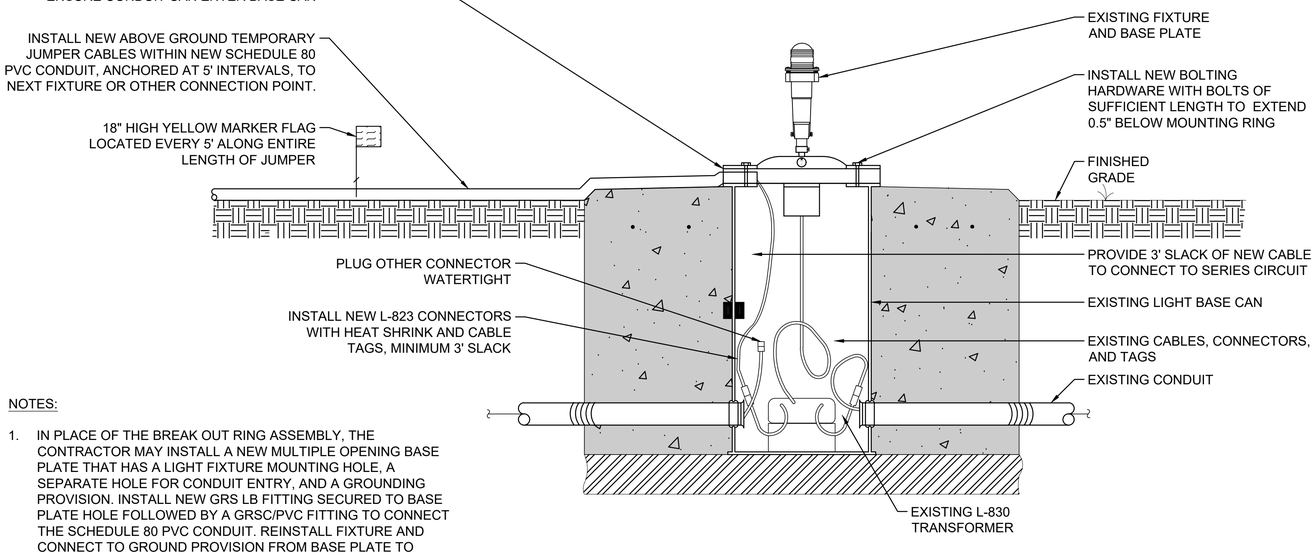
1 GC-502 — ABOVE GROUND TEMPORARY CONDUIT PROTECTOR — SCALE: NONE — 1



BREAK-OUT RING NOTES:

1. HOLE PATTERN SHALL MATCH EXISTING BASE CAN. PATTERN SHOWN IS FOR 12" L-867B CAN.
2. OUTSIDE DIMENSION SHALL MATCH EXISTING CAN.
3. BREAK-OUT RING SHALL BE FABRICATED FROM 3/4" MARINE GRADE A PLYWOOD WITH 10 MIL POLYURETHANE FINISH APPLIED AFTER TEMPORARY CABLE IS INSTALLED.
4. BREAK-OUT RINGS, ABOVE GROUND CONDUIT, JUMPER CABLES, LUMBER, SUPPORTS, HARDWARE, AND OTHER APPURTENANCES ARE INCIDENTAL TO THE TEMPORARY AIRFIELD LIGHTING PAY ITEM. CONTRACTOR SHALL SUPPLY SUFFICIENT QUANTITY TO SUPPORT ALL RE-WIRING ACTIVITIES.

2 GC-502 — BREAK OUT RING — SCALE: NONE — 1



NOTES:

1. IN PLACE OF THE BREAK OUT RING ASSEMBLY, THE CONTRACTOR MAY INSTALL A NEW MULTIPLE OPENING BASE PLATE THAT HAS A LIGHT FIXTURE MOUNTING HOLE, A SEPARATE HOLE FOR CONDUIT ENTRY, AND A GROUNDING PROVISION. INSTALL NEW GRS LB FITTING SECURED TO BASE PLATE HOLE FOLLOWED BY A GRSC/PVC FITTING TO CONNECT THE SCHEDULE 80 PVC CONDUIT. REINSTALL FIXTURE AND CONNECT TO GROUND PROVISION FROM BASE PLATE TO JUNCTION BASE INTERNAL LUG.

3 GC-502 — TEMPORARY JUMPER CIRCUIT CONNECTION — SCALE: NONE — 1

MAXIMUM CONDUIT FILL	
SCHEDULE 80 PVC TRADE SIZE	*NUMBER OF L-824C CABLES*
1"	2
1-1/4"	3
1-1/2"	5

FILL NOTE:

1. FOR NEW L-824C CABLE INSTALLED ON THIS PROJECT, THEBASIS-OF-DESIGN OUTSIDE DIAMETER THAT WAS USED IS 0.415 INCHES. IF THE CONTRACTOR USES L-824C CABLE WITH A LARGER OUTSIDE DIAMETER, ANY CONDUIT OR DUCT BANK INCREASES IN SIZE NECESSARY TO MAINTAIN CABLE FILL CODE COMPLIANCE SHALL BE INSTALLED AND PAID FOR BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER AND TO THE SATISFACTION OF THE ENGINEER. PAYMENT WILL ONLY BE MADE AT THE BASIS-OF-DESIGN CONDUIT OR DUCT BANK PAY ITEM SHOW ON THE PLANS. AS-BUILT DRAWINGS SHALL BE MARKED UP BY THE CONTRACTOR TO IDENTIFY ANY SIZE CHANGES.

REGISTRATION NO. F-5713

STATE OF TEXAS — MATTHEW C. LEMAY — 112269 — LICENSED PROFESSIONAL ENGINEER
Digitally Signed 04/21/2025

REV.	DATE	DESCRIPTION	BY
1	04/22/25	ADDENDUM 1	AMJ

FORT WORTH MEACHAM INTERNATIONAL AIRPORT MEACHAM
FORT WORTH, TEXAS

APRON B AND TAXIWAY G RECONSTRUCTION

CONSTRUCTION SAFETY DETAILS 2

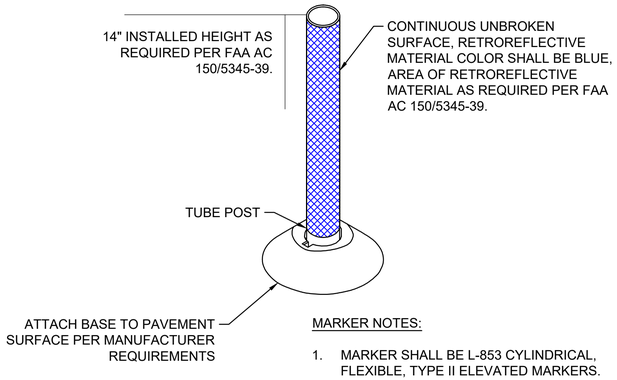
JOB NO.: 2301497
DATE: JAN 2025
DESIGNED BY: RJT
DRAWN BY: JAH

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
GC-502

SHEET NUMBER **21**

File: L:\2023\A11-2301497 - FTW - Apron Bravo\Drawings\FTW_APB-GC-501.dwg Last Save: 11/11/2024 3:30 PM Last saved by: RJTierney
Last plotted by: Tierney, R. (Jim) Plot Style: AECmono.ctb Plot Scale: 1:1 Plot Date: 4/21/2025 2:56 PM Plotter used: DWG To PDF.pc3



MARKER NOTES:

1. MARKER SHALL BE L-853 CYLINDRICAL, FLEXIBLE, TYPE II ELEVATED MARKERS.
2. MARKERS SHALL COMPLY WITH CURRENT EDITION OF FAA ADVISORY CIRCULAR 150/5345-39.
3. INSTALLATION METHODS TO BE APPROVED BY THE OWNER PRIOR TO INSTALLATION.

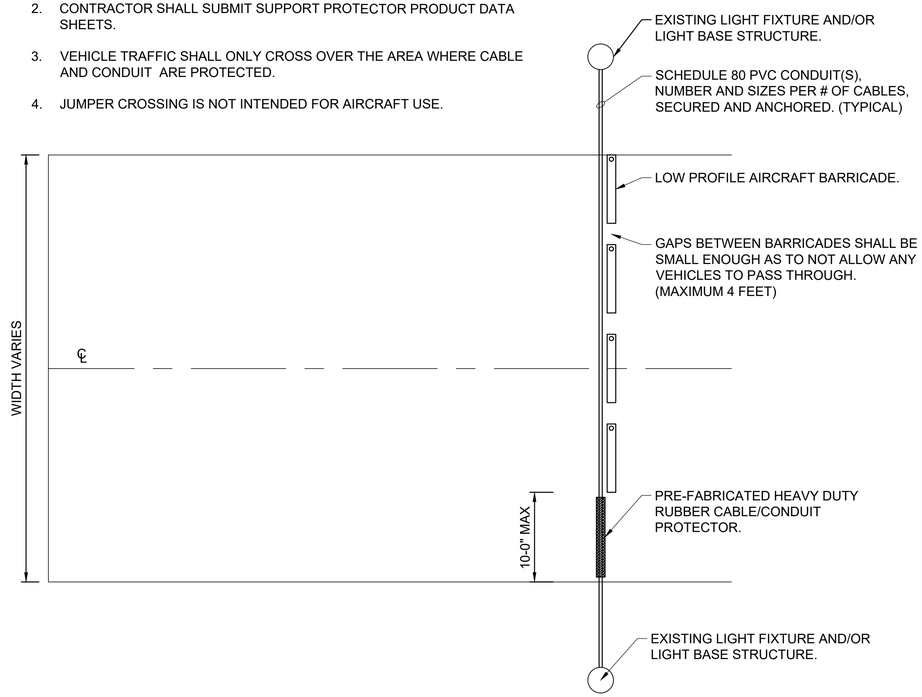
1 GC-503 — L-853 REFLECTIVE AIRPORT MARKERS

SCALE: NONE

1

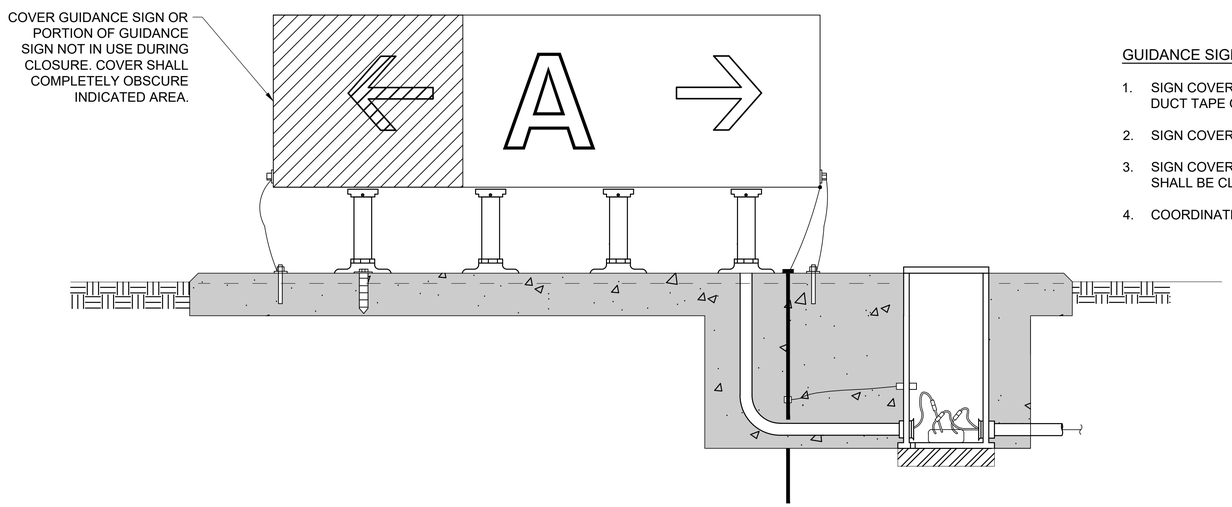
CROSSING PROTECTOR NOTES:

1. CABLE SHALL REMAIN IN CONDUIT FOR ENTIRE JUMPER LENGTH.
2. CONTRACTOR SHALL SUBMIT SUPPORT PROTECTOR PRODUCT DATA SHEETS.
3. VEHICLE TRAFFIC SHALL ONLY CROSS OVER THE AREA WHERE CABLE AND CONDUIT ARE PROTECTED.
4. JUMPER CROSSING IS NOT INTENDED FOR AIRCRAFT USE.



2 GC-503 — TYPICAL PAVEMENT JUMPER CROSSING FOR TEMPORARY AIRFIELD LIGHTING

SCALE: NONE



GUIDANCE SIGN COVER NOTES:

1. SIGN COVER SHALL BE ATTACHED TO THE SIGN SECURELY IN A WAY THAT CAUSES NO DAMAGE TO THE GUIDANCE SIGN SUCH AS BLACK DUCT TAPE OR OTHER APPROVED METHOD.
2. SIGN COVERS SHALL BE CHECKED DAILY AND RESECURED AS NEEDED.
3. SIGN COVERS SHALL BE REMOVED AT COMPLETION OF WORK. ANY ADHESIVE RESIDUE SHALL BE COMPLETELY REMOVED AND THE SIGN SHALL BE CLEANED BEFORE PLACING IT BACK IN SERVICE.
4. COORDINATE ALL SIGN COVERS WITH THE ENGINEER AND CONSTRUCTION OBSERVERS PRIOR TO THE WORK.

3 GC-503 — GUIDANCE SIGN COVER

SCALE: NONE

REGISTRATION NO. F-5713

STATE OF TEXAS
MATTHEW C. LEMAY
112269
LICENSED PROFESSIONAL ENGINEER
Digitally Signed 04/21/2025

REV.	DATE	DESCRIPTION	BY
1	04/22/25	ADDENDUM 1	AMJ

FORT WORTH MEACHAM INTERNATIONAL AIRPORT
FORT WORTH, TEXAS

APRON B AND TAXIWAY G RECONSTRUCTION

CONSTRUCTION SAFETY DETAILS 3

JOB NO.: 2301497
DATE: JAN 2025
DESIGNED BY: RJT
DRAWN BY: JAH

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
GC-503

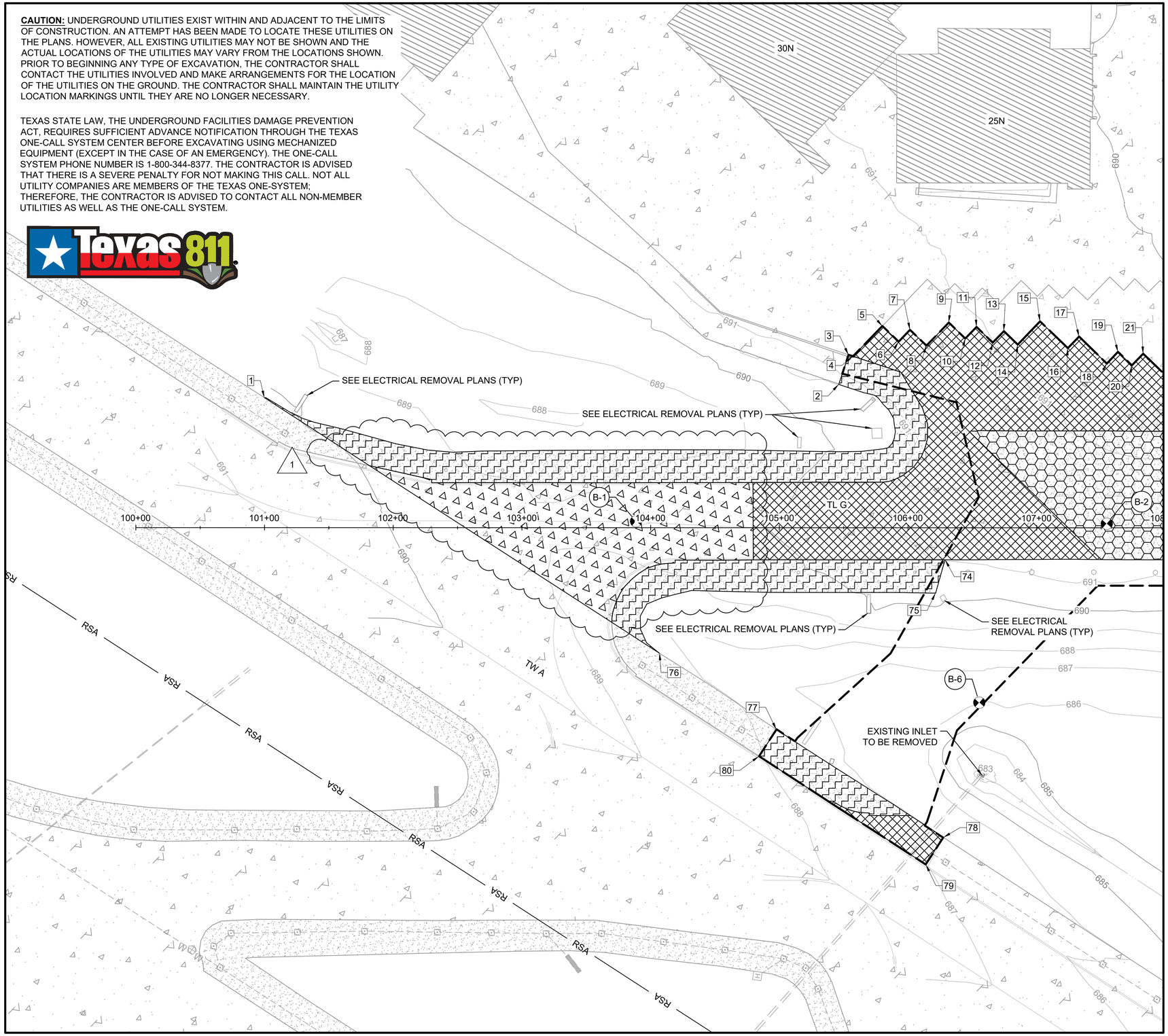
SHEET NUMBER 22

File: L:\2023\A11-2301497 - FTW - Apron Bravo\Drawings\FTW_APB-GC-501.dwg Last Save: 11/11/2024 3:30 PM Last saved by: RJTierney
Last plotted by: Tierney, R. (Jim) Plot Style: AECmono.ctb Plot Scale: 1:1 Plot Date: 4/21/2025 2:39 PM Plotter used: DWG To PDF.pc3

CAUTION: UNDERGROUND UTILITIES EXIST WITHIN AND ADJACENT TO THE LIMITS OF CONSTRUCTION. AN ATTEMPT HAS BEEN MADE TO LOCATE THESE UTILITIES ON THE PLANS. HOWEVER, ALL EXISTING UTILITIES MAY NOT BE SHOWN AND THE ACTUAL LOCATIONS OF THE UTILITIES MAY VARY FROM THE LOCATIONS SHOWN. PRIOR TO BEGINNING ANY TYPE OF EXCAVATION, THE CONTRACTOR SHALL CONTACT THE UTILITIES INVOLVED AND MAKE ARRANGEMENTS FOR THE LOCATION OF THE UTILITIES ON THE GROUND. THE CONTRACTOR SHALL MAINTAIN THE UTILITY LOCATION MARKINGS UNTIL THEY ARE NO LONGER NECESSARY.

TEXAS STATE LAW, THE UNDERGROUND FACILITIES DAMAGE PREVENTION ACT, REQUIRES SUFFICIENT ADVANCE NOTIFICATION THROUGH THE TEXAS ONE-CALL SYSTEM CENTER BEFORE EXCAVATING USING MECHANIZED EQUIPMENT (EXCEPT IN THE CASE OF AN EMERGENCY). THE ONE-CALL SYSTEM PHONE NUMBER IS 1-800-344-8377. THE CONTRACTOR IS ADVISED THAT THERE IS A SEVERE PENALTY FOR NOT MAKING THIS CALL. NOT ALL UTILITY COMPANIES ARE MEMBERS OF THE TEXAS ONE-SYSTEM; THEREFORE, THE CONTRACTOR IS ADVISED TO CONTACT ALL NON-MEMBER UTILITIES AS WELL AS THE ONE-CALL SYSTEM.

Texas 811



MATCHLINE SHEET CD-102

0 20' 40' 80' 120'
(IN FEET)

LEGEND

- EXISTING CONCRETE PAVEMENT
- EXISTING ASPHALT PAVEMENT
- XXX EXISTING CONTOUR
- CONCRETE PAVEMENT REMOVAL ≤ 10" (1)
- CONCRETE PAVEMENT REMOVAL > 10" (1)
- ASPHALT SHOULDER PAVEMENT REMOVAL
- ASPHALT PAVEMENT REMOVAL
- EXISTING STORM DRAIN PIPE
- EXISTING DRAINAGE STRUCTURE
- EXISTING TAXIWAY LIGHT
- PROPOSED PAVEMENT LIMITS
- BORING LOCATION

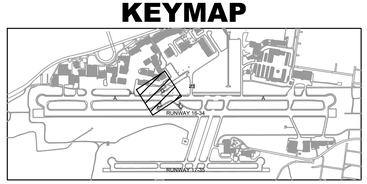
NOTES:

1. CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES, HAND HOLES, AIRFIELD EQUIPMENT, DRAINAGE STRUCTURES, AND BUILDINGS NOT SHOWN FOR DEMOLITION. ANY DAMAGE AS A RESULT OF CONSTRUCTION ACTIVITIES SHALL BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE OWNER.
2. SEE SHEETS ED-101 - ED-102 FOR AIRFIELD ELECTRICAL DEMOLITION EXTENTS AND DETAILS.
3. SEE PHASING SHEETS FOR PAVEMENT MARKING REMOVAL.
4. WHERE INDICATED IN THE PLANS, THE CONTRACTOR SHALL SAWCUT AT THE PROPOSED EDGE OF CONSTRUCTION, AND 6" INSIDE THE PROPOSED EDGE OF CONSTRUCTION TO PROVIDE A CLEAN VERTICAL EDGE OF EXISTING PAVEMENT. THE CONTRACTOR SHALL NOT REMOVE THE REMAINING 6" PORTION OF PAVEMENT UNTIL NECESSARY FOR CONSTRUCTION OF THE PROPOSED PAVEMENT SECTION.
5. RPR AND CONTRACTOR SHALL DOCUMENT THE CONDITION OF THE EXISTING PAVEMENT PRIOR TO REMOVAL. DAMAGE TO EXISTING PAVEMENT EDGE CAUSED BY CONTRACTOR SHALL BE REPAIRED AT NO ADDITIONAL COST. SEE DETAIL 5, SHEET CD-501.

BORING LOG

B-1	B-2	B-6
14.5" CONCRETE	6" HMAC	6" SANDY LEAN CLAY
6" FLEX BASE	6" CONCRETE	LIMESTONE
27.5" CLAYEY SAND	24" SANDY LEAN CLAY	-
24" FAT CLAY	LIMESTONE	-
LIMESTONE	-	-

KEYMAP



GARVER

REGISTRATION NO. F-5713

STATE OF TEXAS
ALEX M. JESSOP
145409
LICENSED PROFESSIONAL ENGINEER

Digitally Signed 04/21/2025

REV.	DATE	DESCRIPTION	BY
1	04/22/25	ADDENDUM 1	AMJ

FORT WORTH MEACHAM INTERNATIONAL AIRPORT
FORT WORTH, TEXAS

APRON B AND TAXIWAY G RECONSTRUCTION

EXISTING CONDITIONS AND DEMOLITION PLAN 1

JOB NO.: 2301497
DATE: JAN 2025
DESIGNED BY: RJT
DRAWN BY: JAH

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
CD-101

SHEET NUMBER **29**

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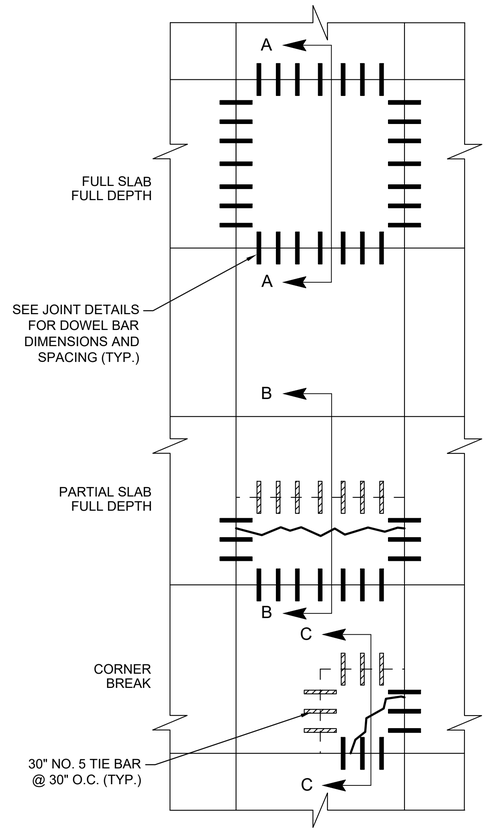
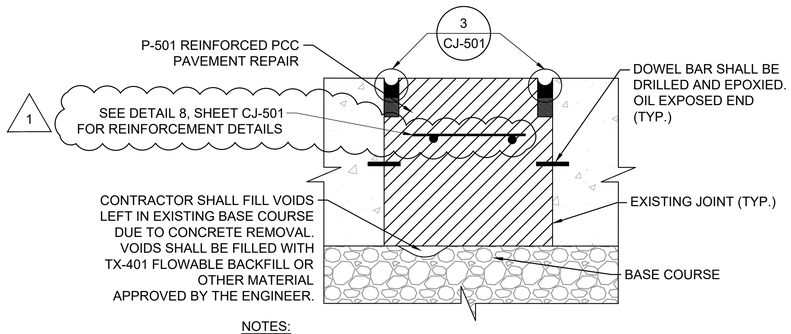
Last plotted by: Tierney, R. (Jim) Plot Style: AECmono.ctb Plot Scale: 1:1 Plot Date: 4/18/2025 8:56 AM Plotter used: DWG To PDF pc3



PLAN VIEW OF FULL DEPTH RIGID PAVEMENT REPAIR

1 / CR-501

SCALE: NONE

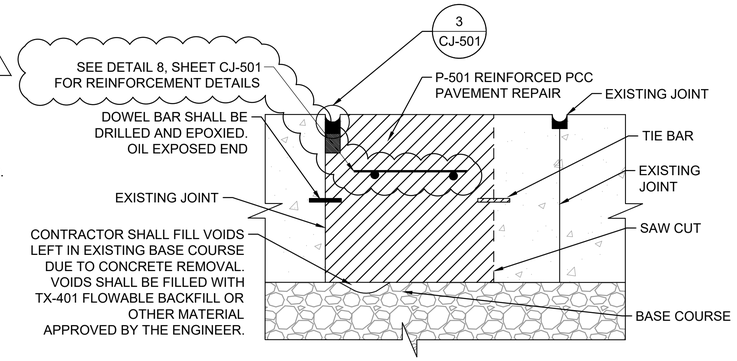


NOTES:

1. CONTRACTOR SHALL MAKE A FULL-DEPTH SAW CUT AT THE EXISTING JOINTS.
2. ALL EXISTING DOWEL BARS AND/OR TIE BARS SHALL BE CUT AND REPLACED.
3. CONTRACTOR SHALL PROTECT ALL PAVEMENT TO REMAIN.
4. NEW DOWEL BARS SHALL BE LOCATED AT LEAST 3 INCH FROM CUT DOWEL BARS.
5. SEE JOINT DETAILS FOR PCC PAVEMENT REINFORCEMENT.
6. THICKNESS OF REPAIR SHALL BE TO DEPTH OF EXISTING FULL STRENGTH PAVEMENT.

1

SECTION A-A FULL SLAB REPAIR

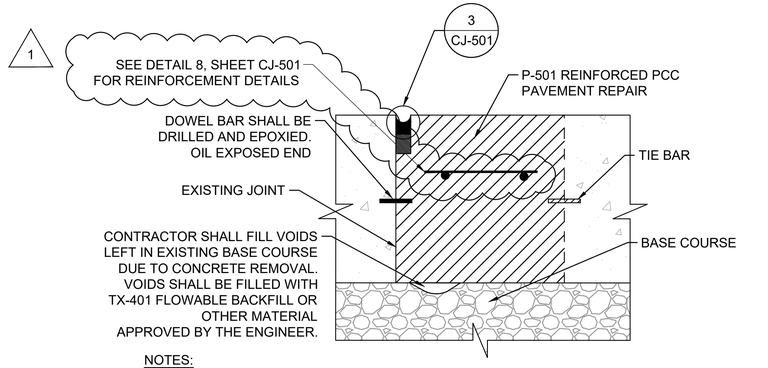


NOTES:

1. CONTRACTOR SHALL MAKE A FULL-DEPTH SAW CUT AT LEAST 2-FT BEYOND THE LIMITS OF THE EXISTING CRACK. CUTS SHALL BE PERPENDICULAR TO THE EXISTING JOINTS.
2. ALL EXISTING DOWEL BARS AND/OR TIE BARS SHALL BE CUT AND REPLACED.
3. CONCRETE SHALL BE REMOVED USING 30LB JACKHAMMERS OR EQUIVALENT. CARE SHALL BE TAKEN TO PROTECT PAVEMENT TO REMAIN.
4. NEW DOWEL BARS SHALL BE LOCATED AT LEAST 3 INCH FROM CUT DOWEL BARS.
5. SEE JOINT DETAILS FOR PCC PAVEMENT REINFORCEMENT.
6. CONTRACTOR SHALL MINIMIZE CONCRETE OVERCUT IN PARTIAL SLAB REPAIRS. OVERCUTS SHALL BE FILLED WITH TWO-PART EPOXY AS APPROVED BY THE ENGINEER. OVERCUT REPAIR SHALL BE CONSIDERED INCIDENTAL TO PARTIAL SLAB REPAIRS.
7. THICKNESS OF REPAIR SHALL BE TO DEPTH OF EXISTING FULL STRENGTH PAVEMENT.

1

SECTION B-B PARTIAL SLAB REPAIR



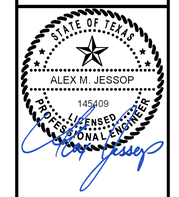
NOTES:

1. CONTRACTOR SHALL MAKE A FULL-DEPTH SAW CUT AT LEAST 2-FT BEYOND THE LIMITS OF THE CORNER BREAK. CUTS SHALL BE PERPENDICULAR TO THE EXISTING JOINTS.
2. ALL EXISTING DOWEL BARS AND/OR TIE BARS SHALL BE CUT AND REPLACED.
3. CONCRETE SHALL BE REMOVED USING 30LB JACKHAMMERS OR EQUIVALENT. CARE SHALL BE TAKEN TO PROTECT PAVEMENT TO REMAIN.
4. NEW DOWEL BARS SHALL BE LOCATED AT LEAST 3 INCH FROM CUT DOWEL BARS.
5. SEE JOINT DETAILS FOR PCC PAVEMENT REINFORCEMENT.
6. CONTRACTOR SHALL MINIMIZE CONCRETE OVERCUT IN PARTIAL SLAB REPAIRS. OVERCUTS SHALL BE FILLED WITH TWO-PART EPOXY AS APPROVED BY THE ENGINEER. OVERCUTS SHALL BE CONSIDERED SUBSIDIARY TO PARTIAL SLAB REPAIRS.
7. THICKNESS OF REPAIR SHALL BE TO DEPTH OF EXISTING FULL STRENGTH PAVEMENT.

1

SECTION C-C CORNER BREAK REPAIR

REGISTRATION NO.
F-5713



Digitally Signed 04/21/2025

REV.	DATE	DESCRIPTION	BY
1	04/22/25	ADDENDUM 1	AMJ

FORT WORTH MEACHAM INTERNATIONAL AIRPORT MEACHAM
FORT WORTH, TEXAS

APRON B AND TAXIWAY G RECONSTRUCTION

PAVEMENT REHABILITATION DETAILS 1 - ADD ALT

JOB NO.: 2301497
DATE: JAN 2025
DESIGNED BY: RJT
DRAWN BY: JAH

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

DRAWING NUMBER
CR-501

SHEET NUMBER **53**

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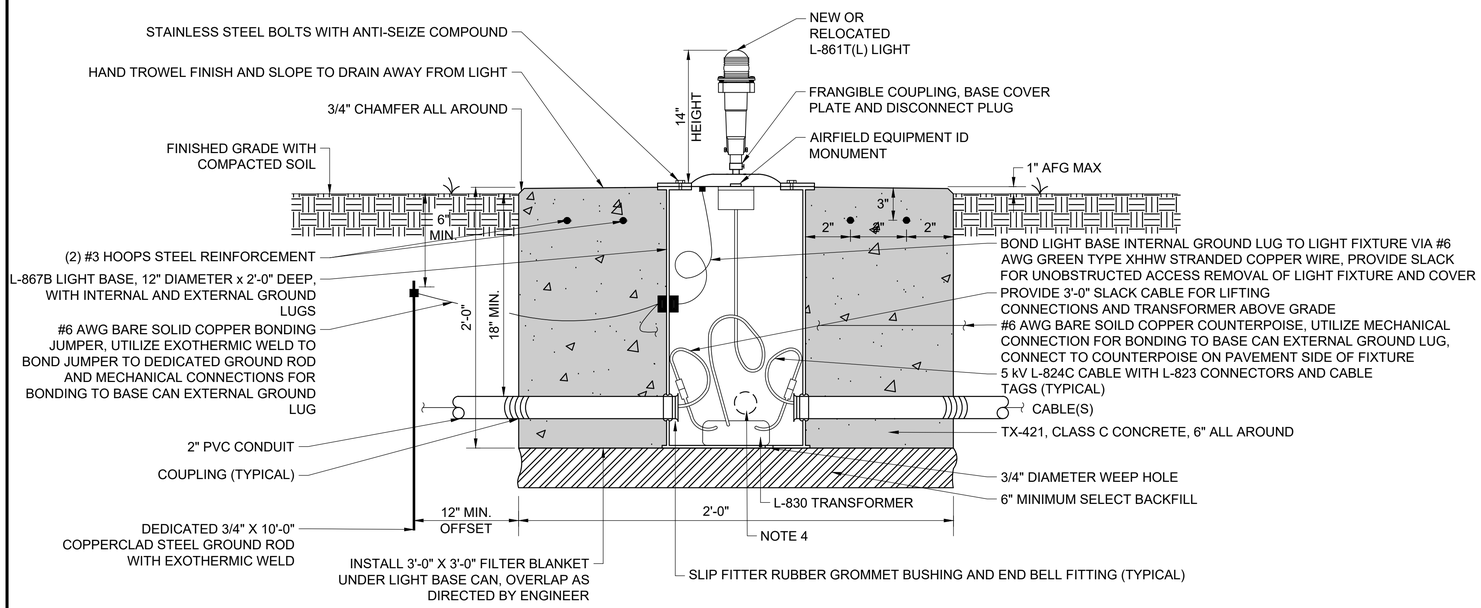
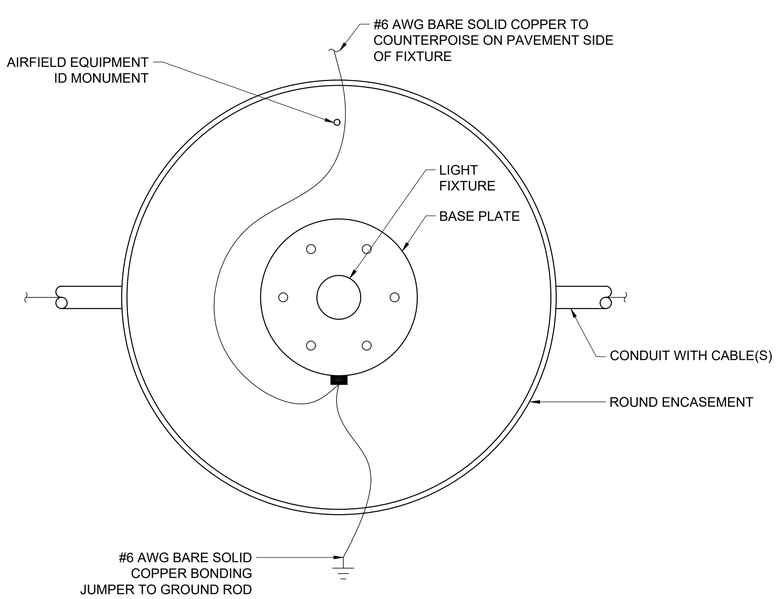
Last plotted by: Tierney, R. (Jim) Plot Style: AECmono.ctb Plot Scale: 1:1 Plot Date: 4/17/2025 4:41 PM Plotter used: DWG To PDF.pc3



SECTION VIEW

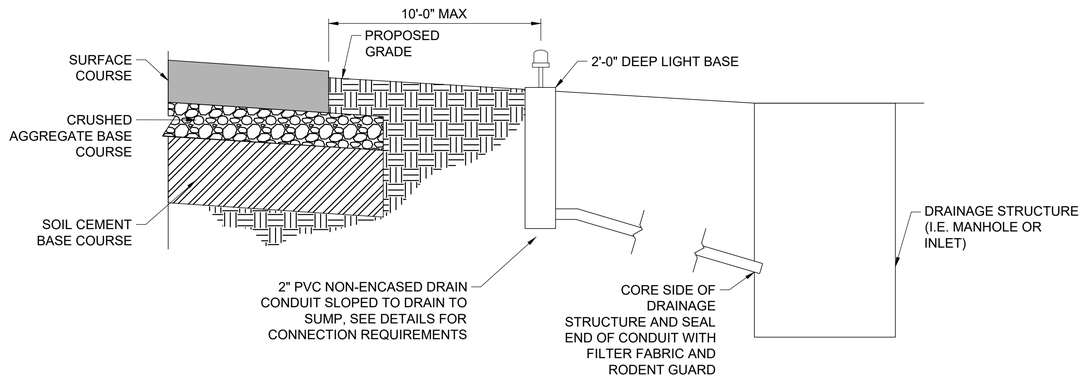


ROUND BASE PLAN VIEW

1 EL-502 **BASE MOUNTED LIGHT INSTALLATION**
SCALE: NONE

BASE MOUNTED LIGHT FIXTURE NOTES:

1. INSTALL SO EQUIPMENT ID MONUMENT FACING PAVEMENT EDGE.
2. INSTALL NEW L-823 CONNECTOR KITS AND CABLE TAGS AT ALL LIGHTS AND GUIDANCE SIGNS.
3. COUNTERPOISE SHALL BE BONDED TO JUNCTION BOX EXTERNAL GROUND LUG (EQUIPOTENTIAL METHOD LIGHTNING PROTECTION).
4. COORDINATE EXACT LIGHT BASE AND CONDUIT DRAINING LOCATIONS WITH ENGINEER PRIOR TO WORK. INSTALL BASES WITH T-CONFIGURED CANS WITH A 2" CONDUIT AWAY FROM PAVEMENT, INCLUDING 45 DEGREE DOWN ELBOW WITH RODENT GUARD INTO MINIMUM 1 CUBIC FOOT OPEN GRADED, DRAINABLE AGGREGATE WRAPPED IN NON-WOVEN FILTER FABRIC. TOP OF AGGREGATE SHALL BE MINIMUM 36" BELOW GRADE. 1



2 EL-502 **LIGHT BASE DRAIN CONNECTION TO DRAINAGE STRUCTURE**
SCALE: NONE

REGISTRATION NO. F-5713

STATE OF TEXAS
MATTHEW C. LEMAY
112269
LICENSED PROFESSIONAL ENGINEER
Digitally Signed 04/21/2025

REV.	DATE	DESCRIPTION	BY
1	04/22/25	ADDENDUM 1	AMJ

FORT WORTH MEACHAM INTERNATIONAL AIRPORT
FORT WORTH, TEXAS

APRON B AND TAXIWAY G RECONSTRUCTION

LIGHTING DETAILS 2

JOB NO.: 2301497
DATE: JAN 2025
DESIGNED BY: MCL
DRAWN BY: RH

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY

DRAWING NUMBER
EL-502

SHEET NUMBER **76**

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REVISED CONTRACT DOCUMENTS

ADDENDUM NO. 1

Garver Project No. 2301497

ITEM SS-140 DEMOLITION AND DISPOSAL

DESCRIPTION

140-1.1 This item shall consist of the removal and satisfactory disposal of drainage structures which are not designated or permitted to remain. While an attempt has been made to outline all structures included in the plans, all structures required to be removed may not be designated as such in the plans. The Contractor shall make his own estimate of the work required for the removal of structures which conflict with the proposed construction.

140-1.2 All material removed shall be disposed of off-site, or as directed by the Engineer.

CONSTRUCTION METHODS

140-3.1 General. No demolition shall be started until the work has been laid out and approved by the Engineer. All material shall be disposed of off-site. All hauling and disposal will be considered a necessary and incidental part of the work. Hauling cost shall be considered by the Contractor and included 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. All trees, stumps, roots, buried logs, brush, grass, and other unsatisfactory materials shall be removed, except where embankments exceeding 3-1/2 feet (105 cm) in depth are to be made outside of paved areas. In cases where such depth of embankments is to be made, all unsatisfactory materials shall be removed, but sound trees, stumps, and brush can be cut off within 6 inches (150 mm) above the ground and allowed to remain. Tap roots and other projections over 1-1/2 inches (37 mm) in diameter shall be grubbed out to a depth of at least 18 inches (45 cm) below the finished subgrade or slope elevation

140-3.2 Utility & drainage removal. Existing concrete drainage structures and parts thereof that interfere with the new construction shall be removed. When existing structures are removed the contractor shall ensure proper connections have been made to maintain interim drainage flow patterns.

METHOD OF MEASUREMENT

140-4.1 *Drainage structure removal shall be measured per each item removed, completed and accepted as approved by the RPR*. While an attempt has been made to outline all structures included in the plans, all structures required to be removed may not be designated as such in the plans. The Contractor shall make his own estimate of the work required for the removal of structures which conflict with the proposed construction.

BASIS OF PAYMENT

140-5.1 Payment shall be made at the contract unit price for the unit of measurement as specified above. This price shall be full compensation for furnishing all labor, tools, equipment and incidentals necessary to complete the work.

Payment will be made under:

Item SS-140-5.1 Drainage Structure Removal – per Each

END OF ITEM SS-140

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ITEM SS-307 AIRPORT LIGHTING CONTROL SYSTEMS

DESCRIPTION

307-1.1 This item shall consist of furnishing and installing complete airport lighting control systems as defined in the plans and in these specifications. The work includes the installation, connection and testing of new lighting control systems, equipment and all required appurtenances to construct and demonstrate proper operation of the completed lighting control systems.

307-1.2 The Contractor shall maintain current copies of all referenced and applicable standards on the job site. The Contractor is responsible to make known to the Engineer any conflict between plans and specifications that he observes or of which he is made aware.

EQUIPMENT AND MATERIALS

307-2.1 General. The Contractor is the single source of responsibility for the installation and integration of the airport's lighting control systems. New airport lighting control system equipment and materials shall be fully compatible with all other new and existing airport lighting equipment and systems. Any non-compatible components furnished by the Contractor shall be replaced at no additional cost to the Owner with a similar unit that is approved by the Engineer and compatible with the remainder of the airport lighting system.

CONSTRUCTION METHODS

307-3.1 General. The Contractor shall thoroughly inspect, diagram and mark the existing control system layout and coordinate this layout with the new equipment to be installed in the Electrical Vaults before disconnecting any equipment. All existing control functions shall be maintained after the installation of the new equipment has been accomplished. The Contractor shall modify and extend to the new and modified equipment all controls as indicated and required for system functions.

Airport Lighting Control and Monitoring System (ALCMS) Updates

The Contractor shall utilize the ALCMS installer (~~ADB Airfield Solutions~~ ***Eaton Crouse-Hinds***) to perform the following services: Perform a complete system update and preventive maintenance service on the ALCMS system, including the vault and ATCT computer systems and components.

a. ALCMS Update:
   (1) Update the touchscreen displays to match the work in this project.
   (2) AutoCAD files will be provided by the Engineer to the Contractor.
   (3) Submit revised CD for review and approval by Engineer and Owner.
   (4) Perform control integration of ALCMS to all new vault equipment, including testing, calibration, and commissioning.

b. ALCMS System Check-Up:
   (1) Software version updates
   (2) Communication system tests
   (3) Touchscreen calibrations
   (4) Printer testing
   (5) Enclosure inspections (fans/heating/cooling)
   (6) Firmware version updates
   (7) Computer hard drive diagnostics
   (8) Programmable logic controller (PLC) inspections

(9) Database clean-up
(10) Keyboard/Monitor cleaning
(11) Network hubs and switch inspections
(12) General airfield lighting safety, maintenance, and trouble-shooting
(13) Effectively isolate and repair system malfunctions
(14) Documentation replacement

c. ALCMS System Calibration:
(1) Regulator output current calibrations
(2) Lamps out calibration
(3) Distributed control equipment testing and diagnostics
(4) Insulation resistance diagnostics
(5) Autodialer functionality testing and setup
(6) Dial-in access modem functionality testing and setup
(7) Record CCR output currents, voltages, VA and IRMS values

307-3.2 Nameplates and labels. Equipment enclosures shall be provided with nameplates identifying the equipment name, its respective power feeder or circuit, and other applicable information as indicated and required by the Engineer. Coordinate all text with the Engineer during the submittal and shop drawing review process. Nameplates and labels shall be types as approved for their environmental conditions.

307-3.3 Testing. All installations shall be fully tested by continuous operation for not less than 24 hours as completed systems prior to acceptance. These tests shall include the functioning of each control not less than 10 times.

Tests shall be conducted in the presence of the Engineer and shall be to his/her satisfaction.

Airport lighting equipment and special systems shall be tested in accordance with applicable FAA Advisory Circular requirements and the manufacturer's installation instructions. These tests shall also include those system requirements listed within AC 150/5340-26 Maintenance of Airport Visual Aid Facilities.

METHOD OF MEASUREMENT

307-4.1 Airport lighting control systems, equipment and appurtenances will not be measured for under this section but will be considered subsidiary to the pay items under Item SS-300 "Basic Electrical Requirements".

BASIS OF PAYMENT

310-5.1 Airport lighting control systems will not be paid for under this section but will be paid for and subsidiary to the pay items under Item SS-300 "Basic Electrical Requirements". All work shall be to the satisfaction of the Engineer.

FAA ADVISORY CIRCULARS

AC 150/5340-26	Maintenance of Airport Visual Aid Facilities
AC 150/5340-30	Design and Installation Details for Airport Visual Aids
AC 150/5345-3	Specification for L-821 Panels for Control of Airport Lighting

AC 150/5346-49	Specification L-854, Radio Control Equipment
AC 150/5345-53	Airport Lighting Equipment Certification Program
AC 150/5345-56	Specification for L-890 Airport Lighting Control and Monitoring System (ALCMS)

END OF ITEM SS-307

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ITEM P-152 EXCAVATION, SUBGRADE, AND EMBANKMENT - MODIFICAITON

Item P-152 Excavation, Subgrade, and Embankment is hereby amended with respect to the paragraphs and sections cited below.

Revise the following section 152-1.2b as noted:

b. **Rock excavation.** Rock excavation shall include all solid rock ledges, in bedding deposits, in unstratified masses, and conglomerate deposits which are so firmly cemented they cannot be removed without blasting, hoe ramming, or using rippers. All boulders containing a volume of more than ½ cubic yard will be classified as "rock excavation".

Estimated rock quantities and elevations are shown in the project plans for informational purposes only. The rock elevations and estimated quantities are interpreted from geotechnical data that has been made available with the bidding documents. The Bidder shall make his or her own final determination of expected rock characteristics, excavation methods, and estimated excavation quantity. Rock excavation shall be measured and paid as a lump sum contract amount per paragraphs 152-3.1 an 152-4.3, respectively, regardless of the actual quantity of rock excavation completed. Differences between estimated rock quantities, elevations, or provided geotechnical data and actual conditions encountered during construction will not be considered grounds for additional payment beyond the as-bid lump sum contract amount for "Rock Excavation".

Revise the following section 152-1.3 as noted:

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. ***Undercutting of material unsatisfactory for subgrade foundation, roads, shoulders, or areas intended for turfing shall be considered unsuitable excavation and shall be excavated to the depth specified by the Engineer below the subgrade.***

Revise the following section 152-2.2 as noted:

152-2.2 Excavation. No excavation shall be started until the work has been staked out by the Contractor and the RPR has obtained from the Contractor, the survey notes of the elevations and measurements of the ground surface. The Contractor and RPR shall agree that the original ground lines shown on the original topographic mapping are accurate, or agree to any adjustments made to the original ground lines.

Digital terrain model (DTM) files of the existing surfaces, finished surfaces and other various surfaces were used to develop the design plans.

Volumetric quantities were calculated by comparing DTM files of the applicable design surfaces and generating Triangle Volume Reports. Electronic copies of DTM files and a paper copy of the original topographic map will be issued to the successful bidder.

Existing grades on the design cross sections or DTM's, where they do not match the locations of actual spot elevations shown on the topographic map, were developed by computer interpolation from those spot elevations. Prior to disturbing original grade, Contractor shall verify the accuracy of the existing ground surface by verifying spot elevations at the same locations where original field survey data was obtained as indicated on the topographic map. Contractor shall recognize that, due to the interpolation process, the actual ground surface at any particular location may differ somewhat from the interpolated surface shown on the design cross sections or obtained from the DTM's. Contractor's verification of original ground surface, however, shall be limited to verification of spot elevations as indicated herein, and no adjustments will be made to the original ground surface unless the Contractor demonstrates that spot elevations shown are incorrect. For this purpose, spot elevations which are within 0.1 foot of the stated elevations for ground surfaces, or within 0.04 foot for hard surfaces (pavements, buildings, foundations, structures, etc.) shall be considered "no change". Only deviations in excess of these will be considered for adjustment of the original

ground surface. If Contractor's verification identifies discrepancies in the topographic map, Contractor shall notify the RPR in writing at least two weeks before disturbance of existing grade to allow sufficient time to verify the submitted information and make adjustments to the design cross sections or DTM's. Disturbance of existing grade in any area shall constitute acceptance by the Contractor of the accuracy of the original elevations shown on the topographic map for that area.

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

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

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

a. Selective grading. When ***the quality of material varies significantly*** ~~selective grading is indicated on the plans~~, the more suitable material designated by the RPR shall be used in constructing the embankment or in capping the pavement subgrade. If, at the time of excavation, it is not possible to place this material in its final location, it shall be stockpiled in approved areas until it can be placed. The more suitable material shall then be placed and compacted as specified. Selective grading shall be considered incidental to the work involved. The cost of stockpiling and placing the material shall be included in the various pay items of work involved.

b. Undercutting. Rock, shale, hardpan, loose rock, boulders, or other material unsatisfactory for safety areas, subgrades, roads, shoulders, or any areas intended for turf shall be excavated to a minimum depth of 12 inches below the subgrade or to the depth specified by the RPR. Muck, peat, matted roots, or other yielding material, unsatisfactory for subgrade foundation, shall be removed to the depth specified. Unsuitable materials shall be disposed off the airport. The cost is incidental to this item. This excavated material shall be paid for at the contract unit price per cubic yard for Unsuitable 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 ***necessary part of Unsuitable Excavation*** ~~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 Unsuitable Excavation.

c. Over-break. Over-break, including slides, is that portion of any material displaced or loosened beyond the finished work as planned or authorized by the RPR. All over-break shall be graded or removed by the Contractor and disposed of as directed by the RPR. The RPR shall determine if the displacement of such material was unavoidable and their own decision shall be final. Payment will not be made for the removal and disposal of over-break that the RPR determines as avoidable. Unavoidable over-break will be classified as Unclassified Excavation.

d. Removal of utilities. The removal of existing structures and utilities required to permit the orderly progress of work will be accomplished by the Contractor as indicated on the plans. All existing foundations shall be excavated at least 2 feet 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. ***All work associated with the excavation, removal, backfill, disposal, and/or stockpiling of existing structures and culverts will not be measured for separate payment but will be considered subsidiary to "Unclassified Excavation".***

Revise the following section 152-2.3 as noted:

152-2.3 Borrow excavation.

There are no borrow sources within the boundaries of the airport property. The Contractor shall locate and obtain borrow sources, subject to the approval of the RPR. The Contractor shall notify the RPR at least 15 days prior to beginning the excavation so necessary measurements and tests can be made by the RPR. All borrow pits shall be opened to expose the various strata of acceptable material to allow obtaining a uniform product. Borrow areas shall be drained and left in a neat, presentable condition with all slopes dressed uniformly. Borrow areas shall not create a hazardous wildlife attractant.

Imported material for fill or backfill under pavements shall consist of clayey sands and sandy clays free from organic materials with a plasticity index ranging between 5 and 15, a liquid limit of 30 or less, and between 15 and 30 percent passing a No. 200 sieve.

Revise the following section 152-2.10 as noted:

152-2.10 Compaction requirements. The subgrade under areas to be paved shall be compacted to a depth of 12 inches and to a density of not less than 100 percent of the maximum dry density ***for non-cohesive soils and 96% for cohesive soils*** 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 and to a density of not less than 96% of the maximum density as determined by ASTM D698.

The material to be compacted shall be within **±2%** of optimum moisture content before being rolled to obtain the prescribed compaction (except for expansive soils). When the material has greater than 30 percent retained on the ¾ inch (19.0 mm) sieve, follow the methods in ASTM D1557 and ASTM D698 procedures in AASHTO T180 Annex for correction of maximum dry density and optimum moisture for oversized particles. Tests for moisture content and compaction will be taken at a minimum of **2,500** S.Y. of subgrade. All quality assurance testing shall be done by the RPR.

The in-place field density shall be determined in accordance with ASTM D6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938 within 12 months prior to its use on this contract. The gage shall be field standardized daily.

Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

If the specified density is not attained, the entire lot shall be reworked and/or re-compacted and additional random tests made. This procedure shall be followed until the specified density is reached.

All cut-and-fill slopes shall be uniformly dressed to the slope, cross-section, and alignment shown on the plans or as directed by the RPR and the finished subgrade shall be maintained.

Revise the following section 152-2.14 as noted:

152-2.14 Topsoil. When topsoil is specified or required as shown on the plans or under Item T-905, it shall be salvaged from stripping or other grading operations. The topsoil shall meet the requirements of Item T-905. If, at the time of excavation or stripping, the topsoil cannot be placed in its final section of finished construction, the material shall be stockpiled at approved locations. Stockpiles shall be located as shown on the plans and the approved CSPP, and shall not be placed on areas that subsequently will require any excavation or embankment fill. If, in the judgment of the RPR, it is practical to place the salvaged topsoil at the time of excavation or stripping, the material shall be placed in its final position without stockpiling or further re-handling.

Upon completion of grading operations, stockpiled topsoil shall be handled and placed as shown on the plans and as required in Item T-905. Topsoil shall be ~~paid for as provided in Item T-905~~ ***considered subsidiary to T-901 and T-904.*** No direct payment will be made for topsoil under Item P-152.

Revise the following section Method of Measurement as noted:

METHOD OF MEASUREMENT

152-3.1 Measurement for payment specified by the cubic yard shall be computed by the comparison of digital terrain model (DTM) surfaces for computation of neat line design quantities. The end area is that bound by the original ground line established by ***the design survey*** ~~field cross-sections~~ and the final theoretical pay line established by cross-sections shown on the plans, subject to verification by the RPR.

In cut sections, the additional cut required to construct the topsoil layer to the plan grade has not been measured and will not be measured for separate payment but will be subsidiary to "Unclassified Excavation". In fill sections, the additional fill required to replace the stripped material has not been measured and will not be measured for payment but will be subsidiary to "Unclassified Excavation".

No allowance has been made in the measurement for shrink/swell. The Contractor shall make his own determination as to the amount of shrink/swell involved in the construction of the embankment.

The Contractor shall make his/her own determination as to the suitability of the excavated material to be placed in embankments and the resulting additional off-site material required for the construction of the embankment. Additional off-site material required for the formation of embankment shall not be measured for separate payment but shall be considered subsidiary to "Unclassified Excavation".

Measurement of unclassified excavation / embankment shall be based on plan quantities. These quantities are believed to be correct and shall be utilized for final payment not withstanding any adjustments to the project by written direction of the Engineer. Prior to disturbance of the existing ground the contractor shall provide the Engineer a topographic survey of the existing ground performed by a surveyor licensed in the State of Texas. The Contractor shall also submit a letter to the Engineer that states they agree to the plan quantities. Should the contractor find discrepancies and/or errors, he/she shall bring the discrepancy and/or error to the attention of the Engineer immediately and corrections shall be made to the quantity of excavation to be paid for by change order. It is expressly understood by the contractor that upon disturbance of the existing ground and no notification to the Engineer of possible errors, that the contractor accepts as final payment the quantities of excavation as detailed on the plans and laid out in the bid form.

No adjustment has been made to the plan quantities for the construction or demolition of existing drainage structures. The Contractor shall make his/her own determination as to the amount of unsuitable excavated material which may be encountered and the resulting additional borrow material required for the construction of the embankment. There will be no adjustment for additional embankment required to construct the project if the excavated material is deemed unsuitable.

152-3.2 Rock excavation shall be paid as a lump sum. Rock excavation will not be separately measured or quantified. The lump sum contract amount for "Rock Excavation" shall not be subject to adjustment, either upward or downward, due to differences between rock quantity estimates developed for bidding purposes and actual rock excavation necessary to construct the project in accordance with the Contract Documents.

152-3.3 The quantity of embankment shall be the number of cubic yards measured in its final position.

152-3.4 Unsuitable excavation shall be measured from the surface of the ground, after stripping has been accomplished, or from the bottom of the planned excavation, to the depth of the excavation as directed by the Engineer. Measurements will be taken by the Engineer, and the volume of excavation will be calculated by the average end area method. The necessary refilling of unsuitable areas will not be measured for separate payment but will be subsidiary to "Unsuitable Excavation". Only that amount of excavation directed by the Engineer will be measured for payment.

Revise the following section Basis of Payment as noted:

BASIS OF PAYMENT

152-4.1 For Rock Excavation payment shall be made at the ***lump sum contract price***. This price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the item.

152-4.2 For Unclassified Excavation, payment shall be made at the contract unit price per cubic yard. This price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the item.

152-4.3 For Embankment, payment shall be made at the contract unit price per cubic yard. This price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the item.

152-4.4 Unsuitable excavation shall be paid for at the contract unit price bid per cubic yard for "Unsuitable Excavation", which price shall be full compensation for all excavation; for disposal or placement of unsuitable material (in accordance with section 152-1.3), including loading, hauling, spreading, and compaction; for compaction and preparation of subgrade; for the refilling, rolling, and compaction of all undercut areas; and for all equipment, tools, labor, and incidentals necessary to complete the work.

Payment will be made under:

Item P-152-4.1	Rock Excavation - per Lump Sum
Item P-152-4.2	Unclassified Excavation - per cubic yard

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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**.**

b. **Rock excavation.** Rock excavation shall include all solid rock ledges, in bedding deposits, in unstratified masses, and conglomerate deposits which are so firmly cemented they cannot be removed without blasting, hoe ramming, or using rippers. All boulders containing a volume of more than ½ cubic yard will be classified as “rock excavation”.

Estimated rock quantities and elevations are shown in the project plans for informational purposes only. The rock elevations and estimated quantities are interpreted from geotechnical data that has been made available with the bidding documents. The Bidder shall make his or her own final determination of expected rock characteristics, excavation methods, and estimated excavation quantity. Rock excavation shall be measured and paid as a lump sum contract amount per paragraphs 152-3.1 an 152-4.3, respectively, regardless of the actual quantity of rock excavation completed. Differences between estimated rock quantities, elevations, or provided geotechnical data and actual conditions encountered during construction will not be considered grounds for additional payment beyond the as-bid lump sum contract amount for “Rock Excavation”.

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. ***Undercutting of material unsatisfactory for subgrade foundation, roads, shoulders, or areas intended for turfing shall be considered unsuitable excavation and shall be excavated to the depth specified by the Engineer below the subgrade.***

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, to loosen and pulverize the soil. Stones or rock fragments larger than 4 inches in their greatest dimension will not be permitted in the top 6 inches of the subgrade.

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

a. Blasting. Blasting shall not be allowed.

152-2.2 Excavation. No excavation shall be started until the work has been staked out by the Contractor and the RPR has obtained from the Contractor, the survey notes of the elevations and measurements of the ground surface. The Contractor and RPR shall agree that the original ground lines shown on the original topographic mapping are accurate, or agree to any adjustments made to the original ground lines.

Digital terrain model (DTM) files of the existing surfaces, finished surfaces and other various surfaces were used to develop the design plans.

Volumetric quantities were calculated by comparing DTM files of the applicable design surfaces and generating Triangle Volume Reports. Electronic copies of DTM files and a paper copy of the original topographic map will be issued to the successful bidder.

Existing grades on the design cross sections or DTM's, where they do not match the locations of actual spot elevations shown on the topographic map, were developed by computer interpolation from those spot elevations. Prior to disturbing original grade, Contractor shall verify the accuracy of the existing ground surface by verifying spot elevations at the same locations where original field survey data was obtained as indicated on the topographic map. Contractor shall recognize that, due to the interpolation process, the actual ground surface at any particular location may differ somewhat from the interpolated surface shown on the design cross sections or obtained from the DTM's. Contractor's verification of original ground surface, however, shall be limited to verification of spot elevations as indicated herein, and no adjustments will be made to the original ground surface unless the Contractor demonstrates that spot elevations shown are incorrect. For this purpose, spot elevations which are within 0.1 foot of the stated elevations for ground surfaces, or within 0.04 foot for hard surfaces (pavements, buildings, foundations, structures, etc.) shall be considered "no change". Only deviations in excess of these will be considered for adjustment of the original ground surface. If Contractor's verification identifies discrepancies in the topographic map, Contractor shall notify the RPR in writing at least two weeks before disturbance of existing grade to allow sufficient time to verify the submitted information and make adjustments to the design cross sections or DTM's. Disturbance of existing grade in any area shall constitute acceptance by the Contractor of the accuracy of the original elevations shown on the topographic map for that area.

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

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

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

a. Selective grading. When ***the quality of material varies significantly*** ~~selective grading is indicated on the plans~~, the more suitable material designated by the RPR shall be used in constructing the embankment or in capping the pavement subgrade. If, at the time of excavation, it is not possible to place this material in its final location, it shall be stockpiled in approved areas until it can be placed. The more suitable material shall then be placed and compacted as specified. Selective grading shall be considered incidental to the work involved. The cost of stockpiling and placing the material shall be included in the various pay items of work involved.

b. Undercutting. Rock, shale, hardpan, loose rock, boulders, or other material unsatisfactory for safety areas, subgrades, roads, shoulders, or any areas intended for turf shall be excavated to a minimum depth of 12 inches below the subgrade or to the depth specified by the RPR. Muck, peat, matted roots, or other yielding material, unsatisfactory for subgrade foundation, shall be removed to the depth specified. Unsuitable materials shall be disposed off the airport. The cost is incidental to this item. This excavated material shall be paid for at the contract unit price per cubic yard for Unsuitable 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 ***necessary part of Unsuitable Excavation*** ~~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 Unsuitable Excavation.

c. Over-break. Over-break, including slides, is that portion of any material displaced or loosened beyond the finished work as planned or authorized by the RPR. All over-break shall be graded or removed by the Contractor and disposed of as directed by the RPR. The RPR shall determine if the displacement of such material was unavoidable and their own decision shall be final. Payment will not be made for the removal and disposal of over-break that the RPR determines as avoidable. Unavoidable over-break will be classified as Unclassified Excavation.

d. Removal of utilities. The removal of existing structures and utilities required to permit the orderly progress of work will be accomplished by the Contractor as indicated on the plans. All existing foundations shall be excavated at least 2 feet 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. ***All work associated with the excavation, removal, backfill, disposal, and/or stockpiling of existing structures and culverts will not be measured for separate payment but will be considered subsidiary to "Unclassified Excavation".***

152-2.3 Borrow excavation.

There are no borrow sources within the boundaries of the airport property. The Contractor shall locate and obtain borrow sources, subject to the approval of the RPR. The Contractor shall notify the RPR at least 15 days prior to beginning the excavation so necessary measurements and tests can be made by the RPR. All borrow pits shall be opened to expose the various strata of acceptable material to allow obtaining a uniform product. Borrow areas shall be drained and left in a neat, presentable condition with all slopes dressed uniformly. Borrow areas shall not create a hazardous wildlife attractant.

Imported material for fill or backfill under pavements shall consist of clayey sands and sandy clays free from organic materials with a plasticity index ranging between 5 and 15, a liquid limit of 30 or less, and between 15 and 30 percent passing a No. 200 sieve.

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, *that are not directly above limestone rock,* the top 12 inches of subgrade shall be compacted to not less than **100 %** of maximum density for non-cohesive soils, and **96%** of maximum density for cohesive soils as determined by **ASTM D1557** As used in this specification, "non-cohesive" shall mean those soils having a plasticity index (PI) of less than 3 as determined by ASTM D4318.

152-2.6 Preparation of embankment area. All sod and vegetative matter shall be removed from the surface upon which the embankment is to be placed. The cleared surface shall be broken up by plowing or scarifying to a minimum depth of 6 inches 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 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 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** nor more than **12 inches** of compacted thickness.

When more than one lift is required to establish the layer thickness shown on the plans, the construction procedure described here shall apply to each lift. No lift shall be covered by subsequent lifts until tests verify that compaction requirements have been met. The Contractor shall rework, re-compact and retest any material placed which does not meet the specifications.

The lifts shall be placed, to produce a soil structure as shown on the typical cross-section or as directed by the RPR. Materials such as brush, hedge, roots, stumps, grass and other organic matter, shall not be incorporated or buried in the embankment.

Earthwork operations shall be suspended at any time when satisfactory results cannot be obtained due to rain, freezing, or other unsatisfactory weather conditions in the field. Frozen material shall not be placed in the embankment nor shall embankment be placed upon frozen material. Material shall not be placed on surfaces that are muddy, frozen, or contain frost. The Contractor shall drag, blade, or slope the embankment to provide surface drainage at all times.

The material in each lift shall be within **±2%** of optimum moisture content before rolling to obtain the prescribed compaction. The material shall be moistened or aerated as necessary to achieve a uniform moisture content throughout the lift. Natural drying may be accelerated by blending in dry material or manipulation alone to increase the rate of evaporation.

The Contractor shall make the necessary corrections and adjustments in methods, materials or moisture content to achieve the specified embankment density.

The RPR will take samples of excavated materials which will be used in embankment for testing and develop a Moisture-Density Relations of Soils Report (Proctor) in accordance with **ASTM D1557**. A new Proctor shall be developed for each soil type based on visual classification.

Density tests will be taken by the RPR for every **2,500** 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 **96%** of maximum density for cohesive soils as determined by ASTM **D1557**. Under all areas to be paved, the embankments shall be compacted to a depth of **12 inches** and to a density of not less than **96%** percent of the maximum density as determined by ASTM **D1557** As used in this specification, "non-cohesive" shall mean those soils having a plasticity index (PI) of less than 3 as determined by ASTM D4318.

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

The in-place field density shall be determined in accordance with ASTM 6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938. The RPR shall perform all density tests. Contractor's laboratory shall perform all density tests in the RPR's presence and provide the test results upon completion to the RPR for acceptance. If the specified density is not attained, the area represented by the test or as designated by the RPR shall be reworked and/or re-compacted and additional random tests made. This procedure shall be followed until the specified density is reached.

Compaction areas shall be kept separate, and no lift shall be covered by another lift until the proper density is obtained.

During construction of the embankment, the Contractor shall route all construction equipment evenly over the entire width of the embankment as each lift is placed. Lift placement shall begin in the deepest portion of the embankment fill. As placement progresses, the lifts shall be constructed approximately parallel to the finished pavement grade line.

When rock, concrete pavement, asphalt pavement, and other embankment material are excavated at approximately the same time as the subgrade, the material shall be incorporated into the outer portion of the embankment and the subgrade material shall be incorporated under the future paved areas. Stones, fragmentary rock, and recycled pavement larger than 4 inches in their greatest dimensions will not be allowed in the top 12 inches 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 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 below the finished subgrade.

There will be no separate measurement of payment for compacted embankment. All costs incidental to placing in lifts, compacting, discing, watering, mixing, sloping, and other operations necessary for construction of embankments will be included in the contract price for excavation, borrow, or other items.

152-2.9 Proof rolling. The purpose of proof rolling the subgrade is to identify any weak areas in the subgrade and not for compaction of the subgrade. Before start of embankment, and After compaction is completed, the subgrade area shall be proof rolled with a 20 ton Tandem axle Dual Wheel Dump Truck loaded to the legal limit with tires inflated to 150 psi in the presence of the RPR. Apply a minimum of **25%** 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 or show permanent deformation greater than 1 inch shall be removed and replaced with suitable material or reworked to conform to the moisture content and compaction requirements in accordance with these specifications. Removal and replacement of soft areas is incidental to this item.

152-2.10 Compaction requirements. The subgrade under areas to be paved shall be compacted to a depth of 12 inches and to a density of not less than 100 percent of the maximum dry density ***for non-cohesive soils and 96% for cohesive soils*** 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 and to a density of not less than 96% of the maximum density as determined by ASTM D698.

The material to be compacted shall be within **±2%** of optimum moisture content before being rolled to obtain the prescribed compaction (except for expansive soils). When the material has greater than 30 percent retained on the ¾ inch (19.0 mm) sieve, follow the methods in ASTM D1557 and ASTM D698 procedures in AASHTO T180 Annex for correction of maximum dry density and optimum moisture for oversized particles. Tests for moisture content and compaction will be taken at a minimum of **2,500** S.Y. of subgrade. All quality assurance testing shall be done by the RPR.

The in-place field density shall be determined in accordance with ASTM D6938 using Procedure A, the direct transmission method, and ASTM D6938 shall be used to determine the moisture content of the material. The machine shall be calibrated in accordance with ASTM D6938 within 12 months prior to its use on this contract. The gage shall be field standardized daily.

Maximum density refers to maximum dry density at optimum moisture content unless otherwise specified.

If the specified density is not attained, the entire lot shall be reworked and/or re-compacted and additional random tests made. This procedure shall be followed until the specified density is reached.

All cut-and-fill slopes shall be uniformly dressed to the slope, cross-section, and alignment shown on the plans or as directed by the RPR and the finished subgrade shall be maintained.

152-2.11 Finishing and protection of subgrade. Finishing and protection of the subgrade is incidental to this item. Grading and compacting of the subgrade shall be performed so that it will drain readily. All low areas, holes or depressions in the subgrade shall be brought to grade. Scarifying, blading, rolling and other methods shall be performed to provide a thoroughly compacted subgrade shaped to the lines and grades shown on the plans. All ruts or rough places that develop in the completed subgrade shall be graded, re-compacted, and retested. The Contractor shall protect the subgrade from damage and limit hauling over the finished subgrade to only traffic essential for construction purposes.

The Contractor shall maintain the completed course in satisfactory condition throughout placement of subsequent layers. No subbase, base, or surface course shall be placed on the subgrade until the subgrade has been accepted by the RPR.

152-2.12 Haul. All hauling will be considered a necessary and incidental part of the work. The Contractor shall include the cost in the contract unit price for the pay of items of work involved. No payment will be made separately or directly for hauling on any part of the work.

The Contractor's equipment shall not cause damage to any excavated surface, compacted lift or to the subgrade as a result of hauling operations. Any damage caused as a result of the Contractor's hauling operations shall be repaired at the Contractor's expense.

The Contractor shall be responsible for providing, maintaining and removing any haul roads or routes within or outside of the work area, and shall return the affected areas to their former condition, unless otherwise authorized in writing by the Owner. No separate payment will be made for any work or materials associated with providing, maintaining and removing haul roads or routes.

152-2.13 Surface Tolerances. In those areas on which a subbase or base course is to be placed, the surface shall be tested for smoothness and accuracy of grade and crown. Any portion lacking the required smoothness or failing in accuracy of grade or crown shall be scarified to a depth of at least 3 inches, reshaped and re-compacted to grade until the required smoothness and accuracy are obtained and approved by the RPR. The Contractor shall perform all final smoothness and grade checks in the presence of the RPR. Any deviation in surface tolerances shall be corrected by the Contractor at the Contractor’s expense.

a. Smoothness. The finished surface shall not vary more than +/- ½ inch when tested with a 12-foot 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 straightedge for the full length of each line on a 50-foot grid.

b. Grade. The grade and crown shall be measured on a 50-foot grid and shall be within +/-0.05 feet of the specified grade.

On safety areas, turfed areas and other designated areas within the grading limits where no subbase or base is to placed, grade shall not vary more than 0.10 feet from specified grade. Any deviation in excess of this amount shall be corrected by loosening, adding or removing materials, and reshaping.

152-2.14 Topsoil. When topsoil is specified or required as shown on the plans or under Item T-905, it shall be salvaged from stripping or other grading operations. The topsoil shall meet the requirements of Item T-905. If, at the time of excavation or stripping, the topsoil cannot be placed in its final section of finished construction, the material shall be stockpiled at approved locations. Stockpiles shall be located as shown on the plans and the approved CSPP, and shall not be placed on areas that subsequently will require any excavation or embankment fill. If, in the judgment of the RPR, it is practical to place the salvaged topsoil at the time of excavation or stripping, the material shall be placed in its final position without stockpiling or further re-handling.

Upon completion of grading operations, stockpiled topsoil shall be handled and placed as shown on the plans and as required in Item T-905. Topsoil shall be ~~paid for as provided in Item T-905~~ ***considered subsidiary to T-901 and T-904*****.** No direct payment will be made for topsoil under Item P-152.

METHOD OF MEASUREMENT

152-3.1 Measurement for payment specified by the cubic yard shall be computed by the comparison of digital terrain model (DTM) surfaces for computation of neat line design quantities. The end area is that bound by the original ground line established by ***the design survey*** ~~field cross-sections~~ and the final theoretical pay line established by cross-sections shown on the plans, subject to verification by the RPR.

In cut sections, the additional cut required to construct the topsoil layer to the plan grade has not been measured and will not be measured for separate payment but will be subsidiary to "Unclassified Excavation". In fill sections, the additional fill required to replace the stripped material has not been measured and will not be measured for payment but will be subsidiary to "Unclassified Excavation".

No allowance has been made in the measurement for shrink/swell. The Contractor shall make his own determination as to the amount of shrink/swell involved in the construction of the embankment.

The Contractor shall make his/her own determination as to the suitability of the excavated material to be placed in embankments and the resulting additional off-site material required for the construction of the embankment. Additional off-site material required for the formation of embankment shall not be measured for separate payment but shall be considered subsidiary to "Unclassified Excavation".

Measurement of unclassified excavation / embankment shall be based on plan quantities. These quantities are believed to be correct and shall be utilized for final payment not withstanding any adjustments to the project by written direction of the Engineer. Prior to disturbance of the existing ground the contractor shall provide the Engineer a topographic survey of the existing ground performed by a surveyor licensed in the State of Texas. The Contractor shall also submit a letter to the Engineer that states they agree to the plan quantities. Should the contractor find discrepancies and/or errors, he/she shall bring the discrepancy and/or error to the attention of the Engineer immediately and corrections shall be made to the quantity of excavation to be paid for by change order. It is expressly understood by the contractor that upon disturbance of the existing ground and no notification to the Engineer of possible errors, that the contractor accepts as final payment the quantities of excavation as detailed on the plans and laid out in the bid form.

No adjustment has been made to the plan quantities for the construction or demolition of existing drainage structures. The Contractor shall make his/her own determination as to the amount of unsuitable excavated material which may be encountered and the resulting additional borrow material required for the construction of the embankment. There will be no adjustment for additional embankment required to construct the project if the excavated material is deemed unsuitable.

152-3.2 Rock excavation shall be paid as a lump sum. Rock excavation will not be separately measured or quantified. The lump sum contract amount for "Rock Excavation" shall not be subject to adjustment, either upward or downward, due to differences between rock quantity estimates developed for bidding purposes and actual rock excavation necessary to construct the project in accordance with the Contract Documents.

152-3.3 The quantity of embankment shall be the number of cubic yards measured in its final position.

152-3.4 Unsuitable excavation shall be measured from the surface of the ground, after stripping has been accomplished, or from the bottom of the planned excavation, to the depth of the excavation as directed by the Engineer. Measurements will be taken by the Engineer, and the volume of excavation will be calculated by the average end area method. The necessary refilling of unsuitable areas will not be measured for separate payment but will be subsidiary to "Unsuitable Excavation". Only that amount of excavation directed by the Engineer will be measured for payment.

BASIS OF PAYMENT

152-4.1 For Rock Excavation payment shall be made at the ***lump sum contract price***. This price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the item.

152-4.2 For Unclassified Excavation, payment shall be made at the contract unit price per cubic yard. This price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the item.

152-4.3 For Embankment, payment shall be made at the contract unit price per cubic yard. This price shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary to complete the item.

152-4.4 Unsuitable excavation shall be paid for at the contract unit price bid per cubic yard for "Unsuitable Excavation", which price shall be full compensation for all excavation; for disposal or placement of unsuitable material (in accordance with section 152-1.3), including loading, hauling, spreading, and compaction; for compaction and preparation of subgrade; for the refilling, rolling, and compaction of all undercut areas; and for all equipment, tools, labor, and incidentals necessary to complete the work.

Payment will be made under:

Item P-152-4.1	Rock Excavation - per Lump Sum
Item P-152-4.2	Unclassified Excavation - per cubic yard

REFERENCES

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

American Association of State Highway and Transportation Officials (AASHTO)

AASHTO T-180	Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop

ASTM International (ASTM)

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

Advisory Circulars (AC)

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

Software

FAARFIELD – FAA Rigid and Flexible Iterative Elastic Layered Design

U.S. Department of Transportation

FAA RD-76-66	Design and Construction of Airport Pavements on Expansive Soils

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ITEM L-125 INSTALLATION OF AIRPORT LIGHTING SYSTEMS - MODIFICATION

Item L-125 Installation of Airport Lighting Systems is hereby amended with respect to the paragraphs and sections cited below.

Revise the following section 125-2.7 and section 125-2.8 as noted:

125-2.7 Runway and Taxiway Lights. Runway and taxiway lights shall conform to the requirements of AC 150/5345-46. Lamps shall be of size and type indicated, or as required by fixture manufacturer for each lighting fixture required under this contract. Filters shall be of colors conforming to the specification for the light concerned or to the standard referenced.

Lights

Type	Class	Mode	Style	Option	Base	Filter	Transformer	Notes
L-861T	**2**	**1**	**N/A**	**4**	**L-867B**	**Blue**	**L-830-1**	**N/A**

125-2.8 Runway and Taxiway Signs. Runway and Taxiway Guidance Signs should conform to the requirements of AC 150/5345-44.

Signs

Type	Size	Style	Class	Mode	Notes
L-858(L)	**2**	**2**	**2**	**2**	**Provide curved face.**

Revise the following section 125-2.11 as noted:

125-2.11 Circuit Selector Cabinet. ~~The circuit selector cabinet shall meet the requirements of AC 150/5345-5, Type L-847, **[**one**][**two**][**three**][**four**]** circuit control **[**as indicated**]**, Class **[**A, indoor**][**B, outdoor**]**, Rating **[**1, for 6.6 amperes**][**2, for 20 amperes**]**.~~ ***Not Required.***

Replace the following section 125-4.1 and 125-5.1 with the paragraphs below:

125-4.1 Reflective markers will be measured by the number installed as completed units in place, ready for operation, and accepted by the RPR. Runway and taxiway lights will be measured by the number of each type installed as completed units in place, ready for operation, and accepted by the RPR. Guidance signs will be measured by the number of each type and size installed as completed units, in place, ready for operation, and accepted by the RPR. Runway End Identifier Lights shall be measured by each system ***lump sum*** installed as a completed unit in place, ready for operation, and accepted by the RPR.

Precision Approach Path Indicator shall be measured by each system ***lump sum*** 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.

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

Payment will be made under:

Item L-125-5.1	L-858(L) Base Mounted, 2-Module Guidance Sign, Installed -- per Each
Item L-125-5.2	L-858(L) Base Mounted, 3-Module Guidance Sign, Installed -- per Each
Item L-125-5.3	L-861T Base Mounted Taxiway Edge Light, Installed in Existing Shoulder Pavement -- per Each
Item L-125-5.4	L-861T Base Mounted Taxiway Edge Light, Installed in New Shoulder Pavement -- per Each
Item L-125-5.5	L-852T(L) In-Pavement Taxiway Edge Light, Installed – per Each
Item L-125-5.6	***L-853 Elevated Retroreflective Markers, Installed on Existing Pavement – per Each***

ITEM L-125 INSTALLATION OF AIRPORT LIGHTING SYSTEMS

DESCRIPTION

125-1.1 This item shall consist of airport lighting systems furnished and installed in accordance with this specification, the referenced specifications, and the applicable advisory circulars (ACs). The systems shall be installed at the locations and in accordance with the dimensions, design, and details shown in the plans. This item shall include the furnishing of all equipment, materials, services, and incidentals necessary to place the systems in operation as completed units to the satisfaction of the RPR.

EQUIPMENT AND MATERIALS

125-2.1 General.

a. Airport lighting equipment and materials covered by Federal Aviation Administration (FAA) specifications shall be certified under the Airport Lighting Equipment Certification Program in accordance with AC 150/5345-53, current version. FAA certified airfield lighting shall be compatible with each other to perform in compliance with FAA criteria and the intended operation. If the Contractor provides equipment that does not performs as intended because of incompatibility with the system, the Contractor assumes all costs to correct the system for to operate properly.

b. Manufacturer's certifications shall not relieve the Contractor of their responsibility to provide materials in accordance with these specifications and acceptable to the RPR. Materials supplied and/or installed that do not comply with these specifications shall be removed, when directed by the RPR and replaced with materials, which do comply with these specifications, at the sole cost of the Contractor.

c. All materials and equipment used shall be submitted to the RPR for approval prior to ordering the equipment. Submittals consisting of marked catalog sheets or shop drawings shall be provided. Clearly mark each copy to identify pertinent products or models applicable to this project. Indicate all optional equipment and delete non-pertinent data. Submittals for components of electrical equipment and systems shall identify the equipment for which they apply on each submittal sheet. Markings shall be clearly made with arrows or circles (highlighting is not acceptable). The Contractor shall be responsible for delays in the project accruing directly or indirectly from late submissions or resubmissions of submittals.

d. The data submitted shall be sufficient, in the opinion of the RPR, to determine compliance with the plans and specifications. The Contractor's submittals shall be submitted in electronic PDF format, tabbed by specification section. The RPR reserves the right to reject any or all equipment, materials or procedures, which, in the RPR’s opinion, does not meet the system design and the standards and codes, specified herein.

e. All equipment and materials furnished and installed under this section shall be guaranteed against defects in materials and workmanship for a period of at least twelve (12) months from final acceptance by the Owner. The defective materials and/or equipment shall be repaired or replaced, at the Owner's discretion, with no additional cost to the Owner.

EQUIPMENT AND MATERIALS

125-2.2 Conduit/Duct. Conduit shall conform to Specification Item L-110 Airport Underground Electrical Duct Banks and Conduits.

125-2.3 Cable and Counterpoise. Cable and Counterpoise shall conform to Item L-108 Underground Power Cable for Airports.

125-2.4 Tape. Rubber and plastic electrical tapes shall be Scotch Electrical Tape Numbers 23 and 88 respectively, as manufactured by 3M Company or an approved equal.

125-2.5 Cable Connections. Cable Connections shall conform to Item L-108 Installation of Underground Cable for Airports.

125-2.6 Retroreflective Markers. ~~Not required.~~ ***Retroreflective markers shall be type L-853 and shall conform to the requirements of AC 150/5345-39.***

125-2.7 Runway and Taxiway Lights. Runway and taxiway lights shall conform to the requirements of AC 150/5345-46. Lamps shall be of size and type indicated, or as required by fixture manufacturer for each lighting fixture required under this contract. Filters shall be of colors conforming to the specification for the light concerned or to the standard referenced.

Lights

Type	Class	Mode	Style	Option	Base	Filter	Transformer	Notes
L-861T	**2**	**1**	**N/A**	**4**	**L-867B**	**Blue**	**L-830-1**	**N/A**

125-2.8 Runway and Taxiway Signs. Runway and Taxiway Guidance Signs should conform to the requirements of AC 150/5345-44.

Signs

Type	Size	Style	Class	Mode	Notes
L-858(L)	**2**	**2**	**2**	**2**	**Provide curved face.**

125-2.9 Runway End Identifier Light (REIL). Not required.

125-2.10 Precision Approach Path Indicator (PAPI). Not required.

125-2.11 Circuit Selector Cabinet. ~~The circuit selector cabinet shall meet the requirements of AC 150/5345-5, Type L-847, **[**one**][**two**][**three**][**four**]** circuit control **[**as indicated**]**, Class **[**A, indoor**][**B, outdoor**]**, Rating **[**1, for 6.6 amperes**][**2, for 20 amperes**]**~~. ***Not required.***

125-2.12 Light Base and Transformer Housings. Light Base and Transformer Housings should conform to the requirements of AC 150/5345-42. Light bases shall be Type L-867, Class 1A, Size B shall be provided as indicated or as required to accommodate the fixture or device installed thereon. Base plates, cover plates, and adapter plates shall be provided to accommodate various sizes of fixtures.

125-2.13 Isolation Transformers. Isolation Transformers shall be Type L-830, size as required for each installation. Transformer shall conform to AC 150/5345-47.

INSTALLATION

125-3.1 Installation. The Contractor shall furnish, install, connect and test all equipment, accessories, conduit, cables, wires, buses, grounds and support items necessary to ensure a complete and operable airport lighting system as specified here and shown in the plans.

The equipment installation and mounting shall comply with the requirements of the National Electrical Code and state and local code agencies having jurisdiction.

The Contractor shall install the specified equipment in accordance with the applicable advisory circulars and the details shown on the plans.

See the Supplemental Specifications for additional equipment installation, mounting, and testing requirements.

125-3.2 Testing. All lights shall be fully tested by continuous operation for not less than 24 hours as a completed system prior to acceptance. The test shall include operating the constant current regulator in each step not less than 10 times at the beginning and end of the 24-hour test. The fixtures shall illuminate properly during each portion of the test.

125-3.3 Shipping and Storage. Equipment shall be shipped in suitable packing material to prevent damage during shipping. Store and maintain equipment and materials in areas protected from weather and physical damage. Any equipment and materials, in the opinion of the RPR, damaged during construction or storage shall be replaced by the Contractor at no additional cost to the owner. Painted or galvanized surfaces that are damaged shall be repaired in accordance with the manufacturer's recommendations.

125-3.4 Elevated and In-pavement Lights. Water, debris, and other foreign substances shall be removed prior to installing fixture base and light.

A jig or holding device shall be used when installing each light fixture to ensure positioning to the proper elevation, alignment, level control, and azimuth control. Light fixtures shall be oriented with the light beams parallel to the runway or taxiway centerline and facing in the required direction. The outermost edge of fixture shall be level with the surrounding pavement. Surplus sealant or flexible embedding material shall be removed. The holding device shall remain in place until sealant has reached its initial set.

METHOD OF MEASUREMENT

125-4.1 Reflective markers will be measured by the number installed as completed units in place, ready for operation, and accepted by the RPR. Runway and taxiway lights will be measured by the number of each type installed as completed units in place, ready for operation, and accepted by the RPR. Guidance signs will be measured by the number of each type and size installed as completed units, in place, ready for operation, and accepted by the RPR. Runway End Identifier Lights shall be measured by each system ***lump sum*** installed as a completed unit in place, ready for operation, and accepted by the RPR.

Precision Approach Path Indicator shall be measured by each system ***lump sum*** installed as a completed unit, in place, ready for operation, and accepted by the RPR. Abbreviated Precision Approach Path Indicator shall be measured by each system installed as a completed unit, in place, ready for operation, and accepted by the RPR.

BASIS OF PAYMENT

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

Payment will be made under:

Item L-125-5.1	L-858(L) Base Mounted, 2-Module Guidance Sign, Installed -- per Each
Item L-125-5.2	L-858(L) Base Mounted, 3-Module Guidance Sign, Installed -- per Each
Item L-125-5.3	L-861T Base Mounted Taxiway Edge Light, Installed in Existing Shoulder Pavement -- per Each
Item L-125-5.4	L-861T Base Mounted Taxiway Edge Light, Installed in New Shoulder Pavement -- per Each
Item L-125-5.5	L-852T(L) In-Pavement Taxiway Edge Light, Installed – per Each

Item L-125-5.6 ***L-853 Elevated Retroreflective Markers, Installed on Existing Pavement – 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
AC 150/5345-42	Specification for Airport Light Bases, Transformer Housings, Junction Boxes, and Accessories
AC 150/5345-44	Specification for Runway and Taxiway Signs
AC 150/5345-46	Specification for Runway and Taxiway Light Fixtures
AC 150/5345-47	Specification for Series to Series Isolation Transformers for Airport Lighting Systems
AC 150/5345-51	Specification for Discharge-Type Flashing Light Equipment
AC 150/5345-53	Airport Lighting Equipment Certification Program

Engineering Brief (EB)

EB No. 67	Light Sources Other than Incandescent and Xenon for Airport and Obstruction Lighting Fixtures

END OF ITEM L-125

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