

ADDENDUM NO. 1

COVER SHEET

September 17, 2026

R/W Widening, Airfield Electrical and Pavement Rehabilitation (Base Bid)
Taxiway A Extension (Additive Alternate Bid No. 1)
at
Ennis Municipal Airport
Ennis, TX

TxDOT CSJ NO. 2618ENNIS

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DATE: September 17, 2026

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**R/W Widening, Airfield Electrical and Pavement Rehabilitation (Base Bid)
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**at
Ennis Municipal Airport
Ennis, TX**

TxDOT CSJ NO. 2618ENNIS

TO: All Plan-holders of Record

The following addendum items supplement, clarify, modify, change, replace, delete from or add to, the requirements of the contract documents for this project. The articles contained in the addendum take precedence over the requirements of the previously published contract documents. Where any article of the contract specifications or any detail of the contract drawings is modified or any paragraph, subparagraph or clause thereof is modified or deleted by the articles contained in this addendum, the unaltered provisions of that article, paragraph, subparagraph or clause shall remain in effect.

PREPARED BY: Woolpert, Inc.
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Houston, TX 77079

CERTIFIED BY:



Gregory S. Moore, PE

ADDENDUM BEGINS

PROJECT MANUAL UPDATES

1. The Table of Contents was revised to reflect the addition of TX-360 Concrete Pavement for miscellaneous concrete required on the project.
2. The Summary of Changes was revised to reflect the addition of TX-360 specification.
3. A specification for concrete, ITEM TX-360 was added to the Project Manual.
4. ITEM TX-464b was revised to reflect Class IV concrete pipe.
5. Specification ITEM L-108, sheet 12 was reissued with the addition of two bid items.
6. Specification ITEM L-109, sheet 8 was reissued with the addition of one bid item.
7. The Bid Form was revised to reflect corrected quantities.
8. Three items were added to the Bid Form:
 - a. L-108c – INSTALL #8 AWG, THWN-2, 600V WIRE
 - b. L-108d – INSTALL #8 AWG, 600V GROUND WIRE
 - c. L-109d – INSTALL L-854 RADIO CONTROLLER

CONSTRUCTION DRAWING UPDATES

1. The following drawings were re-issued with corrections:
 - a. Sheet G002 – The Item Numbers, Descriptions and Quantities were corrected and revised to match the new Bid Form.
 - b. Sheet G002 – The Index of Drawings was updated to reflect the addition of new electrical sheets.
 - c. Sheet C105A – Reversed the numbers on the typical section callouts to match the correct typical section.
 - d. Sheets C407 & C408 – Removed a 30-inch RCP and 18-in pipe extension which are not part of the project.
 - e. Sheets C501 & C502 – Removed a reference to sheets C521 and C522. C521 & C522 are not part of this project
 - f. Sheets C701 through C709. – Removed a reference to centerline stripe spacing as shown on SHEET #####. The centerline stripe spacing is shown on C701 through C709.
 - g. Sheet C705A – Removed a reference to a marking “To Be Obliterated”. No markings require separate obliteration as they will all be obliterated by asphalt removal.
 - h. Sheet E001 – Circuit Information and Lens color chart was updated. Retroreflective marker symbol description was updated.

- i. Sheets E201 through E207 – Sheets were updated with information based on Contractor questions. (see Clarifications/RFI Responses below).
- j. Sheet E250 – Junction box detail was updated to L-867B.
- k. Sheet E253 – Wire callout was updated and notes added.
- l. Sheet E254 – Beacon updated to L-801A and notes updated.
- m. Sheet E256 – Radio controller added and notes added.

2. The following drawings were newly issued:

- a. Sheet E208 – The sheet was issued with airfield lighting vault and homerun information.
- b. Sheets E209 & 210 – The sheets were issued with the reflector layout for the additive bid alternative.
- c. Sheet E257 – Sheet was added with one-line diagram and panel schedule.

CLARIFICATIONS / RFI RESPONSES

1. A statement was made the contractors must be registered and active on the website SAM.gov to avoid being non-responsive, please clarify.
A. Following the pre-bid meeting, a ruling was issued stating that contractors **DO NOT have to be active on SAM.gov to be considered responsive.**
2. Does the City of Ennis want the millings?
A. Yes, several areas on airport will be identified where the Contractor can spoil the millings.
3. Is there an area where we can spoil any over-excavation that might occur can be spoiled.
A. No. Any spoil from excavation/embankment activities must be done off-site.
4. L-125G L861 – Bid Schedule Indicates 50EA while only 37EA can be found on the runway layout in the Plans.
A. The quantities have been updated, and a new bid form has been issued.
5. L-125H/L861E – Bid Schedule Indicates 24EA while only 18EA can be found on the runway layout in the Plans.
A. The quantities have been updated, and a new bid form has been issued.
6. L-125K/L858 – Bid Schedule Indicates 12EA while only 6EA can be found on the runway layout and sign schedule in the Plans.
A. The quantities have been updated, and a new bid form has been issued.
7. L-125I Retroreflective Marker – Plans appear to indicate L-853 RETRO-REFLECTIVE MARKER ON J-BOX. Are the markers to be Flush Unlighted or Lighted (Solar)?
A. The Retroreflective markers are to be flush-unlighted road type bidirectional green markers. They are to be mounted directly to the pavement in accordance with the manufacturer's recommendations.

8. Is the J-BOX to be L-867 as in Bid Item L-115a OR L-868 for taxiway centerline?
A. The junction boxes on the project shall be L-867B junction boxes unless noted otherwise.
9. Bid Schedule Indicates 200EA Taxiway Centerline Makers, but there does not appear to be that many.
A. The quantities have been updated, and a new bid form has been issued.
10. Is a Radio (L854) required as part of the new Lighting Vault?
A. An L-854 Radio Controller has been added.
11. Signage drawing shows one tether per leg. Should we go by the drawing?
A. Please follow the drawing details.
12. Provide the airfield electrical demolition sheets and the circuiting / homerun plan referenced by Sheet E001 Notes 19 and 28, together with duct bank routing and counterpoise layout.
A. Electrical demolition is shown on sheets C101-C109. A new sheet has been issued with homerun routing. Counterpoise wire shall be installed per the project details and specification L-110 Airport Underground Electrical Duct Banks.
13. Confirm the cutover sequence from the existing lighting vault to the new prefabricated vault, and who obtains the new utility service.
A. The existing airfield lighting system will not be operational during the project. The Contractor can cutover to the new vault building at any time during the project. The Contractor shall coordinate with the service provider to obtain the new service for the Airport.
14. Is there a plan sheet showing the existing vault building to be removed?
A. Plan sheet E208 was added to the project. The new building will be in the same approximate location as the existing building.
15. Is there a plan sheet showing the existing beacon tower to be removed?
A. Plan sheet E208 was added to the project. The new beacon tower will be in the same approximate location as the existing building.
16. Is there a plan sheet showing the location of new vault building?
A. Plan sheet E208 was added to the project.
17. Is there a plan sheet showing the location of the new beacon pole?
A. Plan sheet E208 was added to the project.
18. Is there a plan sheet showing the home run from the airfield lights to the vault building.
A. The home run was added to the plans.

19. Is there a plan sheet showing the one-line diagram for the RW 16/34? There is an one-line diagram for the PAPI's.
A. Sheet E257 was added showing the one-line diagram.
20. Where is Item L-110c, 100 LF of 1-2" HDPE Conduit Directionally Bored to be installed?
A. Callouts were added to show the locations of the bored duct.
21. Plans Call for an L-802A beacon, specs call out an L-801A Class 1, please clarify.
A. The beacon will be an L-801A LED beacon.
22. The contract documents indicate a quantity of 200 EA for Retro-Reflective Markers; however, takeoffs from the electrical plan drawings identify approximately 68 EA on the taxiway centerline, resulting in a quantity variance of 132 EA. In addition, no installation details appear to be provided within the drawings or specifications. Can the Owner/Engineer confirm the required quantity Retro-Reflective Markers and provide the applicable installation details?
A. See response to question #6. The bid form has been corrected and re-issued.
23. Additionally, please clarify whether the existing markers are mounted on light base cans and require removal of existing base cans to facilitate pavement milling.
A. The existing markers are pavement-mounted edge reflectors.
24. The APAPI systems are understood to be voltage-driven equipment rather than series-circuit airfield lighting loads. The contract drawings do not appear to identify a dedicated conduit system and field wiring consisting of 2-1/C #8 AWG XHHW conductors and #8 AWG grounding conductor for the APAPI installations. Based on the contract quantities, it appears the APAPI field wiring may be included under Pay Item L-108a – Install #8 AWG, L-824C, 5000V Cable. Can the Owner/Engineer confirm whether the APAPI power wiring is intended to be installed in a separate conduit; and if wiring is to be included and priced under Pay Item L-108a, or to be measured and paid for under a separate bid item?
A. Conduit and cable installation for the PAPI systems were added to the plans with added bid items, see attached.
25. The Construction Phasing Drawings indicate electrical work occurring within Phase 1B (Alternative #1); however, no corresponding alternative electrical bid items or quantities appear to be included within the Schedule of Quantities/Pay Item Table. Can the Owner/Engineer clarify the electrical scope associated with Phase 1B (Alternative #1)?
A. The "electrical" bid items in Add Alternate #1 are the T/W centerline reflectors.
26. Sheet E251 Note 7 and the Aircraft Tiedown Anchor Detail on Sheet C222 both require concrete complying with Item TX-360. No Item TX-360 appears in the Technical Specifications index or anywhere in the bid documents. Provide the specification.
A. A specification section TX-360 has been added.

27. Provide a milling depth exhibit or confirm that TX-354 at 38,135 SY is measured by area at any depth required to achieve the 3-inch minimum overlay and finished grade.
A. 38,135 is SY at any depth to achieve 3-inch minimum. The Engineer will supply the successful bidder a copy of the existing and proposed surfaces in a CAD format.
28. Core 31 is labeled "Concrete = 9-1/4" " on Appendix H sheet H-11 of the Geotechnical Report (bid documents p. 405), but boring B31 is tabulated as 9-1/4 in. of asphalt in that report's Table 6, "Summary of Pavement Thickness" (Section 6.4, report pp. 12-14 / bid documents pp. 298-300). Confirm the material at that location and the applicable removal pay item.
A. The plan sheet showing core 31 as 9-1/4" HMA is correct.
29. Confirm whether an Item C-105A Mobilization exists for Additive Alternate 1. Sheet G053 Notes 10 and 13 charge haul route and barricade cost to C-105A; Sheet G002 shows no such item.
A. Add Alternate 1, if awarded, is concurrent with Phase 1. No additional mobilization will be added.
30. Provide drainage detail sheets C521 through C522, referenced on Sheets C501 and C502 but not in the set.
A. The note on Sheets C501 and C502 are erroneous. These sheets have been corrected and re-issued.
31. Provide the runway centerline stripe spacing sheet referenced as "SHEET ####" on Sheets C701 through C709, and the matchline sheet reference on Sheet C306.
A. This reference is in error and has been removed. Centerline stripe spacing can be found on the pavement marking plans. No additional sheets are required.
32. Provide length, invert, profile and bedding detail for the 30-inch RCP called out on Sheet C407 and the 18-inch pipe extension on Sheets C407 and C408 and identify the pay items.
A. These RCPs were eliminated from the project and sheets C407 and C408 have been corrected and re-issued.
33. Confirm the glass bead type and application rate for P-620, and whether black border under yellow holding position markings is paid or at contractor cost (Sheet C721 Notes 14 and 15).
A. Please follow the specifications for type and application rate, Type III, Gradation A @ 10lb/gal. minimum. Please review Note 14 on Sheet C721 as it states that black markings underneath the yellow markings are at the Contractor's expense.
34. Confirm whether obliteration or removal of existing pavement markings is required and identify the pay item. Sheet C705A directs marking over existing markings.
A. This marking is improperly labeled. All markings will be obliterated during demolition.
35. Typical section 1/C221 shows a Leveling Course. What is the HMA mix design for the leveling course and how will it be paid?
A. All asphalt on this project is TX-341, Type D, SAC B, PG 64-22, paid for under item TX-341.

36. Grading plan sheet C305A shows detail 3/C221 (2" TX-341 HMA) for the lower part of the apron. Demolition plan C105A shows this area as Pavement Removal – Full Depth. Please confirm the correct detail for this area.
- A. Please follow the Demolition Legend on C105A. The Typical Section numbers on sheet C305A are reversed. Sheet C105A has been corrected and re-issued.
37. Does the airport have a location for excess excavated soils to be left on site?
- A. No, any spoil will need to be removed.
38. What will the pavement section be for Item TX-351 Full Depth Spot Reconstruction (Flexible Quantity)?
- A. It will be Typical Section 7 on Sheet C222.
39. Who is providing verification of the survey control on the project?
- A. The Engineer has verified the information on Sheet G006. The Contractor will set his control based on that information and verify it is correct.
40. Who is responsible for grade verification?
- A. The contractor's surveyor will verify the grades for the Contractor. Once that is complete, the Engineer will verify the grades using his survey personnel.
41. Can you provide a schedule for panelboard "PP1"?
- A. The panel schedule was added with sheet E257.
42. Note 8 on C-100 sheets states to "remove all wires and cables from conduits which are to be abandoned." Can you show this on the electrical drawings?
- A. It is not anticipated that conduits with cable will be encountered during the project. But if it is encountered then the Contractor shall remove wire from the duct and abandon the conduit in place. If this occurs it shall be incidental to the various bid items.
43. Bid item L-125f, "remove retroreflective marker," are not shown in the demolition sheets. Can you please locate this on plans?
- A. The markers to be removed are small edge markers. Some are missing, some are paved over, so 200 is merely an estimate.
44. Note 8 on C100 sheets states that the removal of cable is incidental, however since the cable and conduit runs are not shown in the drawings this is unknown quantity to the contractor can a bid item be added to provide unit pricing for this?
- A. See question 41 above.
45. Bid item L-103a, "remove beacon tower," is not shown in the plans. Can you please locate this on demolition sheets.
- A. The removal is shown on new sheet E208.

46. Bid item L-107a, "remove L-807 primary wind cone," is not shown in the plans. Can you please locate this on demolition sheets.
- A. The windcone and segmented circle will be installed in the same location as the existing windcone and segmented circle. That is where the removal is located.
47. Please provide a fixture schedule with Northings and Eastings for the new runway edge and threshold lights.
- A. The successful bidder can request the CAD layout once the contract process is complete.
48. Drawing E256, Detail 3 calls for a photo cell bypass switch for the PAPI & beacon control panel. Will a photo cell still be required on the PAPI power & control unit as denoted on Drawing E253, Detail 3?
- A. A photocell is required on the PAPI unit to control the brightness of the PAPI.
49. Sheet E253, Detail 1 is calling for #12 THWN and #8 XHHW field wiring for the new PAPI's. What line item will pay for installing these cables?
- A. An item was added for the field wiring.
50. What is the minimum size NEMA 1 enclosure for the S1 cutout?
- A. Minimum size is 16x12x6"

ADDENDUM ENDS



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1. ITEM C-100 CONTRACTOR QUALITY CONTROL PROGRAM
2. ITEM C-105 MOBILIZATION
3. ITEM TX-105 REMOVING TREATED AND UNTREATED BASE AND ASPHALT PAVEMENT
4. ITEM TX-110 EXCAVATION
5. ITEM TX-132 EMBANKMENT
6. ITEM TX-164 SEEDING FOR EROSION CONTROL
7. ITEM TX-168 VEGETATIVE WATERING
8. ITEM TX-247 FLEXIBLE BASE
9. ITEM TX-260 LIME TREATMENT (ROAD-MIXED)
10. ITEM TX-300 ASPHALTS, OILS, AND EMULSIONS
11. ITEM TX-341 DENSE-GRADED HOT-MIX ASPHALT
12. ITEM TX-351 FLEXIBLE PAVEMENT STRUCTURE REPAIR
13. ITEM TX-354 PLANING AND TEXTURING PAVEMENT
14. ITEM TX-360 CONCRETE PAVEMENT
15. ITEM TX-464 REINFORCED CONCRETE PIPE
16. ITEM TX-465 JUNCTION BOXES, MANHOLES, AND INLETS
17. ITEM TX-467 SAFETY END TREATMENT
18. ITEM TX-506 TEMPORARY EROSION, SEDIMENTATION, AND ENVIRONMENTAL
CONTROLS
19. ITEM ST-P-311 PAVEMENT FABRIC
20. ITEM P-101 PREPARATION/REMOVAL OF EXISTING PAVEMENTS
21. ITEM P-620 RUNWAY AND TAXIWAY MARKING
22. ITEM P-640 AIRCRAFT TIEDOWN ANCHOR
23. ITEM L-101 AIRPORT ROTATING BEACONS
24. ITEM L-103 AIRPORT BEACON TOWERS



ITEM TX-360 CONCRETE PAVEMENT

Summary of Changes

1. Section 1 Description

- a. The first paragraph is revised as follows:
 - i. Construct hydraulic cement concrete ~~pavement with or without curbs on the concrete pavement~~ where called for in the plans, specifications or as directed by the Engineer.

2. Section 2 Materials

- a. Section 2 is revised as follows:

Use materials from non-listed sources only when tested and approved by the Engineer before use. Allow 30 calendar days for the Engineer to sample, test, and report results for non-listed sources.

- b. **Hydraulic Cement Concrete.** Provide hydraulic cement concrete in accordance with Item 421, "Hydraulic Cement Concrete." Use compressive strength testing unless otherwise shown on the plans. Provide Class P concrete designed to meet a minimum average compressive strength of 3,200 psi at 7 days or a minimum average compressive strength of 4,000 psi at 28 days. Test in accordance with Tex-418-A. Concrete shall have a slump of between 3 and 5 inches and air content by volume (%) of between 3.5 and 6.5.

~~Obtain written approval if the concrete mix design exceeds 520 lb. per cubic yard of cementitious material.~~

~~Use coarse aggregates for continuously reinforced concrete pavements to produce concrete with a rated coefficient of thermal expansion not more than 5.5×10^{-6} in./in./°F as listed in accordance with the *Concrete Rated Source Quality Catalog*.~~

~~Provide Class High Early Strength (HES) concrete designed to meet a minimum average compressive strength of 3,200 psi at 24 hr., for early opening of small pavement areas or leave-outs to traffic when shown on the plans or allowed. When opening of small pavement areas or leave-outs to traffic is less than 24 hr., design Class HES concrete to achieve a minimum average compressive strength of 1,800 psi at 8 hr.~~

- e. **Reinforcing Steel.** Provide Grade 60 or above deformed steel for bar reinforcement in accordance with Item 440, "Reinforcement for Concrete." Provide positioning and supporting devices (baskets and chairs) capable of securing and holding the reinforcing steel in proper position before and during paving. Provide corrosion protection when shown on the plans.
- d. ~~**Dowels.** Provide dowel bars for concrete pavements in accordance with DMS-7325, "Dowel Bars for Concrete Pavements" and the MPL for "Dowel Bars for Concrete Pavements." Provide dowel caps filled with a soft compressible material with enough range of movement to allow complete closure of the expansion joint.~~
- e. ~~**Tie Bars.** Provide straight deformed steel tie bars. Provide either multiple piece tie bars or single piece tie bars as shown on the plans. Furnish multiple piece tie bar assemblies from the list of approved multiple piece tie bars that have been prequalified in accordance with DMS-4515, "Multiple Piece Tie Bars for Concrete Pavement," when used. Multiple piece tie bars used on individual projects must be sampled in accordance with Tex-711-I, and tested in accordance with Tex-712-I.~~
- f. ~~**Curing Materials.** Provide Type 2 membrane curing compound in accordance with DMS-4650, "Hydraulic Cement Concrete Curing Materials and Evaporation Retardants." Provide asphaltic curing materials in accordance with Item 300, "Asphalts, Oils, and Emulsions," for concrete~~



pavement to be overlaid with asphalt concrete, unless otherwise shown on the plans or approved. Provide materials for other methods of curing in accordance with Item 422, "Concrete Superstructures." When required, provide insulating blankets with a minimum thermal resistance (R) rating of 0.5 degree Fahrenheit square foot per British Thermal Unit. Use insulating blankets that are free of tears and are in good condition.

- ~~g. **Epoxy.** Provide Type III, Class C epoxy in accordance with DMS-6100, "Epoxies and Adhesives," for installing all drilled-in reinforcing steel. Submit a work plan and request approval for the use of epoxy types other than Type III, Class C.~~
 - ~~h. **Evaporation Retardant.** Provide evaporation retardant in accordance with DMS-4650.~~
 - ~~i. **Joint Sealants and Fillers.** Provide Class 5 or Class 8 joint sealant materials and fillers unless otherwise shown on the plans or approved, and other sealant materials of the size, shape, and type shown on the plans in accordance with DMS-6310, "Joint Sealants and Fillers."~~
 - ~~j. **Repair Materials.** Provide concrete repair materials in accordance with DMS-4655, "Concrete Repair Materials," or DMS-6170, "Polymeric Materials for Patching Spalls in Concrete Pavement."~~
3. Section 3 Equipment
- a. Section 3 is revised as follows:
 - ~~b. **Placing, Consolidating, and Finishing Equipment.** Provide self-propelled paving equipment that uniformly distributes the concrete with minimal segregation and provides a smooth machine-finished consolidated concrete pavement conforming to plan line and grade. Provide an automatic grade control system on slip-forming equipment. Provide mechanically operated finishing floats capable of producing a uniformly smooth pavement surface. Provide equipment capable of providing a fine, light water fog mist.~~

~~When using stringless paving equipment, use in accordance with Section 5.9.3., "Method C," and establish control points at maximum intervals of 500 ft. Use these control points as reference to perform the work.~~

~~Provide mechanically operated vibratory equipment capable of adequately consolidating the concrete. Provide immersion vibrators on the paving equipment at sufficiently close intervals to provide uniform vibration and consolidation of the concrete over the entire width and depth of the pavement and in conformance with the manufacturer's recommendations. Provide immersion vibrator units that operate at a frequency in air of at least 8,000 cycles per minute. Provide enough hand-operated immersion vibrators for timely and proper consolidation of the concrete for concrete pavement (formed) placements, and along forms, at all joints, and in areas not covered by other vibratory equipment. Surface vibrators may be used to supplement equipment-mounted immersion vibrators. Provide tachometers to verify the proper operation of all vibrators.~~

~~For small or irregular areas or when approved, the paving equipment described in this Section is not required.~~

- ~~c. **Forming Equipment.**~~
- ~~d. **Pavement Forms.** Provide side forms of sufficient cross-section, strength, and rigidity to support the paving equipment and resist the impact and vibration of the operation without visible springing or settlement. Use forms that are free of detrimental kinks, bends, or warps that could affect ride quality or alignment. Provide bulkhead forms of sufficient cross-section, strength, and rigidity to support reinforcing steel and maintain alignment during concrete placement operations.~~



- e. ~~**Curb Forms.** Provide curb forms for separately placed curbs that are not slipformed that conform to the requirements of Item 529, "Concrete Curb, Gutter, and Combined Curb and Gutter."~~
 - f. ~~**Single-Piece Tie-Bar Inserting Equipment.** Provide inserting equipment that accurately inserts and positions reinforcing steel in the plastic concrete parallel to the profile grade and horizontal alignment as shown on the plans.~~
 - g. ~~**Texturing Equipment.**~~
 - h. ~~**Carpet Drag.** Provide a carpet drag mounted on a work bridge or a manual moveable support system. Provide a single piece of carpet of sufficient transverse length to span the full width of the pavement being placed and adjustable so that a sufficient longitudinal length of carpet is in contact with the concrete being placed to produce the desired texture. Obtain approval to vary the length and width of the carpet to accommodate specific applications.~~
 - i. ~~**Tining Equipment.** Provide a self-propelled metal tine device equipped with steel tines with cross-section approximately 1/32 in. thick by 1/12 in. wide. Provide tines for longitudinal tining equipment spaced at approximately 3/4 in., center-to-center, or provide tines for transverse tining equipment spaced at approximately 1 in., center-to-center. Manual methods that produce an equivalent texture may be used when it is impractical to use self-propelled equipment, such as for small areas, narrow width sections, and emergencies due to equipment breakdown.~~
 - j. ~~**Curing Equipment.** Provide a self-propelled machine for applying membrane curing compound using mechanically pressurized spraying equipment with atomizing nozzles. Provide equipment and controls that maintain the required uniform rate of application over the entire paving area. Hand-operated pressurized spraying equipment with atomizing nozzles may only be used on small or irregular areas, on narrow width sections, or in emergencies due to equipment breakdown.~~
 - k. ~~**Sawing Equipment.** Provide power-driven concrete saws to saw the joints shown on the plans. Provide standby power-driven concrete saws during concrete sawing operations.~~
 - l. ~~**Grinding Equipment.** Provide self-propelled powered grinding equipment that is specifically designed to smooth and texture concrete pavement using circular diamond blades when required. Provide equipment with automatic grade control capable of grinding at least a 3-ft. width longitudinally in each pass without damaging the concrete.~~
 - m. ~~**Testing Equipment.** Provide testing equipment in accordance with Item 421, unless otherwise shown on the plans or specified. Maintain and calibrate all Contractor-supplied testing equipment in conformance with pertinent test methods. Provide calibration records of strength-testing equipment to the Engineer within 1 week after each calibration.~~
 - n. ~~**Coring Equipment.** Provide coring equipment capable of extracting cores in accordance with Tex-424-A when required.~~
 - o. ~~**Miscellaneous Equipment.** Furnish 10-ft. and 15-ft. steel or magnesium long-handled, standard straightedges. Furnish enough work bridges, long enough to span the pavement, for finishing and inspection operations.~~
4. Section 4 Construction
- a. Section 4 is revised as follows:

Obtain approval for adjustments to plan grade-line to maintain thickness over minor subgrade or base high spots while maintaining clearances and drainage. Maintain subgrade or base in a smooth,



clean, compacted condition in conformance with the required section and established grade until the pavement concrete is placed. Dampen subgrade or base with water before placing pavement concrete.

Adequately light the active work areas for all nighttime operations. Provide and maintain tools and materials to perform testing.

- a. ~~**Paving and Quality Control (QC) Plan.** Submit a paving and QC plan for approval before beginning pavement construction operations. Include details of all operations in the concrete paving process, including methods to construct transverse joints, methods to consolidate concrete at joints, longitudinal construction joint layout, sequencing, curing, lighting, early opening, leave-outs, sawing, inspection, contractor QC testing, testing for opening to traffic, construction methods, other details, and description of all equipment. List certified personnel performing contractor QC testing and testing for opening to traffic. Submit revisions to the paving and QC plan for approval.~~
- a. ~~**Placing Reinforcing Steel for Continuously Reinforced Concrete Pavements.** Accurately place and secure in position all reinforcing steel as shown on the plans. Provide chairs in sufficient number to adequately support the reinforcing steel at the proper height as show on the plans. Secure reinforcing steel at alternate intersections with tie wires. Reinforcing steel intersections may be secured with locking support chairs instead of tie wires. Anchor pins used to prevent the reinforcing steel from shifting may remain in the final pavement. Stagger the lap locations so that no more than 1/3 of the longitudinal steel is spliced in any given 12-ft. width and 2-ft. length of the pavement. Tie all splices with tie wires.~~
- a. ~~**Joints.** Install formed joints as shown on the plans. Install transverse bulkhead forms to support extending reinforcing steel, shaped accurately to the cross-section of the pavement when placing of concrete is stopped.~~
- a. ~~**Placing Reinforcement at Joints.** Install reinforcing steel at transverse construction joints as shown on the plans. Use multiple piece tie bars, drilled and epoxy-grouted tie bars, or mechanically inserted single piece tie bars at longitudinal construction joints. Discontinue the use of mechanically inserted single piece tie bars if this method results in steel misalignment or improper location, poor concrete consolidation, or other inadequacies. Protect the reinforcing steel immediately beyond the construction joint from damage, vibration, and impact.~~

For drilled and epoxy-grouted tie bars, drill holes into the existing concrete at least 10 in. deep unless otherwise directed. Use a drill bit with a diameter that is 1/8 in. greater than that of tie bars. Clean the holes using a wire brush and compressed air to remove all the dust and moisture. Only cartridge or machine applicator epoxies are allowed. Follow the epoxy manufacturer's instructions to apply the epoxy. Insert the tip of the epoxy cartridge or the tip of the machine applicator to the end of the tie bar hole, and inject Type III, Class C, epoxy to fill the hole with the amount of epoxy recommended by the manufacture for the size of bar and depth of hole. Insert tie bars.
- a. ~~**Testing of Tie Bars.** Verify that tie bars that are drilled and epoxied or mechanically inserted into concrete at longitudinal construction joints develop a pullout resistance equal to at least 3/4 of the yield strength of the reinforcing steel. Test pullout resistance of mechanically inserted tie bars when the concrete pavement is at least 7 days old. Test pullout resistance of epoxy-grouted bars after the epoxy manufacturer's recommended final cure time. Test 15 bars in accordance with ASTM E488, except that alternate approved equipment may be used. All 15 tested bars must meet the required pullout strength. Perform corrective measures to provide equivalent pullout resistance if any of the test results do not meet the required minimum pullout strength. Repair damage from testing.~~
- a. ~~**Testing of Epoxy-Grouted Longitudinal Bars in Continuously Reinforced Concrete Pavements.** When longitudinal reinforcing steel is drilled and epoxy-grouted in existing pavement,~~

test each bar in accordance with ASTM E488, except that alternate approved equipment may be used. All bars must develop a pullout resistance equal to at least 3/4 of the yield strength of the steel. Test pullout resistance after the epoxy manufacturer's recommended final cure time. Perform corrective measures to provide equivalent pullout resistance if any of the test results do not meet the required minimum pullout strength. Repair damage from testing.

- a. ~~**Transverse Construction Joints for Concrete Pavement Contraction Design (CPCD).**~~ Install and rigidly secure a complete joint assembly and bulkhead in the planned transverse contraction joint location when the placing of concrete is intentionally stopped. Install a transverse construction joint either at a planned transverse contraction joint location or mid-slab between planned transverse contraction joints when the placing of concrete is unintentionally stopped. Install tie bars of the size and spacing used in the longitudinal joints for mid-slab construction joints.

Place dowels at mid-depth of the pavement slab, parallel to the surface. Place dowels for transverse contraction joints parallel to the pavement edge. Tolerances for location and alignment of dowels will be shown on the plans. For dowels used in a contraction joint, coat the entire length of the dowels with a thin film of grease, wax, silicone, or other approved de-bonding material. For dowels used in an expansion joint, coat half the length with a thin film of grease, wax, silicone, or other approved de-bonding material; provide dowel caps on the coated half of each dowel bar.

- a. ~~**Curb Joints.**~~ Construct curb joints in accordance with Item 529.

- a. **Placing and Removing Forms.** Use clean and oiled forms. ~~Secure forms on a base or firm subgrade that is accurately graded and that provides stable support without deflection and movement by form riding equipment. Pin every form at least at the middle and near each end. Tightly join and key form sections together to prevent relative displacement.~~

~~Set side forms far enough in advance of concrete placement to permit inspection. Check conformity of the grade, alignment, and stability of forms immediately before placing concrete, and make all necessary corrections. Use a straightedge or other approved method to test the top of forms to ensure that the ride quality requirements for the completed pavement will be met. Stop paving operations if forms settle or deflect more than 1/8 in. under finishing operations. Reset forms to line and grade, and refinish the concrete surface to correct grade.~~

~~Avoid damage to the edge of the pavement when removing side forms and bulkhead forms.~~ Repair damage resulting from form removal with an approved repair material within 24 hr. after form removal unless otherwise approved. Chip excessively honeycombed areas to sound concrete, and repair with an approved repair material within 24 hr. after form removal unless otherwise approved. Clean joint face within 24 hr. after a bulkhead for a transverse construction joint has been removed unless otherwise approved. Promptly apply membrane curing compound to the edge of the concrete pavement when forms are removed before 72 hr. after concrete placement.

~~Forms that are not the same depth as the pavement but within 2 in. of that depth are permitted if the subbase is trenched or the full width and length of the form base are supported with a firm material to produce the required pavement thickness. Promptly repair the form trench after use. Use flexible or curved wood or metal forms for curves of 100-ft. radius or less.~~

- a. **Concrete Delivery.** Clean delivery equipment as necessary to prevent accumulation of old concrete before loading fresh concrete. Use agitated delivery equipment for concrete designed to have a slump of more than ~~5 in~~ 4 inches. Segregated concrete is subject to rejection.

Begin the discharge of concrete delivered in agitated delivery equipment in accordance with Item 421. Place non-agitated concrete within 45 min. after batching. Reduce times as directed when hot weather or other conditions cause quick setting of the concrete.

- ~~a. **Concrete Placement.** Do not allow the pavement edge to deviate from the established paving line by more than 1/2 in. at any point. Place the concrete as near as possible to its final location, and minimize segregation and rehandling. Distribute concrete using shovels where hand spreading is necessary. Do not use rakes or vibrators to distribute concrete.~~
- a. **Consolidation.** Consolidate all concrete using approved mechanical vibrators operated on the front of the paving equipment. Use immersion-type vibrators that simultaneously consolidate the full width of the placement when machine finishing. Keep vibrators from dislodging reinforcement. Use hand-operated vibrators to consolidate concrete for concrete pavement (formed) placements, and along forms, at all joints, and in areas not accessible to the machine-mounted vibrators. Do not operate machine-mounted vibrators while the paving equipment is stationary. Vibrator operations are subject to review.
- ~~a. **Curbs.** Curbs will be in accordance with Item 529.~~
- a. **Temperature Restrictions.** Place concrete that is between 40°F and 95°F when measured in accordance with Tex-422-A at the time of discharge, except that concrete may be used if it was already in transit when the temperature was found to exceed the allowable maximum. Take immediate corrective action or cease concrete production when the concrete temperature exceeds 95°F.
- Do not place concrete when the ambient temperature in the shade is below 40°F and falling, unless approved. Concrete may be placed when the ambient temperature in the shade is above 35°F and rising or above 40°F. Protect the pavement with an approved insulating material capable of protecting the concrete for the specified curing period when temperatures warrant protection against freezing. Submit for approval proposed measures to protect the concrete from anticipated freezing weather for the first 72 hr. after placement. Repair or replace all concrete damaged by freezing.
- ~~a. **Spreading and Finishing.** Finish all concrete pavement using approved self-propelled equipment. Use power-driven spreaders, power-driven vibrators, power-driven strike-off screed, or approved alternate equipment to strike-off the surface of the concrete to the required section and grade without surface voids. Use float equipment for final finishing. Use concrete with a consistency that allows completion of all finishing operations without addition of water to the surface. Use the minimal amount of water fog mist necessary to maintain a moist surface. Reduce fogging if float or straightedge operations result in excess slurry.~~
- ~~a. **Finished Surface.** Perform sufficient checks using a minimum 10-ft. long straightedge on the plastic concrete to ensure the final surface is within the tolerances specified in Surface Test A in accordance with Item 585, "Ride Quality for Pavement Surfaces." Check with the straightedge parallel to the centerline.~~
- ~~a. **Maintenance of Surface Moisture.** Prevent surface drying of the pavement before application of the curing system by means that may include water fogging, the use of wind screens, or the use of evaporation retardants. Apply evaporation retardant at the manufacturer's recommended rate. Reapply the evaporation retardant as needed to maintain the concrete surface in a moist condition until curing system is applied. Do not use evaporation retardant as a finishing aid. Failure to take acceptable precautions to prevent surface drying of the pavement will be cause for shutdown of pavement operations.~~
- ~~a. **Surface Texturing.** Complete final texturing before the concrete has attained its initial set. Drag the carpet longitudinally along the pavement surface with the carpet contact surface area adjusted to provide a satisfactory coarsely textured surface. Prevent grout from plugging the carpet. Do not perform carpet dragging operations while there is excessive bleed water.~~

~~A metal-tine texture finish is required unless otherwise shown on the plans. Provide longitudinal tining unless otherwise shown on the plans. Immediately following the carpet drag, apply a single coat of evaporation retardant, if needed, at the rate recommended by the manufacturer. Provide the metal-tine finish immediately after the concrete surface has set enough for consistent tining. Operate the metal-tine device to obtain grooves approximately 3/16 in. deep, with a minimum depth of 1/8 in., and approximately 1/12 in. wide. Do not overlap a previously tined area. Use manual methods to achieve similar results on ramps, small or irregular areas, and narrow width sections of pavements. Repair damage to the edge of the slab and joints immediately after texturing. Do not tine pavement that will be overlaid or that is scheduled for blanket diamond grinding or shot blasting.~~

~~Target a carpet drag texture of 0.04 in., as measured by Tex-436-A, when carpet drag is the only surface texture required on the plans. Ensure adequate and consistent macro-texture is achieved by applying enough weight to the carpet and by keeping grout from plugging the carpet. Correct any location with a texture less than 0.03 in. by diamond grinding or shot blasting. The Engineer will determine the test locations at points located transversely to the direction of traffic in the outside wheel-path.~~

- ~~a. **Small, Irregular Area, or Narrow Width Placements.** Use hand equipment and procedures that produce a consolidated and finished pavement section to the line and grade where machine placements and finishing of concrete pavement are not practical.~~
- ~~a. **Emergency Procedures.** Use hand-operated equipment for applying texture, evaporation retardant, and cure in the event of equipment breakdown.~~
- ~~a. **Curing.** Keep the concrete pavement surface from drying in accordance with Section 360.4.8.2., “Maintenance of Surface Moisture,” until the curing material has been applied. Maintain and promptly repair damage to curing materials on exposed surfaces of concrete pavement continuously for at least 3 curing days. A curing day is defined as a 24-hr. period when either the temperature taken in the shade away from artificial heat is above 50°F for at least 19 hr. or the surface temperature of the concrete is maintained above 40°F for 24 hr. Curing begins when the concrete curing system has been applied. Stop concrete paving if curing compound is not being applied promptly and maintained adequately. Other methods of curing in accordance with Item 422 may be used when specified or approved.~~
- ~~a. **Membrane Curing.** Spray the concrete surface uniformly with two coats of membrane curing compound at an individual application rate of no more than 180 sq. ft. per gallon. Apply the curing compound before allowing the concrete surface to dry.~~

~~Manage finishing and texturing operations to ensure placement of curing compound on a moist concrete surface, relatively free of bleed water, to prevent any plastic shrinkage from cracking. Time the application of curing compound to prevent plastic shrinkage from cracking.~~

~~Maintain curing compounds in a uniformly agitated condition, free of settlement before and during application. Do not thin or dilute the curing compound.~~

~~Apply additional compound at the same rate of coverage to correct damage where the coating shows discontinuities or other defects or if rain falls on the newly coated surface before the film has dried enough to resist damage. Ensure that the curing compound coats the sides of the tining grooves.~~

- ~~a. **Asphalt Curing.** Apply a uniform coating of asphalt curing at a rate of 90 sq. ft. 180 sq. ft. per gallon when an asphaltic concrete overlay is required. Apply curing immediately after texturing and once the free moisture (sheen) has disappeared. Obtain approval to add water to the emulsion to improve spray distribution. Maintain the asphalt application rate when using diluted emulsions. Maintain asphalt emulsions in a mixed condition during application.~~

- ~~a. **Curing Class HES Concrete.** Provide membrane curing in accordance with Section 360.4.9.1, “Membrane Curing,” or wet mat curing in accordance with Section 422.4.8, “Final Curing,” for all Class HES concrete.~~
- ~~a. **Sawing Joints.** Saw joints to the depth shown on the plans as soon as sawing can be accomplished without damage to the pavement, regardless of time of day or weather conditions. Some minor raveling of the saw cut is acceptable. Use a chalk line, string line, sawing template, or other approved method to provide a true joint alignment. Provide enough saws to match the paving production rate to ensure sawing completion at the earliest possible time to avoid uncontrolled cracking. The Engineer will evaluate the cause of the uncontrolled cracking and direct any necessary repairs. Reduce paving production if necessary to ensure timely sawing of joints. Promptly restore membrane cure damaged within the first 72 hr. of curing.~~

~~The Engineer will check the depth of saw cuts in accordance with Tex 423-A within 24 hrs. after saw cutting or before joints are sealed, whichever is sooner. Frequency of checks will be as follows:~~

~~every 500 ft. or fraction thereof for all longitudinal contraction joints, and~~

~~40% of transverse contraction joints in CPCD for each daily placement.~~

~~Resaw contraction joints that are deficient in depth by more than 1/4 in. from plan depth within 24 hr. of depth checks.~~

- ~~a. **Cleaning and Sealing Joints.** Clean and seal joints in accordance with Item 438, “Cleaning and Sealing Joints.” Repair excessive spalling of the joint saw groove using an approved method before installing the sealant. Seal all joints before opening the pavement to all traffic. Joint sealants are not required on concrete pavement that is to be overlaid with asphaltic materials.~~
- ~~a. **Protection of Pavement.** Erect and maintain barricades and other standard and approved devices that will exclude all vehicles and equipment from the newly placed pavement for the periods specified. Protect the pavement from damage due to crossings using approved methods before opening to traffic. Where a detour is not readily available or economically feasible, an occasional crossing of the roadway with overweight equipment may be permitted for relocating equipment only, but not for hauling material. When an occasional crossing of overweight equipment is permitted, temporary matting or other approved methods may be required.~~
- ~~Maintain an adequate supply of sheeting or other material to cover and protect fresh concrete surface from weather damage. Apply as needed to protect the pavement surface from weather.~~
- ~~a. **Opening to Traffic.** Testing for opening pavement to traffic is the responsibility of the Contractor unless otherwise shown on the plans or as directed. Before opening pavement to traffic, provide test results to the Engineer for review, if necessary,~~
- ~~clean pavement;~~
- ~~place stable material against pavement edges;~~
- ~~seal joints, and~~
- ~~perform all other traffic safety related work.~~
- ~~a. **Opening Pavement to All Traffic.** Pavements can be open to all traffic when the pavement is 7 days old;~~

~~when 3-day curing is complete and the concrete has attained a compressive strength of 3,200 psi, after 24 hr. and the concrete has attained a compressive strength of 3,200 psi when Class HES concrete is used, or after the concrete has been cured for at least 8 hr. and attained a minimum compressive strength of 1,800 psi when Class HES concrete is used.~~

- a. ~~**Opening Pavement to Construction Equipment.** Unless otherwise shown on the plans, concrete pavement may be opened to concrete paving equipment and related delivery equipment after the concrete is at least 48 hr. old and has attained a compressive strength of 3,200 psi. Keep delivery equipment at least 2 ft. from the edge of the concrete pavement. Keep tracks of the paving equipment at least 1 ft. from the pavement edge. Protect textured surfaces from the paving equipment. Restore damaged membrane curing as soon as possible. Repair pavement damaged by paving or delivery equipment before opening to all traffic.~~
- a. **Maturity Method.** Maturity method, in accordance with Tex-426-A, may be used to estimate concrete strength for opening pavement to traffic. Install at least two maturity sensors for each day's placement in areas where the maturity method will be used for opening. Maturity sensors, when used, will be installed near the day's final placement for areas being evaluated.

~~The Engineer will test specimens to verify the strength-maturity relationship in accordance with Tex-426-A. The strength-maturity relationship will be verified at least every 10 days of production after the first day. Establish a new strength-maturity relationship when the strength specimens deviate more than 10% from the maturity-estimated strengths. Suspend use of the maturity method for opening pavements to traffic when the strength-maturity relationship deviates by more than 10% until a new strength-maturity relationship is established.~~

~~The Engineer will determine the frequency of verification when the maturity method is used intermittently or for only specific areas.~~

- a. ~~**Emergency Opening to Traffic.** Open the pavement to traffic under emergency conditions, when the pavement is at least 72 hr. old, when directed in writing.~~
- a. **Sampling and Testing of Concrete.** Unless otherwise specified, all fresh and hardened concrete is subject to testing as follows.
- a. **Fresh Concrete.** Provide safe access and assistance to the Engineer during sampling. Fresh concrete will be sampled in accordance with Tex-407-A.
- a. **Testing Concrete.** The Engineer will test the fresh and hardened concrete in accordance with the following methods:

Slump. Tex-415-A, ~~only for formed concrete pavement placements;~~

Air Content. Tex-414-A or Tex-416-A, only when air-entrained concrete is shown on the plans;

Temperature. Tex-422-A;

Making and Curing Strength Specimens. Tex-447-A;

Compressive Strength. Tex-418-A; and

Maturity. Tex-426-A;

~~Maturity specimens will be made only when maturity method is used or shown on the plans.~~

Concrete with slump less than minimum required after all addition of water withheld will be rejected, unless otherwise allowed by the Engineer. Concrete with slump exceeding maximum allowed may be used at the Contractor's option. If used, Engineer will make, test, and evaluate strength specimens in accordance with Section 360.4.15., "Acceptance of Concrete Pavement." Acceptance of concrete not meeting air content or temperature requirements will be determined by Engineer. Fresh concrete exhibiting segregation and excessive bleeding will be rejected.

- ~~a. **Strength Specimen Handling.** After strength test specimens are molded, protect and cure in conformance with pertinent test methods. When necessary, deliver Contractor molded specimens to curing facilities, remove specimens from their molds, and place specimens in curing tanks within 24–48 hr. after molding, in conformance with pertinent test methods. The Engineer will deliver Department molded specimens to curing facilities, remove specimens from their molds, and place specimens in curing tanks within 24–48 hr. after molding, in conformance with pertinent test methods.~~
- ~~a. **Acceptance of Concrete Pavement.** The Engineer will determine pay adjustments for deficient pavement thickness within 14 days after concrete pavement has been cored. The Engineer will determine structural adequacy of low concrete strengths within 7 days after design strength specimens or cores, if taken, are tested.~~
- ~~a. **Pavement Thickness.** The Engineer will check the thickness in accordance with Tex 423-A unless other methods are shown on the plans. The Engineer will perform one thickness test consisting of one reading at approximately the center of the paving equipment every 500 ft. or fraction thereof. Core where directed, in accordance with Tex 424-A, to verify deficiencies. Do not core until pavement is at least 7 days old or has achieved design strength. Fill core holes using an approved concrete mixture and method.~~
- ~~a. **Assessing Payment Adjustments.** Limits for applying a payment adjustment for deficient pavement thickness are 500 ft. units of pavement in each lane. Lane width will be as shown on typical sections and in conformance with pavement design standards.~~

~~The limits for retaining deficient pavement without compensation or removing and replacing without additional compensation will be defined by coring or equivalent nondestructive means as determined by the Engineer. The remaining portion of the 500-ft. unit allowed for pay adjustment will be subject to the payment adjustment based on the average core thickness deficiency at each end of the 10-ft. interval investigation as determined by the Engineer.~~

~~Shoulders will be measured for thickness unless otherwise shown on the plans. Shoulders 6 ft. wide or wider will be considered as lanes. Shoulders less than 6 ft. wide will be considered part of the adjacent lane. Shoulders less than 6 ft. wide and placed separately from the adjacent lane will be considered as a lane.~~

~~Limits for applying payment adjustment for deficient pavement thickness for ramps, widenings, acceleration and deceleration lanes, and other miscellaneous areas are 500-ft. units. Areas less than 500-ft. units will be individually evaluated for payment adjustment based on the plan area.~~

- ~~a. **Verification of Thickness Deficiencies.** When any fresh depth test measured in accordance with Tex 423-A is deficient by more than 0.50 in. from the plan thickness, take one 4 in. diameter core at that location to verify the measurement.~~

~~When determining the average thickness deficiency for assessing a pay adjustment other than retaining pavement without compensation or remove and replace as shown in Table 1, take at least two additional cores from the unit, in accordance with Section 360.4.15.1.1, “Assessing Payment Adjustments,” equidistantly spaced from the first core in each direction if the first core is deficient by more than 0.50 in. from the plan thickness. Measure the length of cores in accordance with Tex 424-A. Determine the average thickness by averaging the lengths of the cores. Subtract the calculated average thickness from the plan thickness to determine the average thickness deficiency. In calculations of the average thickness, measurements exceeding the plan thickness by more than 0.2 in. will be considered as the plan thickness plus 0.2 in.~~

~~When determining the limits for retaining the deficient pavement without compensation or remove and replace without additional compensation, take additional cores at 10-ft. intervals in each direction~~



~~parallel to the centerline to determine the boundary of the deficient area if the first core length deficiency is more than 1.00 in. for pavements less than 11 in. thick or more than 1.50 in. for pavements 11 in. or thicker. Continue taking cores at 10-ft. intervals until the core length deficiency is less than 1.00 in. for pavements less than 11 in. thick or less than 1.50 in. for pavements 11 in. or thicker.~~

- a. **Strength of Concrete Pavement.** The Engineer will accept concrete pavement meeting a compressive strength of 3,200 psi at 7 days or meeting a compressive strength of 4,000 psi at 28 days for Class P concrete.

Concrete strength testing may be correlated to an age other than 7 days in accordance with [Tex-427-A](#) when approved.

~~The Engineer will accept concrete pavement using Class HES concrete based on the required strength and time.~~

~~Investigate the strength test procedures, the quality of materials, the concrete production operations, and other possible problem areas to determine the cause when a concrete strength test value is more than 10% below the required strength or when three consecutive strength values fall below the required strength. Take necessary action to correct the problem, including redesign of the concrete mix if needed. The Engineer may suspend concrete paving if the Contractor is unable to identify, document, and correct the cause of low strength test values in a timely manner. The Engineer will evaluate the structural adequacy of the pavements if any strength is more than 15% below the required strength. Remove and replace pavements found to be structurally inadequate at no additional cost when directed.~~

- a. ~~**Ride Quality.** Measure and correct ride quality in accordance with Item 585, unless otherwise shown on the plans.~~

5. Section 5 Measurement

- b. Section 5 is revised as follows:

~~This item will not be measure for payment but will be considered incidental to the work being performed. This Item will be measured as follows:~~

- a. ~~**Concrete Pavement.** Concrete pavement will be measured by the square yard of surface area in place. The surface area includes the portion of the pavement slab extending beneath the curb.~~

6. Section 6 Measurement

- c. Section 6 is revised as follows:

~~This item shall be considered incidental to the work being performed and no separate payment will be made. This work shall include all These prices are full compensation for materials, equipment, labor, tools, and incidentals necessary to complete the work.~~

- a. ~~**Concrete Pavement.** The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Concrete Pavement" of the type and depth specified as adjusted in accordance with Section 360.6.2.; "Deficient Thickness Adjustment."~~
- a. ~~**Deficient Thickness Adjustment.** Where the average thickness of pavement is deficient in thickness, payment will be made using the adjustment factor in accordance with Table 1 applied to the bid price for the deficient area for each unit in accordance with Section 360.4.15.1.1., "Assessing Payment Adjustments." When pavement thickness investigation (coring) is conducted for three consecutive placements, remove and replace without additional compensation all pavement placed~~



~~during these days if the average thickness deficiency from all cores taken from these consecutive placements is greater than 0.25 in.~~

Table 1
Deficient Thickness Price Adjustment Factor

Deficiency in Thickness Determined by Cores (in.)	Proportional Part of Contract Price Allowed (Adjustment Factor) for Thickness <11 inches
Not deficient	1.00
Over 0.00 through 0.50	1.00
Over 0.50 through 0.75	0.80
Over 0.75 through 1.00	0.60
Over 1.00 through 1.25	Retain pavement without compensation -or- Remove and Replace
Over 1.25	Remove and Replace
Deficiency in Thickness Determined by Cores (in.)	Proportional Part of Contract Price Allowed (Adjustment Factor) for Thickness ≥11 inches
Not deficient	1.00
Over 0.00 through 0.50	1.00
Over 0.50 through 0.75	0.90
Over 0.75 through 1.00	0.80
Over 1.00 through 1.50	0.60
Over 1.50 through 2.00	Retain pavement without compensation -or- Remove and replace
Over 2.00	Remove and replace

a. ~~Curb. All curbs will be paid for under Item 529.~~

Item 360

Concrete Pavement



1. DESCRIPTION

Construct hydraulic cement concrete ~~pavement with or without curbs on the concrete pavement~~ where called for in the plans, specifications or as directed by the Engineer.

2. MATERIALS

Use materials from non-listed sources only when tested and approved by the Engineer before use. Allow 30 calendar days for the Engineer to sample, test, and report results for non-listed sources.

- 2.1. **Hydraulic Cement Concrete.** Provide hydraulic cement concrete in accordance with Item 421, "Hydraulic Cement Concrete." Use compressive strength testing unless otherwise shown on the plans. Provide Class P concrete designed to meet a minimum average compressive strength of 3,200 psi at 7 days or a minimum average compressive strength of 4,000 psi at 28 days. Test in accordance with [Tex-418-A](#). ~~Concrete shall have a slump of between 3 and 5 inches and air content by volume (%) of between 3.5 and 6.5.~~

~~Obtain written approval if the concrete mix design exceeds 520 lb. per cubic yard of cementitious material.~~

~~Use coarse aggregates for continuously reinforced concrete pavements to produce concrete with a rated coefficient of thermal expansion not more than 5.5×10^{-6} in./in./°F as listed in accordance with the *Concrete Rated Source Quality Catalog*.~~

~~Provide Class High Early Strength (HES) concrete designed to meet a minimum average compressive strength of 3,200 psi at 24 hr., for early opening of small pavement areas or leave-outs to traffic when shown on the plans or allowed. When opening of small pavement areas or leave-outs to traffic is less than 24 hr., design Class HES concrete to achieve a minimum average compressive strength of 1,800 psi at 8 hr.~~

- 2.2. **Reinforcing Steel.** Provide Grade 60 or above deformed steel for bar reinforcement in accordance with Item 440, "Reinforcement for Concrete." ~~Provide positioning and supporting devices (baskets and chairs) capable of securing and holding the reinforcing steel in proper position before and during paving. Provide corrosion protection when shown on the plans.~~

- 2.2.1. ~~**Dowels.** Provide dowel bars for concrete pavements in accordance with [DMS-7325](#), "Dowel Bars for Concrete Pavements" and the MPL for "Dowel Bars for Concrete Pavements." Provide dowel caps filled with a soft compressible material with enough range of movement to allow complete closure of the expansion joint.~~

- 2.2.2. ~~**Tie Bars.** Provide straight deformed steel tie bars. Provide either multiple piece tie bars or single piece tie bars as shown on the plans. Furnish multiple piece tie bar assemblies from the list of approved multiple piece tie bars that have been prequalified in accordance with [DMS-4515](#), "Multiple Piece Tie Bars for Concrete Pavement," when used. Multiple piece tie bars used on individual projects must be sampled in accordance with [Tex-711-I](#), and tested in accordance with [Tex-712-I](#).~~

- 2.3. **Curing Materials.** Provide Type 2 membrane curing compound in accordance with [DMS-4650](#), "Hydraulic Cement Concrete Curing Materials and Evaporation Retardants." Provide asphaltic curing materials in accordance with Item 300, "Asphalts, Oils, and Emulsions," for concrete pavement to be overlaid with asphalt concrete, unless otherwise shown on the plans or approved. Provide materials for other methods of curing in accordance with Item 422, "Concrete Superstructures." When required, provide insulating blankets with a

~~minimum thermal resistance (R) rating of 0.5 degree Fahrenheit square foot per British Thermal Unit. Use insulating blankets that are free of tears and are in good condition.~~

- 2.4. ~~**Epoxy.** Provide Type III, Class C epoxy in accordance with DMS-6100, "Epoxies and Adhesives," for installing all drilled-in reinforcing steel. Submit a work plan and request approval for the use of epoxy types other than Type III, Class C.~~
- 2.5. ~~**Evaporation Retardant.** Provide evaporation retardant in accordance with DMS-4650.~~
- 2.6. ~~**Joint Sealants and Fillers.** Provide Class 5 or Class 8 joint sealant materials and fillers unless otherwise shown on the plans or approved, and other sealant materials of the size, shape, and type shown on the plans in accordance with DMS-6310, "Joint Sealants and Fillers."~~
- 2.7. ~~**Repair Materials.** Provide concrete repair materials in accordance with DMS-4655, "Concrete Repair Materials," or DMS-6170, "Polymeric Materials for Patching Spalls in Concrete Pavement."~~

3. EQUIPMENT

Furnish and maintain all equipment in good working condition. Use measuring, mixing, and delivery equipment in accordance with Item 421. Obtain approval for other equipment used.

- 3.1. ~~**Placing, Consolidating, and Finishing Equipment.** Provide self-propelled paving equipment that uniformly distributes the concrete with minimal segregation and provides a smooth machine-finished consolidated concrete pavement conforming to plan line and grade. Provide an automatic grade control system on slip-forming equipment. Provide mechanically operated finishing floats capable of producing a uniformly smooth pavement surface. Provide equipment capable of providing a fine, light water fog mist.~~

~~When using stringless paving equipment, use in accordance with Section 5.9.3., "Method C," and establish control points at maximum intervals of 500 ft. Use these control points as reference to perform the work.~~

~~Provide mechanically operated vibratory equipment capable of adequately consolidating the concrete. Provide immersion vibrators on the paving equipment at sufficiently close intervals to provide uniform vibration and consolidation of the concrete over the entire width and depth of the pavement and in conformance with the manufacturer's recommendations. Provide immersion vibrator units that operate at a frequency in air of at least 8,000 cycles per minute. Provide enough hand-operated immersion vibrators for timely and proper consolidation of the concrete for concrete pavement (formed) placements, and along forms, at all joints, and in areas not covered by other vibratory equipment. Surface vibrators may be used to supplement equipment-mounted immersion vibrators. Provide tachometers to verify the proper operation of all vibrators.~~

~~For small or irregular areas or when approved, the paving equipment described in this Section is not required.~~

- 3.2. ~~**Forming Equipment.**~~
- 3.2.1. ~~**Pavement Forms.** Provide side forms of sufficient cross-section, strength, and rigidity to support the paving equipment and resist the impact and vibration of the operation without visible springing or settlement. Use forms that are free of detrimental kinks, bends, or warps that could affect ride quality or alignment. Provide bulkhead forms of sufficient cross-section, strength, and rigidity to support reinforcing steel and maintain alignment during concrete placement operations.~~
- 3.3. ~~**Curb Forms.** Provide curb forms for separately placed curbs that are not slipformed that conform to the requirements of Item 529, "Concrete Curb, Gutter, and Combined Curb and Gutter."~~
- 3.4. ~~**Single-Piece Tie-Bar Inserting Equipment.** Provide inserting equipment that accurately inserts and positions reinforcing steel in the plastic concrete parallel to the profile grade and horizontal alignment as shown on the plans.~~

3.5. **~~Texturing Equipment.~~**

3.5.1. **~~Carpet Drag.~~** Provide a carpet drag mounted on a work bridge or a manual moveable support system.

~~Provide a single piece of carpet of sufficient transverse length to span the full width of the pavement being placed and adjustable so that a sufficient longitudinal length of carpet is in contact with the concrete being placed to produce the desired texture. Obtain approval to vary the length and width of the carpet to accommodate specific applications.~~

3.5.2. **~~Tining Equipment.~~** Provide a self-propelled metal tine device equipped with steel tines with cross-section approximately 1/32 in. thick by 1/12 in. wide. Provide tines for longitudinal tining equipment spaced at approximately 3/4 in., center-to-center, or provide tines for transverse tining equipment spaced at approximately 1 in., center-to-center. Manual methods that produce an equivalent texture may be used when it is impractical to use self-propelled equipment, such as for small areas, narrow width sections, and emergencies due to equipment breakdown.

3.6. **~~Curing Equipment.~~** Provide a self-propelled machine for applying membrane curing compound using mechanically pressurized spraying equipment with atomizing nozzles. Provide equipment and controls that maintain the required uniform rate of application over the entire paving area. Hand-operated pressurized spraying equipment with atomizing nozzles may only be used on small or irregular areas, on narrow width sections, or in emergencies due to equipment breakdown.

3.7. **~~Sawing Equipment.~~** Provide power driven concrete saws to saw the joints shown on the plans. Provide standby power driven concrete saws during concrete sawing operations.

3.8. **~~Grinding Equipment.~~** Provide self-propelled powered grinding equipment that is specifically designed to smooth and texture concrete pavement using circular diamond blades when required. Provide equipment with automatic grade control capable of grinding at least a 3 ft. width longitudinally in each pass without damaging the concrete.

3.9. **~~Testing Equipment.~~** Provide testing equipment in accordance with Item 421, unless otherwise shown on the plans or specified. Maintain and calibrate all Contractor-supplied testing equipment in conformance with pertinent test methods. Provide calibration records of strength testing equipment to the Engineer within 1 week after each calibration.

3.10. **~~Coring Equipment.~~** Provide coring equipment capable of extracting cores in accordance with Tex-424-A when required.

3.11. **~~Miscellaneous Equipment.~~** Furnish 10 ft. and 15 ft. steel or magnesium long handled, standard straightedges. Furnish enough work bridges, long enough to span the pavement, for finishing and inspection operations.

4. CONSTRUCTION

Obtain approval for adjustments to plan grade-line to maintain thickness over minor subgrade or base high spots while maintaining clearances and drainage. Maintain subgrade or base in a smooth, clean, compacted condition in conformance with the required section and established grade until the pavement concrete is placed. Dampen subgrade or base with water before placing pavement concrete.

Adequately light the active work areas for all nighttime operations. Provide and maintain tools and materials to perform testing.

4.1. **~~Paving and Quality Control (QC) Plan.~~** Submit a paving and QC plan for approval before beginning pavement construction operations. Include details of all operations in the concrete paving process, including methods to construct transverse joints, methods to consolidate concrete at joints, longitudinal construction joint layout, sequencing, curing, lighting, early opening, leave-outs, sawing, inspection, contractor QC testing, testing for opening to traffic, construction methods, other details, and description of all equipment. List

certified personnel performing contractor QC testing and testing for opening to traffic. Submit revisions to the paving and QC plan for approval.

- 4.2. **Placing Reinforcing Steel for Continuously Reinforced Concrete Pavements.** Accurately place and secure in position all reinforcing steel as shown on the plans. Provide chairs in sufficient number to adequately support the reinforcing steel at the proper height as show on the plans. Secure reinforcing steel at alternate intersections with tie wires. Reinforcing steel intersections may be secured with locking support chairs instead of tie wires. Anchor pins used to prevent the reinforcing steel from shifting may remain in the final pavement. Stagger the lap locations so that no more than 1/3 of the longitudinal steel is spliced in any given 12-ft. width and 2-ft. length of the pavement. Tie all splices with tie wires.
- 4.3. **Joints.** Install formed joints as shown on the plans. Install transverse bulkhead forms to support extending reinforcing steel, shaped accurately to the cross section of the pavement when placing of concrete is stopped.
- 4.3.1. **Placing Reinforcement at Joints.** Install reinforcing steel at transverse construction joints as shown on the plans. Use multiple-piece tie bars, drilled and epoxy-grouted tie bars, or mechanically inserted single-piece tie bars at longitudinal construction joints. Discontinue the use of mechanically inserted single-piece tie bars if this method results in steel misalignment or improper location, poor concrete consolidation, or other inadequacies. Protect the reinforcing steel immediately beyond the construction joint from damage, vibration, and impact.
- For drilled and epoxy-grouted tie bars, drill holes into the existing concrete at least 10 in. deep unless otherwise directed. Use a drill bit with a diameter that is 1/8 in. greater than that of tie bars. Clean the holes using a wire brush and compressed air to remove all the dust and moisture. Only cartridge or machine applicator epoxies are allowed. Follow the epoxy manufacturer's instructions to apply the epoxy. Insert the tip of the epoxy cartridge or the tip of the machine applicator to the end of the tie bar hole, and inject Type III, Class C, epoxy to fill the hole with the amount of epoxy recommended by the manufacture for the size of bar and depth of hole. Insert tie bars.
- 4.3.2. **Testing of Tie Bars.** Verify that tie bars that are drilled and epoxied or mechanically inserted into concrete at longitudinal construction joints develop a pullout resistance equal to at least 3/4 of the yield strength of the reinforcing steel. Test pullout resistance of mechanically inserted tie bars when the concrete pavement is at least 7 days old. Test pullout resistance of epoxy-grouted bars after the epoxy manufacturer's recommended final cure time. Test 15 bars in accordance with ASTM E488, except that alternate approved equipment may be used. All 15 tested bars must meet the required pullout strength. Perform corrective measures to provide equivalent pullout resistance if any of the test results do not meet the required minimum pullout strength. Repair damage from testing.
- 4.3.3. **Testing of Epoxy-Grouted Longitudinal Bars in Continuously Reinforced Concrete Pavements.** When longitudinal reinforcing steel is drilled and epoxy-grouted in existing pavement, test each bar in accordance with ASTM E488, except that alternate approved equipment may be used. All bars must develop a pullout resistance equal to at least 3/4 of the yield strength of the steel. Test pullout resistance after the epoxy manufacturer's recommended final cure time. Perform corrective measures to provide equivalent pullout resistance if any of the test results do not meet the required minimum pullout strength. Repair damage from testing.
- 4.3.4. **Transverse Construction Joints for Concrete Pavement Contraction Design (CPCD).** Install and rigidly secure a complete joint assembly and bulkhead in the planned transverse contraction joint location when the placing of concrete is intentionally stopped. Install a transverse construction joint either at a planned transverse contraction joint location or mid-slab between planned transverse contraction joints when the placing of concrete is unintentionally stopped. Install tie bars of the size and spacing used in the longitudinal joints for mid-slab construction joints.
- Place dowels at mid-depth of the pavement slab, parallel to the surface. Place dowels for transverse contraction joints parallel to the pavement edge. Tolerances for location and alignment of dowels will be shown on the plans. For dowels used in a contraction joint, coat the entire length of the dowels with a thin

~~film of grease, wax, silicone, or other approved de-bonding material. For dowels used in an expansion joint, coat half the length with a thin film of grease, wax, silicone, or other approved de-bonding material; provide dowel caps on the coated half of each dowel bar.~~

4.4. ~~**Curb Joints.** Construct curb joints in accordance with Item 529.~~

4.5. **Placing and Removing Forms.** Use clean and oiled forms. ~~Secure forms on a base or firm subgrade that is accurately graded and that provides stable support without deflection and movement by form-riding equipment. Pin every form at least at the middle and near each end. Tightly join and key form sections together to prevent relative displacement.~~

~~Set side forms far enough in advance of concrete placement to permit inspection. Check conformity of the grade, alignment, and stability of forms immediately before placing concrete, and make all necessary corrections. Use a straightedge or other approved method to test the top of forms to ensure that the ride quality requirements for the completed pavement will be met. Stop paving operations if forms settle or deflect more than 1/8 in. under finishing operations. Reset forms to line and grade, and refinish the concrete surface to correct grade.~~

~~Avoid damage to the edge of the pavement when removing side forms and bulkhead forms.~~ Repair damage resulting from form removal with an approved repair material within 24 hr. after form removal unless otherwise approved. Chip excessively honeycombed areas to sound concrete, and repair with an approved repair material within 24 hr. after form removal unless otherwise approved. Clean joint face within 24 hr. after a bulkhead for a transverse construction joint has been removed unless otherwise approved. Promptly apply membrane curing compound to the edge of the concrete pavement when forms are removed before 72 hr. after concrete placement.

~~Forms that are not the same depth as the pavement but within 2 in. of that depth are permitted if the subbase is trenched or the full width and length of the form base are supported with a firm material to produce the required pavement thickness. Promptly repair the form trench after use. Use flexible or curved wood or metal forms for curves of 100-ft. radius or less.~~

4.6. **Concrete Delivery.** Clean delivery equipment as necessary to prevent accumulation of old concrete before loading fresh concrete. Use agitated delivery equipment for concrete designed to have a slump of more than ~~5 in~~ 4 inches. Segregated concrete is subject to rejection.

Begin the discharge of concrete delivered in agitated delivery equipment in accordance with Item 421. Place non-agitated concrete within 45 min. after batching. Reduce times as directed when hot weather or other conditions cause quick setting of the concrete.

4.7. ~~**Concrete Placement.** Do not allow the pavement edge to deviate from the established paving line by more than 1/2 in. at any point. Place the concrete as near as possible to its final location, and minimize segregation and rehandling. Distribute concrete using shovels where hand spreading is necessary. Do not use rakes or vibrators to distribute concrete.~~

4.7.1. **Consolidation.** Consolidate all concrete using approved mechanical vibrators operated on the front of the paving equipment. Use immersion-type vibrators that simultaneously consolidate the full width of the placement when machine finishing. Keep vibrators from dislodging reinforcement. Use hand-operated vibrators to consolidate concrete for concrete pavement (formed) placements, and along forms, at all joints, and in areas not accessible to the machine-mounted vibrators. Do not operate machine-mounted vibrators while the paving equipment is stationary. Vibrator operations are subject to review.

~~4.7.2. **Curbs.** Curbs will be in accordance with Item 529.~~

4.7.3. **Temperature Restrictions.** Place concrete that is between 40°F and 95°F when measured in accordance with [Tex-422-A](#) at the time of discharge, except that concrete may be used if it was already in transit when the temperature was found to exceed the allowable maximum. Take immediate corrective action or cease concrete production when the concrete temperature exceeds 95°F.

Do not place concrete when the ambient temperature in the shade is below 40°F and falling, unless approved. Concrete may be placed when the ambient temperature in the shade is above 35°F and rising or above 40°F. Protect the pavement with an approved insulating material capable of protecting the concrete for the specified curing period when temperatures warrant protection against freezing. Submit for approval proposed measures to protect the concrete from anticipated freezing weather for the first 72 hr. after placement. Repair or replace all concrete damaged by freezing.

- 4.8. **Spreading and Finishing.** Finish all concrete pavement using approved self-propelled equipment. Use power-driven spreaders, power-driven vibrators, power-driven strike-off screed, or approved alternate equipment to strike-off the surface of the concrete to the required section and grade without surface voids. Use float equipment for final finishing. Use concrete with a consistency that allows completion of all finishing operations without addition of water to the surface. Use the minimal amount of water fog mist necessary to maintain a moist surface. Reduce fogging if float or straightedge operations result in excess slurry.
- 4.8.1. **Finished Surface.** Perform sufficient checks using a minimum 10-ft. long straightedge on the plastic concrete to ensure the final surface is within the tolerances specified in Surface Test A in accordance with Item 585, "Ride Quality for Pavement Surfaces." Check with the straightedge parallel to the centerline.
- 4.8.2. **Maintenance of Surface Moisture.** Prevent surface drying of the pavement before application of the curing system by means that may include water fogging, the use of wind screens, or the use of evaporation retardants. Apply evaporation retardant at the manufacturer's recommended rate. Reapply the evaporation retardant as needed to maintain the concrete surface in a moist condition until curing system is applied. Do not use evaporation retardant as a finishing aid. Failure to take acceptable precautions to prevent surface drying of the pavement will be cause for shutdown of pavement operations.
- 4.8.3. **Surface Texturing.** Complete final texturing before the concrete has attained its initial set. Drag the carpet longitudinally along the pavement surface with the carpet contact surface area adjusted to provide a satisfactory coarsely textured surface. Prevent grout from plugging the carpet. Do not perform carpet dragging operations while there is excessive bleed water.
- A metal-tine texture finish is required unless otherwise shown on the plans. Provide longitudinal tining unless otherwise shown on the plans. Immediately following the carpet drag, apply a single coat of evaporation retardant, if needed, at the rate recommended by the manufacturer. Provide the metal-tine finish immediately after the concrete surface has set enough for consistent tining. Operate the metal-tine device to obtain grooves approximately 3/16 in. deep, with a minimum depth of 1/8 in., and approximately 1/12 in. wide. Do not overlap a previously tined area. Use manual methods to achieve similar results on ramps, small or irregular areas, and narrow width sections of pavements. Repair damage to the edge of the slab and joints immediately after texturing. Do not tine pavement that will be overlaid or that is scheduled for blanket diamond-grinding or shot-blasting.
- Target a carpet drag texture of 0.04 in., as measured by Tex-436-A, when carpet drag is the only surface texture required on the plans. Ensure adequate and consistent macro texture is achieved by applying enough weight to the carpet and by keeping grout from plugging the carpet. Correct any location with a texture less than 0.03 in. by diamond-grinding or shot-blasting. The Engineer will determine the test locations at points located transversely to the direction of traffic in the outside wheel path.
- 4.8.4. **Small, Irregular Area, or Narrow Width Placements.** Use hand equipment and procedures that produce a consolidated and finished pavement section to the line and grade where machine placements and finishing of concrete pavement are not practical.
- 4.8.5. **Emergency Procedures.** Use hand-operated equipment for applying texture, evaporation retardant, and cure in the event of equipment breakdown.
- 4.9. **Curing.** Keep the concrete pavement surface from drying in accordance with Section 360.4.8.2., "Maintenance of Surface Moisture," until the curing material has been applied. Maintain and promptly repair damage to curing materials on exposed surfaces of concrete pavement continuously for at least 3 curing days. A curing day is defined as a 24-hr. period when either the temperature taken in the shade away from

artificial heat is above 50°F for at least 19 hr. or the surface temperature of the concrete is maintained above 40°F for 24 hr. Curing begins when the concrete curing system has been applied. Stop concrete paving if curing compound is not being applied promptly and maintained adequately. Other methods of curing in accordance with Item 422 may be used when specified or approved.

- 4.9.1. **Membrane Curing.** Spray the concrete surface uniformly with two coats of membrane curing compound at an individual application rate of no more than 180 sq. ft. per gallon. Apply the curing compound before allowing the concrete surface to dry.

Manage finishing and texturing operations to ensure placement of curing compound on a moist concrete surface, relatively free of bleed water, to prevent any plastic shrinkage from cracking. Time the application of curing compound to prevent plastic shrinkage from cracking.

Maintain curing compounds in a uniformly agitated condition, free of settlement before and during application. Do not thin or dilute the curing compound.

Apply additional compound at the same rate of coverage to correct damage where the coating shows discontinuities or other defects or if rain falls on the newly coated surface before the film has dried enough to resist damage. Ensure that the curing compound coats the sides of the tining grooves.

- 4.9.2. **Asphalt Curing.** Apply a uniform coating of asphalt curing at a rate of 90 sq. ft. – 180 sq. ft. per gallon when an asphaltic concrete overlay is required. Apply curing immediately after texturing and once the free moisture (sheen) has disappeared. Obtain approval to add water to the emulsion to improve spray distribution. Maintain the asphalt application rate when using diluted emulsions. Maintain asphalt emulsions in a mixed condition during application.

- 4.9.3. **Curing Class HES Concrete.** Provide membrane curing in accordance with Section 360.4.9.1., “Membrane Curing,” or wet mat curing in accordance with Section 422.4.8., “Final Curing,” for all Class HES concrete.

- 4.10. **Sawing Joints.** Saw joints to the depth shown on the plans as soon as sawing can be accomplished without damage to the pavement, regardless of time of day or weather conditions. Some minor raveling of the saw-cut is acceptable. Use a chalk line, string line, sawing template, or other approved method to provide a true joint alignment. Provide enough saws to match the paving production rate to ensure sawing completion at the earliest possible time to avoid uncontrolled cracking. The Engineer will evaluate the cause of the uncontrolled cracking and direct any necessary repairs. Reduce paving production if necessary to ensure timely sawing of joints. Promptly restore membrane cure damaged within the first 72 hr. of curing.

The Engineer will check the depth of saw cuts in accordance with Tex-423-A within 24 hrs. after saw-cutting or before joints are sealed, whichever is sooner. Frequency of checks will be as follows:

- every 500 ft. or fraction thereof for all longitudinal contraction joints, and
- 10% of transverse contraction joints in CPCD for each daily placement.

Resaw contraction joints that are deficient in depth by more than 1/4 in. from plan depth within 24 hr. of depth checks.

- 4.11. **Cleaning and Sealing Joints.** Clean and seal joints in accordance with Item 438, “Cleaning and Sealing Joints.” Repair excessive spalling of the joint saw groove using an approved method before installing the sealant. Seal all joints before opening the pavement to all traffic. Joint sealants are not required on concrete pavement that is to be overlaid with asphaltic materials.

- 4.12. **Protection of Pavement.** Erect and maintain barricades and other standard and approved devices that will exclude all vehicles and equipment from the newly placed pavement for the periods specified. Protect the pavement from damage due to crossings using approved methods before opening to traffic. Where a detour is not readily available or economically feasible, an occasional crossing of the roadway with overweight equipment may be permitted for relocating equipment only, but not for hauling material. When an occasional

~~crossing of overweight equipment is permitted, temporary matting or other approved methods may be required.~~

~~Maintain an adequate supply of sheeting or other material to cover and protect fresh concrete surface from weather damage. Apply as needed to protect the pavement surface from weather.~~

- 4.13. **Opening to Traffic.** Testing for opening pavement to traffic is the responsibility of the Contractor unless otherwise shown on the plans or as directed. Before opening pavement to traffic:

- ~~■ provide test results to the Engineer for review, if necessary,~~
- ~~■ clean pavement,~~
- ~~■ place stable material against pavement edges,~~
- ~~■ seal joints, and~~
- ~~■ perform all other traffic safety related work.~~

- 4.13.1. **Opening Pavement to All Traffic.** Pavements can be open to all traffic:

- ~~■ when the pavement is 7 days old,~~
- ~~■ when 3-day curing is complete and the concrete has attained a compressive strength of 3,200 psi,~~
- ~~■ after 24 hr. and the concrete has attained a compressive strength of 3,200 psi when Class HES concrete is used, or~~
- ~~■ after the concrete has been cured for at least 8 hr. and attained a minimum compressive strength of 1,800 psi when Class HES concrete is used.~~

- 4.13.2. **Opening Pavement to Construction Equipment.** Unless otherwise shown on the plans, concrete pavement may be opened to concrete paving equipment and related delivery equipment after the concrete is at least 48 hr. old and has attained a compressive strength of 3,200 psi. Keep delivery equipment at least 2 ft. from the edge of the concrete pavement. Keep tracks of the paving equipment at least 1 ft. from the pavement edge. Protect textured surfaces from the paving equipment. Restore damaged membrane curing as soon as possible. Repair pavement damaged by paving or delivery equipment before opening to all traffic.

- 4.13.3. **Maturity Method.** Maturity method, in accordance with Tex-426-A, may be used to estimate concrete strength for opening pavement to traffic. Install at least two maturity sensors for each day's placement in areas where the maturity method will be used for opening. Maturity sensors, when used, will be installed near the day's final placement for areas being evaluated.

~~The Engineer will test specimens to verify the strength-maturity relationship in accordance with Tex-426-A. The strength-maturity relationship will be verified at least every 10 days of production after the first day. Establish a new strength-maturity relationship when the strength specimens deviate more than 10% from the maturity-estimated strengths. Suspend use of the maturity method for opening pavements to traffic when the strength-maturity relationship deviates by more than 10% until a new strength-maturity relationship is established.~~

~~The Engineer will determine the frequency of verification when the maturity method is used intermittently or for only specific areas.~~

- 4.13.4. **Emergency Opening to Traffic.** Open the pavement to traffic under emergency conditions, when the pavement is at least 72 hr. old, when directed in writing.

- 4.14. **Sampling and Testing of Concrete.** Unless otherwise specified, all fresh and hardened concrete is subject to testing as follows.

- 4.14.1. **Fresh Concrete.** Provide safe access and assistance to the Engineer during sampling. Fresh concrete will be sampled in accordance with Tex-407-A.

- 4.14.2. **Testing Concrete.** The Engineer will test the fresh and hardened concrete in accordance with the following methods:

- **Slump.** [Tex-415-A](#), ~~only for formed concrete pavement placements;~~
- **Air Content.** [Tex-414-A](#) or [Tex-416-A](#), only when air-entrained concrete is shown on the plans;
- **Temperature.** [Tex-422-A](#);
- **Making and Curing Strength Specimens.** [Tex-447-A](#);
- **Compressive Strength.** [Tex-418-A](#); and
- ~~**Maturity.** [Tex-426-A](#).~~

~~Maturity specimens will be made only when maturity method is used or shown on the plans.~~

Concrete with slump less than minimum required after all addition of water withheld will be rejected, unless otherwise allowed by the Engineer. Concrete with slump exceeding maximum allowed may be used at the Contractor's option. If used, Engineer will make, test, and evaluate strength specimens in accordance with Section 360.4.15., "Acceptance of Concrete Pavement." Acceptance of concrete not meeting air content or temperature requirements will be determined by Engineer. Fresh concrete exhibiting segregation and excessive bleeding will be rejected.

~~4.14.2.1. **Strength Specimen Handling.** After strength test specimens are molded, protect and cure in conformance with pertinent test methods. When necessary, deliver Contractor molded specimens to curing facilities, remove specimens from their molds, and place specimens in curing tanks within 24–48 hr. after molding, in conformance with pertinent test methods. The Engineer will deliver Department molded specimens to curing facilities, remove specimens from their molds, and place specimens in curing tanks within 24–48 hr. after molding, in conformance with pertinent test methods.~~

4.15. ~~**Acceptance of Concrete Pavement.** The Engineer will determine pay adjustments for deficient pavement thickness within 14 days after concrete pavement has been cored. The Engineer will determine structural adequacy of low concrete strengths within 7 days after design strength specimens or cores, if taken, are tested.~~

4.15.1. ~~**Pavement Thickness.** The Engineer will check the thickness in accordance with [Tex-423-A](#) unless other methods are shown on the plans. The Engineer will perform one thickness test consisting of one reading at approximately the center of the paving equipment every 500 ft. or fraction thereof. Core where directed, in accordance with [Tex-424-A](#), to verify deficiencies. Do not core until pavement is at least 7 days old or has achieved design strength. Fill core holes using an approved concrete mixture and method.~~

4.15.1.1. ~~**Assessing Payment Adjustments.** Limits for applying a payment adjustment for deficient pavement thickness are 500 ft. units of pavement in each lane. Lane width will be as shown on typical sections and in conformance with pavement design standards.~~

~~The limits for retaining deficient pavement without compensation or removing and replacing without additional compensation will be defined by coring or equivalent nondestructive means as determined by the Engineer. The remaining portion of the 500 ft. unit allowed for pay adjustment will be subject to the payment adjustment based on the average core thickness deficiency at each end of the 10 ft. interval investigation as determined by the Engineer.~~

~~Shoulders will be measured for thickness unless otherwise shown on the plans. Shoulders 6 ft. wide or wider will be considered as lanes. Shoulders less than 6 ft. wide will be considered part of the adjacent lane. Shoulders less than 6 ft. wide and placed separately from the adjacent lane will be considered as a lane.~~

~~Limits for applying payment adjustment for deficient pavement thickness for ramps, widenings, acceleration and deceleration lanes, and other miscellaneous areas are 500 ft. units. Areas less than 500 ft. units will be individually evaluated for payment adjustment based on the plan area.~~

4.15.1.2. ~~**Verification of Thickness Deficiencies.** When any fresh depth test measured in accordance with [Tex-423-A](#) is deficient by more than 0.50 in. from the plan thickness, take one 4-in. diameter core at that location to verify the measurement.~~

~~When determining the average thickness deficiency for assessing a pay adjustment other than retaining pavement without compensation or remove and replace as shown in Table 1, take at least two additional cores from the unit, in accordance with Section 360.4.15.1.1., "Assessing Payment Adjustments," equidistantly spaced from the first core in each direction if the first core is deficient by more than 0.50 in. from the plan thickness. Measure the length of cores in accordance with [Tex-424-A](#). Determine the average thickness by averaging the lengths of the cores. Subtract the calculated average thickness from the plan thickness to determine the average thickness deficiency. In calculations of the average thickness, measurements exceeding the plan thickness by more than 0.2 in. will be considered as the plan thickness plus 0.2 in.~~

~~When determining the limits for retaining the deficient pavement without compensation or remove and replace without additional compensation, take additional cores at 10 ft. intervals in each direction parallel to the centerline to determine the boundary of the deficient area if the first core length deficiency is more than 1.00 in. for pavements less than 11 in. thick or more than 1.50 in. for pavements 11 in. or thicker. Continue taking cores at 10 ft. intervals until the core length deficiency is less than 1.00 in. for pavements less than 11 in. thick or less than 1.50 in. for pavements 11 in. or thicker.~~

- 4.15.2. **Strength of Concrete Pavement.** The Engineer will accept concrete pavement meeting a compressive strength of 3,200 psi at 7 days or meeting a compressive strength of 4,000 psi at 28 days for Class P concrete.

Concrete strength testing may be correlated to an age other than 7 days in accordance with [Tex-427-A](#) when approved.

~~The Engineer will accept concrete pavement using Class HES concrete based on the required strength and time.~~

~~Investigate the strength test procedures, the quality of materials, the concrete production operations, and other possible problem areas to determine the cause when a concrete strength test value is more than 10% below the required strength or when three consecutive strength values fall below the required strength. Take necessary action to correct the problem, including redesign of the concrete mix if needed. The Engineer may suspend concrete paving if the Contractor is unable to identify, document, and correct the cause of low-strength test values in a timely manner. The Engineer will evaluate the structural adequacy of the pavements if any strength is more than 15% below the required strength. Remove and replace pavements found to be structurally inadequate at no additional cost when directed.~~

- 4.15.3. ~~**Ride Quality.** Measure and correct ride quality in accordance with Item 585, unless otherwise shown on the plans.~~

5. MEASUREMENT

~~This item will not be measure for payment but will be considered incidental to the work being performed. This item will be measured as follows.~~

- 5.1. ~~**Concrete Pavement.** Concrete pavement will be measured by the square yard of surface area in place. The surface area includes the portion of the pavement slab extending beneath the curb.~~

6. PAYMENT

~~This item shall be considered incidental to the work being performed and no separate payment will be made. This work shall include all These prices are full compensation for materials, equipment, labor, tools, and incidentals necessary to complete the work.~~

- 6.1. ~~**Concrete Pavement.** The work performed and materials furnished in accordance with this item and measured as provided under "Measurement" will be paid for at the unit price bid for "Concrete Pavement" of~~

~~the type and depth specified as adjusted in accordance with Section 360.6.2., "Deficient Thickness Adjustment."~~

6.2.

Deficient Thickness Adjustment. Where the average thickness of pavement is deficient in thickness, payment will be made using the adjustment factor in accordance with Table 1 applied to the bid price for the deficient area for each unit in accordance with Section 360.4.15.1.1., "Assessing Payment Adjustments." When pavement thickness investigation (coring) is conducted for three consecutive placements, remove and replace without additional compensation all pavement placed during these days if the average thickness deficiency from all cores taken from these consecutive placements is greater than 0.25 in.

Table 1
Deficient Thickness Price Adjustment Factor

Deficiency in Thickness Determined by Cores (in.)	Proportional Part of Contract Price Allowed (Adjustment Factor) for Thickness <11 inches
Not deficient	1.00
Over 0.00 through 0.50	1.00
Over 0.50 through 0.75	0.80
Over 0.75 through 1.00	0.60
Over 1.00 through 1.25	Retain pavement without compensation -or Remove and Replace
Over 1.25	Remove and Replace
Deficiency in Thickness Determined by Cores (in.)	Proportional Part of Contract Price Allowed (Adjustment Factor) for Thickness ≥11 inches
Not deficient	1.00
Over 0.00 through 0.50	1.00
Over 0.50 through 0.75	0.90
Over 0.75 through 1.00	0.80
Over 1.00 through 1.50	0.60
Over 1.50 through 2.00	Retain pavement without compensation -or Remove and replace
Over 2.00	Remove and replace

6.3.

~~**Curb.** All curbs will be paid for under Item 529.~~

Mortar or concrete the bottom of existing structures if necessary to eliminate any drainage pockets created by the connections. Repair any damage to the existing structure resulting from making the connections.

Make connections between concrete pipe and corrugated metal pipe with a suitable concrete collar and a minimum thickness of 4 in. unless otherwise shown on the plans.

Finish stub ends for connections to future work not shown on the plans by installing watertight plugs into the free end of the pipe.

Fill lift holes with concrete, mortar, or precast concrete plugs after the pipe is in place.

4. MEASUREMENT

This Item will be measured by the foot. Measurement will be made between the ends of the pipe barrel along the flow line, not including safety end treatments. Safety end treatments will be measured in accordance with Item 467, "Safety End Treatment." Pipe that will be jacked, bored, or tunneled will be measured in accordance with Item 476. Measurement of spurs, branches, or new connecting pipe will be made from the intersection of the flow line with the outside surface of the pipe into which it connects. Where inlets, headwalls, catch basins, manholes, junction chambers, or other structures are included in lines of pipe, the length of pipe tying into the structure wall will be included for measurement, but no other portion of the structure length or width will be included.

For multiple pipes, the measured length will be the sum of the lengths of the barrels.

This is a plans quantity measurement Item. The quantity to be paid is the quantity shown in the proposal, unless modified by Article 9.2., "Plans Quantity Measurement." Additional measurements or calculations will be made if adjustments of quantities are required.

5. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "TX-464a Reinforced Concrete Pipe (18 IN., CLASS 5," ~~"Reinforced Concrete Pipe (Arch),"~~ or "TX-464b Reinforced Concrete Pipe (Elliptical, 18 IN. X 12 IN., CLASS IV)" ~~of the size and D-load specified or of the size and class specified.~~ This price is full compensation for constructing, furnishing, transporting, placing, and joining pipes; shaping the bed; cutting pipes on skew or slope; connecting to new or existing structures; breaking back, removing, and disposing of portions of the existing structure; replacing portions of the existing structure; cutting pipe ends on skew or slope; and equipment, labor, tools, and incidentals.

Protection methods for excavations, ~~if required shall be considered incidental to this item. greater than 5 ft.-deep will be measured and paid for as required under Item 402, "Trench Excavation Protection," or Item 403, "Temporary Special Shoring." Excavation, shaping, bedding, and backfill will be paid for in accordance with Item 400. When jacking, boring, or tunneling is used at the Contractor's option, payment will be made under this Item. When jacking, boring, or tunneling is required, payment will be made under Item 476.~~

as satisfactory. Separate measurement shall be made for each cable or counterpoise wire installed in trench, duct bank or conduit. The measurement for this item shall not include additional quantities required for slack.

108-4.2 Cable or counterpoise wire installed in trench, duct bank or conduit shall be measured by the number of linear feet (meters) installed and grounding connectors, and trench marking tape ready for operation, and accepted as satisfactory. Separate measurement shall be made for each cable or counterpoise wire installed in trench, duct bank or conduit. The measurement for this item shall not include additional quantities required for slack.

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

BASIS OF PAYMENT

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

Payment will be made under:

Item L-108a	Install #8 AWG, L-824C, 5000V Wire – per linear foot
Item L-108b	Install #6 AWG, Bare Copper Counterpoise including Ground Rods and Terminations – per linear foot
Item L-108c	Install #8 AWG, THWN-2, 600V, Wire – per linear foot
Item L-108d	Install #8 AWG, 600V, Ground Wire – per linear foot

REFERENCES

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

Advisory Circulars (AC)

AC 150/5340-26	Maintenance of Airport Visual Aid Facilities
AC 150/5340-30	Design and Installation Details for Airport Visual Aids
AC 150/5345-7	Specification for L-824 Underground Electrical Cable for Airport Lighting Circuits
AC 150/5345-26	Specification for L-823 Plug and Receptacle, Cable Connectors
AC 150/5345-53	Airport Lighting Equipment Certification Program

Commercial Item Description

A-A-59544A	Cable and Wire, Electrical (Power, Fixed Installation)
A-A-55809	Insulation Tape, Electrical, Pressure-Sensitive Adhesive, Plastic

ASTM International (ASTM)

ASTM B3	Standard Specification for Soft or Annealed Copper Wire
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Payment will be made under:

Item L-109a	Remove Airfield Lighting Vault – per lump sum
Item L-109b	Install Prefab. Airfield Lighting Vault – per lump sum
Item L-109c	Install L-829 Constant Current Regulator, Ferroresonant Type– per each
Item L-109d	Install L-854 Radio Controller – per each

REFERENCES

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

Advisory Circulars (AC)

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

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

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

ASTM A615	Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement
ASTM C62	Standard Specification for Building Brick (Solid Masonry Units Made from Clay or Shale)
ASTM C90	Standard Specification for Loadbearing Concrete Masonry Units
ASTM D2823	Standard Specification for Asphalt Roof Coatings, Asbestos Containing
ASTM D4479	Standard Specification for Asphalt Roof Coatings – Asbestos-Free

Commercial Item Description (CID)

A-A 59544	Cable and Wire, Electrical (Power, Fixed Installation) Institute of Electrical and Electronic Engineers (IEEE)
IEEE 1584	Guide for Performing Arc-Flash Hazard Calculations

Master Painter's Institute (MPI)

MPI Reference #9	Alkyd, Exterior, Gloss (MPI Gloss Level 6)
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 C:\F1\G002 Runway Widening, Taxiway Extension, Airfield Electrical\F-CAD\PLANS\000-F41-TXDOT-24-G002-INDX.dwg

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SHEET NO.	SHEET TITLE	SHEET DESCRIPTION
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2	G002	INDEX OF DRAWINGS AND SUMMARY OF QUANTITIES
3	G003	GENERAL NOTES I
4	G004	GENERAL NOTES II
5	G005	MASTER LEGEND & ABBREVIATIONS
6	G006	PROJECT LAYOUT AND SURVEY CONTROL PLAN
7	G020	GEOTECHNICAL INVESTIGATION PLAN
8	G021	GEOTECHNICAL INVESTIGATION - BORE LOGS I
9	G022	GEOTECHNICAL INVESTIGATION - BORE LOGS II
10	G023	GEOTECHNICAL INVESTIGATION - BORE LOGS III
11	G024	GEOTECHNICAL INVESTIGATION - BORE LOGS IV
12	G025	GEOTECHNICAL INVESTIGATION - BORE LOGS V
13	G026	GEOTECHNICAL INVESTIGATION - BORE LOGS VI
14	G027	GEOTECHNICAL INVESTIGATION - BORE LOGS VII
15	G028	GEOTECHNICAL INVESTIGATION - BORE LOGS VIII
16	G029	GEOTECHNICAL INVESTIGATION - BORE LOGS IX
17	G030	GEOTECHNICAL INVESTIGATION - BORE LOGS X
18	G031	GEOTECHNICAL INVESTIGATION - BORE LOGS XI
19	G032	GEOTECHNICAL INVESTIGATION - BORE LOGS XII
20	G033	GEOTECHNICAL INVESTIGATION - BORE LOGS XIII
21	G034	GEOTECHNICAL INVESTIGATION - BORE LOGS XIV
22	G035	GEOTECHNICAL INVESTIGATION - BORE LOGS XV
23	G036	GEOTECHNICAL INVESTIGATION - BORE LOGS XVI
24	G037	GEOTECHNICAL INVESTIGATION - BORE LOGS XVII
25	G038	GEOTECHNICAL INVESTIGATION - BORE LOGS XVIII
26	G039	GEOTECHNICAL INVESTIGATION - BORE LOGS XIX
27	G050	CONSTRUCTION SAFETY NOTES
28	G051	CONSTRUCTION SAFETY OVERALL PHASING PLAN
29	G052	CONSTRUCTION SAFETY PLAN - PHASE 1A
30	G053	CONSTRUCTION SAFETY PLAN - PHASE 1B
31	G054	CONSTRUCTION SAFETY PLAN - PHASE 2
32	G055	CONSTRUCTION SAFETY DETAILS
33	G056	TRAFFIC CONTROL PLAN
34	G070	EROSION CONTROL NOTES
35	G071	EROSION CONTROL DETAILS
36	G072	ENVIRONMENTAL EXHIBIT
37	C101	DEMOLITION PLAN - STA. 1042+62.72 TO STA. 1038+00, RUNWAY 16/34
38	C102	DEMOLITION PLAN - STA. 1038+00 TO STA. 1031+50, RUNWAY 16/34
39	C103	DEMOLITION PLAN - STA. 1031+50 TO STA. 1025+00, RUNWAY 16/34
40	C104	DEMOLITION PLAN - STA. 1025+00 TO STA. 1018+50, RUNWAY 16/34
41	C105	DEMOLITION PLAN - STA. 1018+50 TO STA. 1012+00, RUNWAY 16/34 AND APRON
42	C105A	DEMOLITION PLAN - MATCHLINE A, APRON
43	C106	DEMOLITION PLAN - STA. 1012+00 TO STA. 1005+50, RUNWAY 16/34
44	C107	DEMOLITION PLAN - STA. 1005+50 TO STA. 1002+44.29, RUNWAY 16/34
45	C108	DEMOLITION PLAN - STA. 1012+00 TO STA. 1005+50 - RUNWAY 16/34, MATCHLINE B, ADDITIVE ALTERNATE BID NO. 1
46	C108A	DEMOLITION PLAN - STA. 1012+00 TO STA. 1005+50, RUNWAY 16/34, MATCHLINE B, ADDITIVE ALTERNATE BID NO. 1
47	C109	DEMOLITION PLAN - STA. 1005+50 TO STA. 1002+44.29, RUNWAY 16/34, ADDITIVE ALTERNATE BID NO. 1
48	C201	GEOMETRY PLAN - STA. 1042+61.82 TO STA. 1038+00, RUNWAY 16/34
49	C202	GEOMETRY PLAN - STA. 1038+00 TO STA. 1031+50, RUNWAY 16/34
50	C203	GEOMETRY PLAN - STA. 1031+50 TO STA. 1025+00, RUNWAY 16/34
51	C204	GEOMETRY PLAN - STA. 1025+00 TO STA. 1018+50, RUNWAY 16/34
52	C205	GEOMETRY PLAN - STA. 1018+50 TO STA. 1012+00 AND MATCHLINE A, RUNWAY 16/34
53	C205A	GEOMETRY PLAN - MATCHLINE A, APRON
54	C206	GEOMETRY PLAN - STA. 1012+00 TO STA. 1005+50, RUNWAY 16/34
55	C207	GEOMETRY PLAN - STA. 1005+50 TO STA. 1002+44.29, RUNWAY 16/34
56	C208	GEOMETRY PLAN - STA. 1012+91.5 TO STA. 1006+50, RUNWAY 16/34 ADDITIVE ALTERNATE BID NO. 1
57	C209	GEOMETRY PLAN - STA. 1006+50 TO STA. 1002+44.29, RUNWAY 16/34 ADDITIVE ALTERNATE BID NO. 1

58	C221	TYPICAL SECTIONS
59	C222	PAVEMENT DETAILS
60	C301	GRADING PLAN - STA. 1046+62.72 TO STA. 1038+00, RUNWAY 16/34
61	C302	GRADING PLAN - STA. 1031+50 TO STA. 1038+00, RUNWAY 16/37
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63	C304	GRADING PLAN - STA. 1025+00 TO STA. 1018+50, RUNWAY 16/34
64	C305	GRADING PLAN - STA. 1018+50 TO STA. 1012+00, RUNWAY 16/34
65	C305A	GRADING PLAN - MATCHLINE A, RUNWAY 16/34
66	C306	GRADING PLAN - STA. 1012+00 TO STA. 1005+50, RUNWAY 16/34
67	C307	GRADING PLAN - STA. 1005+50 TO STA. 1002+44.29, RUNWAY 16/34
68	C308	GRADING PLAN - STA. 1012+91.25 TO STA. 1006+50, RUNWAY 16/34, ADDITIVE ALTERNATE BID NO. 1
69	C309	GRADING PLAN - STA. 1006+50 TO STA. 1002+44.29, RUNWAY 16/34, ADDITIVE ALTERNATE BID NO.1
70	C401	PLAN & PROFILE - STA. 1043+50 TO STA. 1033+00, RUNWAY 16/34
71	C402	PLAN & PROFILE - STA. 1033+00 TO STA. 1022+50, RUNWAY 16/34
72	C403	PLAN & PROFILE - STA. 1022+50 TO STA. 1012+00, RUNWAY 16/34
73	C404	PLAN & PROFILE - STA. 1012+00 TO STA. 1002+00, RUNWAY 16/34
74	C405	PLAN & PROFILE - STA. 598+00 TO STA. 610+50, TAXIWAY A
75	C406	PLAN & PROFILE - STA. 610+50 TO STA. 623+00, TAXIWAY A
76	C407	PLAN & PROFILE - STA. 623+00 TO STA. 633+66, TAXIWAY A
77	C408	PLAN & PROFILE - STA. 590+50 TO STA. 603+00, TAXIWAY A, ADDITIVE BID ALTERNATE NO. 1
78	C409	PLAN & PROFILE - TAXIWAY A2, TAXIWAY A3, AND TAXIWAY A4
79	C410	PLAN & PROFILE - TAXIWAY A4, ADDITIVE BID ALTERNATE NO. 1
80	C501	DRAINAGE PLAN AND PROFILE, TAXIWAY A3
81	C502	DRAINAGE PLAN & PROFILE - TAXILANE 1, TAXILANE 2, AND TAXILANE 3 - ADDITIVE ALTERNATE BID NO. 1
82	C701	PAVEMENT MARKING PLAN - STA. 1042+61.82 TO STA. 1038+00, RUNWAY 16/34
83	C702	PAVEMENT MARKING PLAN - STA. 1038+00 TO STA. 1031+50, RUNWAY 16/34
84	C703	PAVEMENT MARKING PLAN - STA. 1031+50 TO STA. 1025+00, RUNWAY 16/34
85	C704	PAVEMENT MARKING PLAN - STA. 1025+00 TO STA. 1018+50, RUNWAY 16/34
86	C705	PAVEMENT MARKING PLAN - STA. 1018+50 TO STA. 1012+00 AND MATCHLINE A, RUNWAY 16/34
87	C705A	PAVEMENT MARKING PLAN - MATCHLINE A, APRON
88	C706	PAVEMENT MARKING PLAN - STA. 1012+00 TO STA. 1005+50, RUNWAY 16/34
89	C707	PAVEMENT MARKING PLAN - STA. 1005+50 TO STA. 1002+44.29, RUNWAY 16/34
90	C708	MARKING PLAN - STA. 1012+91.5 TO STA. 1006+50, RUNWAY 16/37 ADDITIVE ALTERNATE BID NO. 1
91	C709	MARKING PLAN - STA. 1006+50 TO STA. 1002+44.29, RUNWAY 16/34 ADDITIVE ALTERNATE BID NO. 1
92	C721	PAVEMENT MARKING DETAILS
93	E001	ELECTRICAL LEGEND AND NOTES
94	E201	ELECTRICAL GEOMETRY STA. 1043+00 TO STA. 1036+50, RUNWAY 16/34
95	E202	ELECTRICAL GEOMETRY STA. 1036+50 TO STA. 1030+00, RUNWAY 16/34
96	E203	ELECTRICAL GEOMETRY STA. 1030+00 TO STA. 1023+50, RUNWAY 16/34
97	E204	ELECTRICAL GEOMETRY STA. 1023.50 TO STA. 1017+00, RUNWAY 16/34
98	E205	ELECTRICAL GEOMETRY STA. 1017+00 TO STA. 1010+50, RUNWAY 16/34
99	E206	ELECTRICAL GEOMETRY STA. 1010+50 TO STA. 1005+00, RUNWAY 16/34
100	E207	ELECTRICAL GEOMETRY STA. 1005+00 TO STA. 1002+00, RUNWAY 16/34
101	E208	ELECTRICAL GEOMETRY AIRFIELD VAULT BUILDING
102	E209	ELECTRICAL GEOMETRY STA. 1010+50 TO STA. 1005+00, RUNWAY 16/34 ADDITIVE BID ALTERNATE 1
103	E210	ELECTRICAL GEOMETRY STA. 1005+00 TO STA. 1002+00, RUNWAY 6/24, ADDITIVE BID ALTERNATE 1
104	E250	ELECTRICAL DETAILS AND NOTES
105	E251	ELECTRICAL DETAILS AND NOTES
106	E252	ELECTRICAL DETAILS AND NOTES
107	E253	ELECTRICAL DETAILS AND NOTES
108	E254	ELECTRICAL DETAILS AND NOTES
109	E255	ELECTRICAL DETAILS AND NOTES
110	E256	ELECTRICAL DETAILS AND NOTES
111	E257	ELECTRICAL DETAILS AND NOTES
112	SETP-CD-A	SAFETY END TREATMENT FOR DESIGN 1 TO 7 ARCH PIPE CULVERTS - TYPE II ~ CROSS DRAINAGE
113	SETP-CD	FOR 12" DIA TO 60" DIA PIPE CULVERTS - TYPE II ~ CROSS DRAINAGE

F41 RUNWAY WIDENING, AIRFIELD ELECTRICAL AND PAVEMENT REHABILITATION			BASE BID	ADD ALTERNATE #1
ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	QUANTITY
C-100	CONTRACTOR QUALITY CONTROL PROGRAM	LS	1	
C-105	MOBILIZATION	LS	1	
TX-105a	FULL DEPTH ASPHALT PAVEMENT AND BASE REMOVAL (RUNWAY/TAXIWAY)	SY	5,755	6,176
TX-105b	FULL DEPTH ASPHALT PAVEMENT AND BASE REMOVAL (APRON)	SY	2,392	
TX-105c	REMOVE EXISTING ASPHALT PAVEMENT (APRON)	SY	4,770	
TX-110	EXCAVATION	CY	9,020	4,384
TX-132	EMBANKMENT (TYPE D)	CY	4,267	4,271
TX-164	BROADCAST SEEDING (PERM)	AC	10	5
TX-168	VEGETATIVE WATERING	TGL	2,400	1,200
TX-247a	6.5" CRUSHED AGGREGATE BASE COURSE (TYPE A, GRADE 1-2)	SY	8,757	5,330
TX-247b	9" CRUSHED AGGREGATE BASE COURSE (TYPE A, GRADE 1-2)	SY	2,392	
TX-260a	LIME TREATED SUBGRADE - 12 INCH	SY	8,024	5,992
TX-260b	LIME TREATED SUBGRADE - 6 INCH	SY	2,392	
TX-260c	LIME	TON	162	105
TX-300	TACK COAT	SY	8,959	4,668
TX-341a	HOT MIX ASPHALT SURFACE COURSE (TYPE D, SAC B, PG 64-22, TAXIWAYS)	TON	3,105	814
TX-341b	HOT MIX ASPHALT SURFACE COURSE (TYPE D, SAC B, PG 64-22, RUNWAY)	TON	5,050	
TX-341c	HOT MIX ASPHALT SURFACE COURSE (TYPE D, SAC B, PG 64-22, APRON)	TON	840	
TX-351	FULL DEPTH SPOT RECONSTRUCTION (FLEXIBLE QUANTITY)	SY	2,000	
TX-354	PLANING AND TEXTURING PAVEMENT	SY	38,135	(1,441)
TX-464a	REINFORCED CONCRETE PIPE (18 IN., CLASS 5)	LF	0	192
TX-464b	REINFORCED CONCRETE PIPE (ELLIPTICAL, 18 IN. X 12 IN., CLASS IV)	LF	56	
TX-467a	SAFETY END TREATMENT (TYPE II, 18 IN.)	EA	0	6
TX-467b	SAFETY END TREATMENT (TYPE II, 18 IN. X 12 IN.)	EA	2	
TX-506	EROSION CONTROL	LS	1	
ST-P-311	PAVEMENT FABRIC	SY	39,890	
P-620a	REFLECTORIZED PAVEMENT MARKING (WHITE)	SF	19,170	
P-620b	REFLECTORIZED PAVEMENT MARKING (YELLOW)	SF	5,680	855
P-620c	PAVEMENT MARKING (BLACK)	SF	1,905	80
P-640	AIRCRAFT TIE-DOWN ANCHOR	EA	27	
L-101a	REMOVE L-801A AIRPORT ROTATING BEACON	EA	1	
L-101b	INSTALL LED L-801A AIRPORT ROTATING BEACON	EA	1	
L-103a	REMOVE BEACON TOWER	EA	1	
L-103b	INSTALL TIP-DOWN BEACON POLE	EA	1	
L-107a	REMOVE L-807 PRIMARY WIND CONE	EA	1	
L-107b	REMOVE SEGMENTED CIRCLE	EA	1	
L-107c	INSTALL LED L-807 PRIMARY WIND CONE	EA	1	
L-107d	INSTALL SEGMENTED CIRCLE	EA	1	
L-108a	INSTALL #8 AWG, L-824C, 5000V WIRE	LF	12,500	
L-108b	INSTALL #6 AWG BARE COPPER COUNTERPOISE INCL GROUND RODS & TERMINATIONS	LF	14,000	
L-108c	INSTALL #8 AWG, THWN-2, 600V WIRE	LF	7,250	
3,250.0	INSTALL #8 AWG, 600V, GROUND WIRE	LF	3,250	
L-109a	REMOVE AIRFIELD LIGHTING VAULT	LS	1	
L-109b	INSTALL PREFAB AIRFIELD LIGHTING VAULT	LS	1	
L-109c	INSTALL L-829 CONSTANT CURRENT REGULATOR, FERRORESONANT TYPE	EA	1	
L-109d	INSTALL L-854 RADIO CONTROLLER	EA	1	
L-110a	INSTALL 1-2" SCH 40 PVC CONDUIT, DIRECT EARTH BURIED (DEB)	LF	12,750	
L-110b	INSTALL 1-2" SCH 40 PVC CONDUIT, CONCRETE ENCASED (CE)	LF	500	
L-110c	INSTALL 1-2" HDPE CONDUIT, DIRECTIONALLY BORED	LF	250	
L-115a	INSTALL NEW L-867 JUNCTION BOX	EA	13	
L-125a	REMOVE RUNWAY EDGE LIGHT	EA	42	
L-125b	REMOVE RUNWAY THRESHOLD LIGHT	EA	18	
L-125c	REMOVE PAPI SYSTEM	EA	2	
L-125d	REMOVE REIL SYSTEM	EA	2	
L-125e	REMOVE GUIDANCE SIGN	EA	12	
L-125f	REMOVE RETROREFLECTIVE MARKER	EA	200	
L-125g	INSTALL L-861 LED RUNWAY EDGE LIGHT ON NEW BASE	EA	37	
L-125h	INSTALL L-861E LED RUNWAY THRESHOLD LIGHT ON NEW BASE	EA	18	
L-125i	INSTALL LED L-881 PAPI SYSTEM	EA	2	
L-125j	INSTALL LED L-849 REIL SYSTEM	EA	2	
L-125k	INSTALL LED L-858 LIGHTED GUIDANCE SIGN ON NEW CONCRETE PAD, SIZE 1	EA	6	
L-125l	INSTALL RETROREFLECTIVE MARKER	EA	70	34

ISSUED FOR BID

Gregory S. Moore
 5/15/2026

GREGORY S. MOORE PE NO. 157775 5/15/2026

FOR AND ON BEHALF OF WOOLPERT, INC. TBPE #1001



ENNIS MUNICIPAL
 AIRPORT

DES: S.D.C.	ISSUE RECORD			
	NO.	BY	DATE	DESCRIPTION
DR: J.K.W.	2	G.S.M.	5/15/2026	ISSUED FOR BIDDING
	3	A.W.N.	09/14/2026	REVISED SHEETS PER ADDENDUM 1
CH: C.L.G.	4	A.W.N.	09/17/2026	REVISED QUANTITIES PER ADDENDUM 1
APP: G.S.M.				

RUNWAY WIDENING, TAXIWAY
 EXTENSION & AIRFIELD ELECTRICAL

INDEX OF DRAWINGS
 AND SUMMARY OF QUANTITIES

STATE PROJ. NO.
 TXDOT CSJ NO.:2618ENNIS

WOOLPERT PROJ. NO.
 10022171.00.001.01

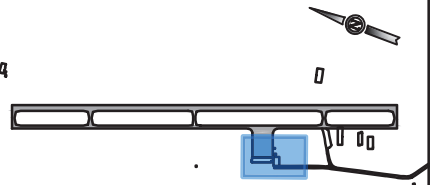
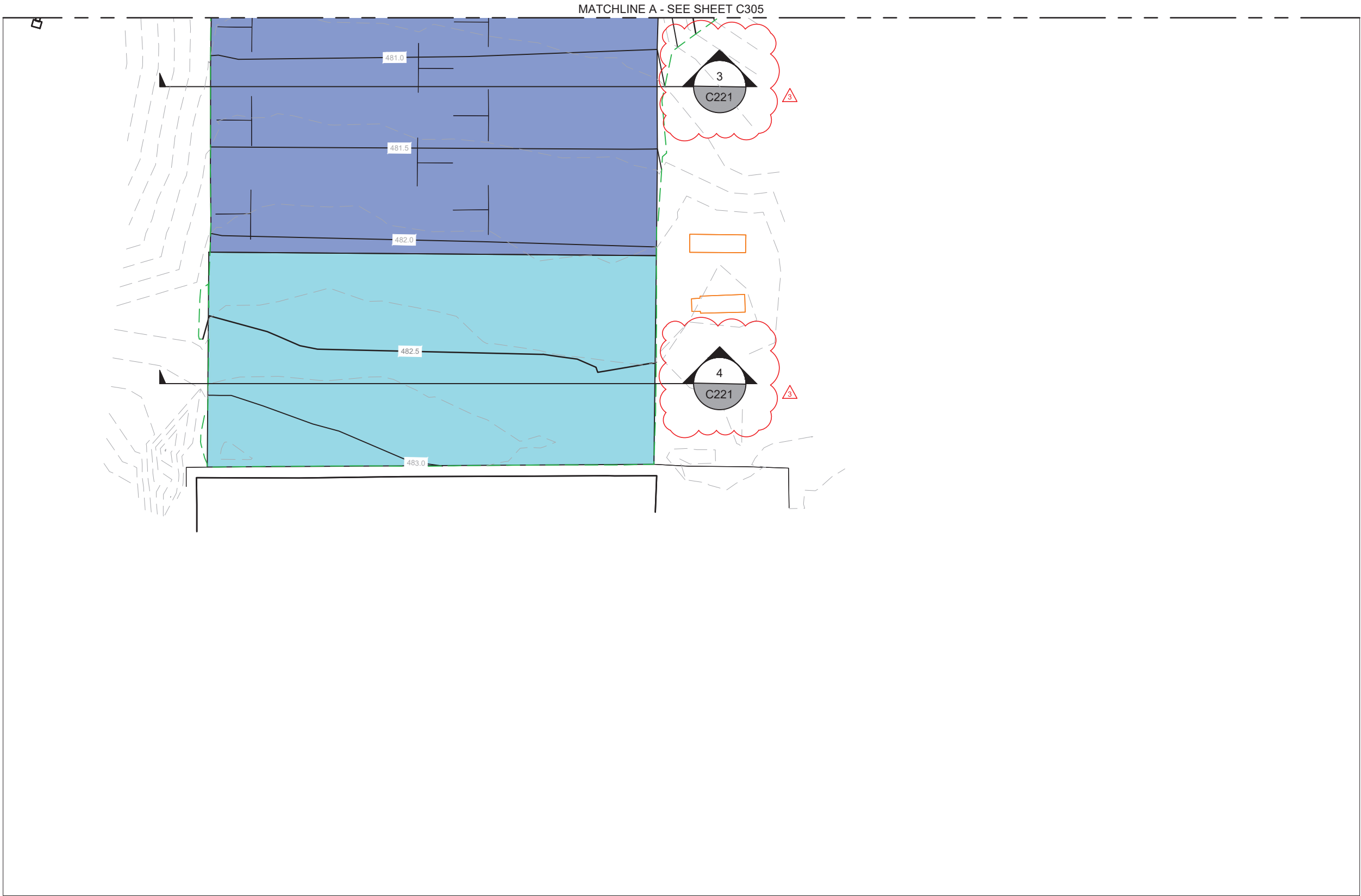
SHEET NAME

G002

SHEET NO.

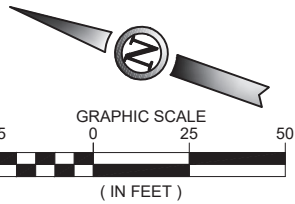
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KEY MAP

GRADING LEGEND	
	FULL DEPTH ASPHALT PAVEMENT
	PARTIAL DEPTH ASPHALT PAVEMENT
	EXISTING INDEX CONTOUR
	EXISTING INTERMEDIATE CONTOUR
	PROPOSED INDEX CONTOUR
	PROPOSED INTERMEDIATE CONTOUR



ISSUED FOR BID



Gregory S. Moore
5/15/2026

GREGORY S. MOORE PE NO. 157775 5/15/2026

FOR AND ON BEHALF OF WOOLPERT, INC. TBPE #1001



ENNIS MUNICIPAL
AIRPORT

DES: A.D.	ISSUE RECORD			
	NO.	BY	DATE	DESCRIPTION
DR: J.K.W.	2	G.S.M.	5/15/2026	ISSUED FOR BIDDING
	3	A.W.N.	09/14/2026	REVISED PER ADDENDUM 1
CH: C.L.G.				
APP: G.S.M.				

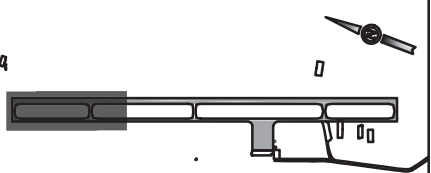
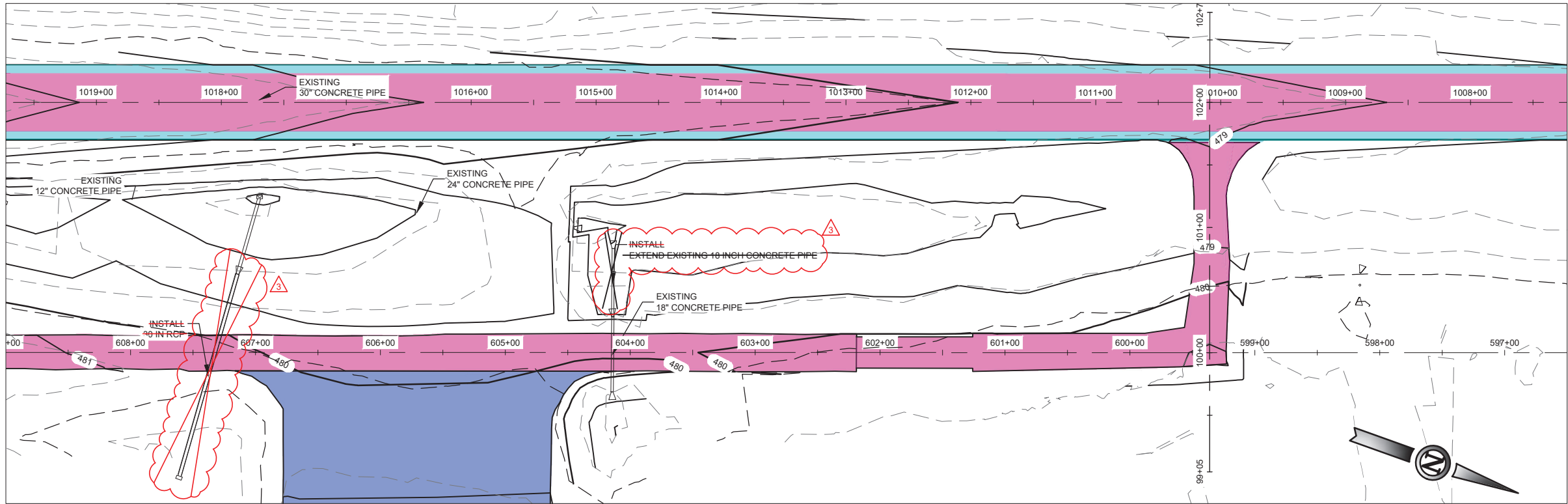
RUNWAY WIDENING, TAXIWAY
EXTENSION & AIRFIELD ELECTRICAL

GRADING PLAN
MATCHLINE A
RUNWAY 16/34

STATE PROJ. NO.
TXDOT CSJ NO.:2618ENNIS

WOOLPERT PROJ. NO.
10022171.00.001.01

SHEET NAME
C305A
SHEET NO.
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KEY MAP

PLAN LEGEND

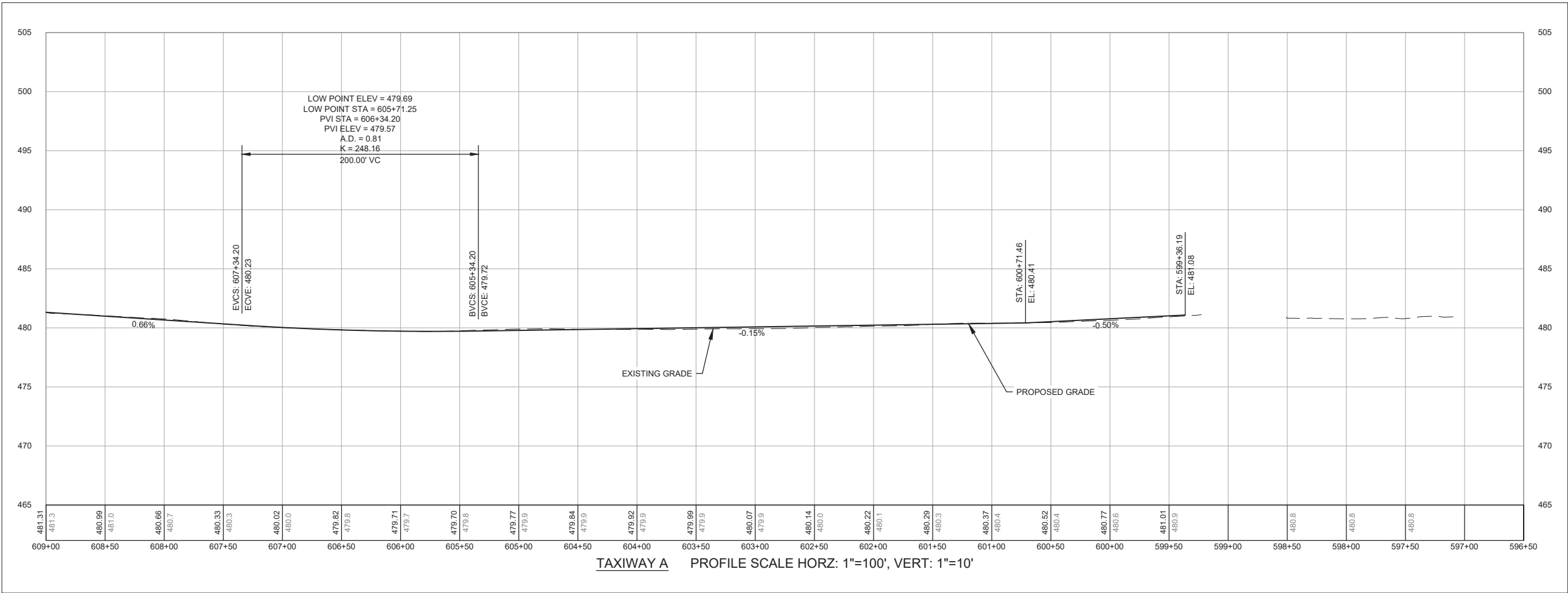
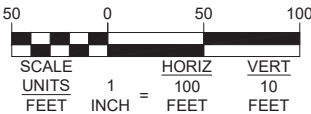
- FULL DEPTH ASPHALT INSTALLATION
- PARTIAL DEPTH ASPHALT PAVEMENT
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- SWALE FLOW LINE

PROFILE LEGEND

- PROPOSED GRADE
- EXISTING GROUND
- PROFILE BAND
- EXISTING ELEVATION
- PROPOSED ELEVATION

PLAN AND PROFILE NOTES

- REFER TO SHEETS C221 THRU C222 FOR TYPICAL SECTIONS.
- THE DEPTH OF EXISTING UTILITIES MAY VARY AND SHOULD BE FIELD VERIFIED.
- IN THE EVENT OF ANY CONFLICT WITHIN THESE PLANS, THE INFORMATION IN THE PROFILES SHALL GOVERN OVER THE SPOT ELEVATIONS AND CROSS SECTIONS.
- CONTRACTOR TO VERIFY EXISTING TIE POINTS PRIOR TO CONSTRUCTION AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
- REFER TO SHEETS C501 THRU C502 FOR CULVERT/PIPE DESIGN AND LOCATIONS.



ISSUED FOR BID



GREGORY S. MOORE
PE NO. 15775
06/05/2026
FOR AND ON BEHALF OF WOOLPERT, INC. TBPE #1001



ENNIS MUNICIPAL
AIRPORT

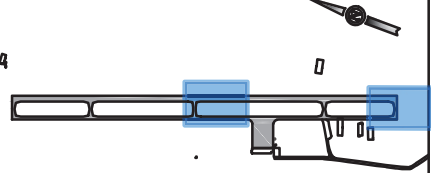
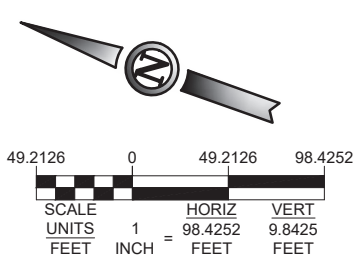
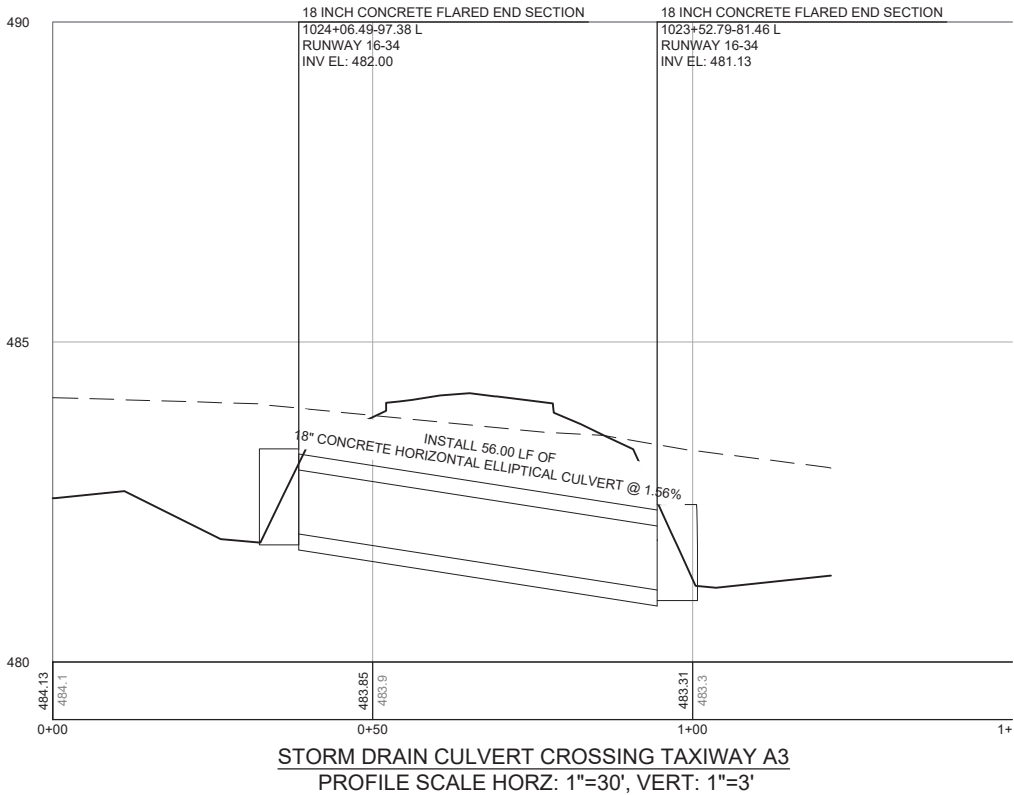
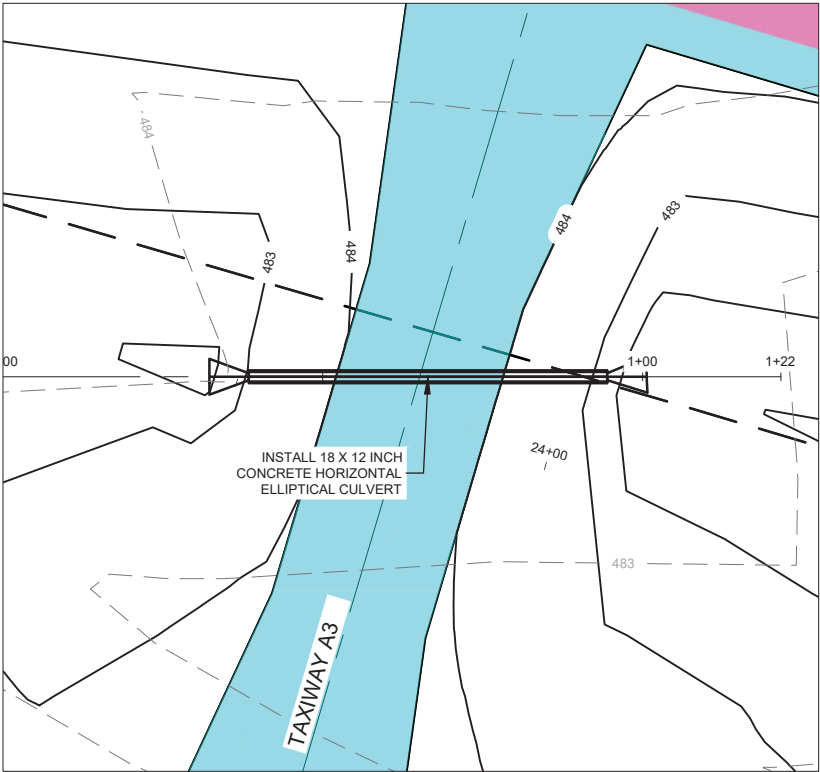
DES: A.D.	ISSUE RECORD			
	NO.	BY	DATE	DESCRIPTION
DR: J.K.W.	2	G.S.M.	5/15/2026	ISSUED FOR BIDDING
	3	G.S.M.	06/05/2026	ISSUED FOR BIDDING
CH: C.L.G.	4	A.W.N.	09/14/2026	REMOVED PER ADDENDUM 1
APP: G.S.M.				

RUNWAY WIDENING, TAXIWAY
EXTENSION & AIRFIELD ELECTRICAL

PLAN & PROFILE
STA. 623+00 TO STA. 633+66
TAXIWAY A

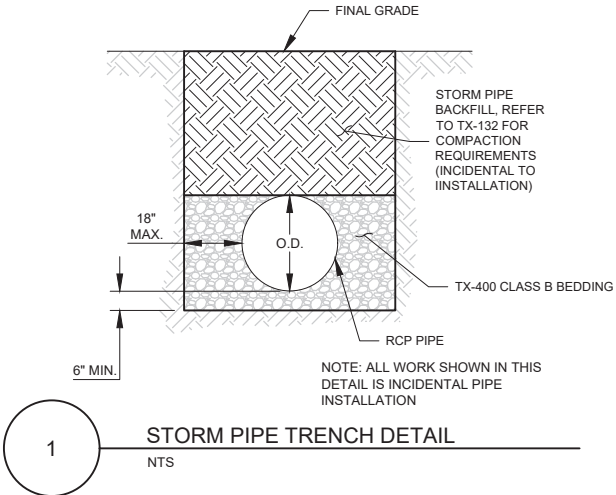
STATE PROJ. NO. TXDOT CSJ NO.:2618ENNIS
WOOLPERT PROJ. NO. 10022171.00.001.01

SHEET NAME
C407
SHEET NO.
76 of 109



KEY MAP
STORM PLAN AND PROFILE NOTES

- FOR DRAINAGE DETAILS, SEE SHEETS C521 THRU C522.
- THE DEPTH OF EXISTING UTILITIES ARE APPROXIMATE. ACTUAL DEPTHS MAY VARY AND SHOULD BE FIELD VERIFIED.
- ALL STATIONING FOR STORM PIPE IS AT CENTERLINE OF STORM PIPE.
- STATION AND OFFSETS FOR DRAINAGE STRUCTURES ARE TO THE CENTER OF THE STRUCTURE.



STORM LEGEND	
	FULL DEPTH ASPHALT PAVEMENT
	PARTIAL DEPTH ASPHALT PAVEMENT
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	PROPOSED MAJOR CONTOUR
	PROPOSED MINOR CONTOUR
	SWALE FLOW LINE
	STORM PIPE
	TRENCH DRAIN
	RIPRAP PAD
	STORM INLET
	STORM MANHOLE
	FLARED END SECTION
PROFILE LEGEND	
	PROPOSED GRADE
	EXISTING GROUND
	PROFILE BAND
	EXISTING ELEVATION
	PROPOSED ELEVATION

ISSUED FOR BID

5/15/2026

GREGORY S. MOORE PE NO. 157775 5/15/2026

FOR AND ON BEHALF OF WOOLPERT, INC. TBPE #1001



ENNIS MUNICIPAL
AIRPORT

DES: A.D.	ISSUE RECORD			
	NO.	BY	DATE	DESCRIPTION
DR: J.K.W.	2	G.S.M.	5/15/2026	ISSUED FOR BIDDING
	3	A.W.N.	09/14/2026	REMOVED PER ADDENDUM 1
CH: C.L.G.				
APP: G.S.M.				

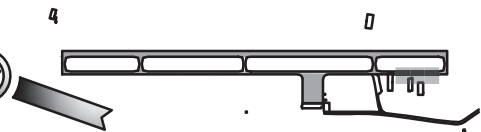
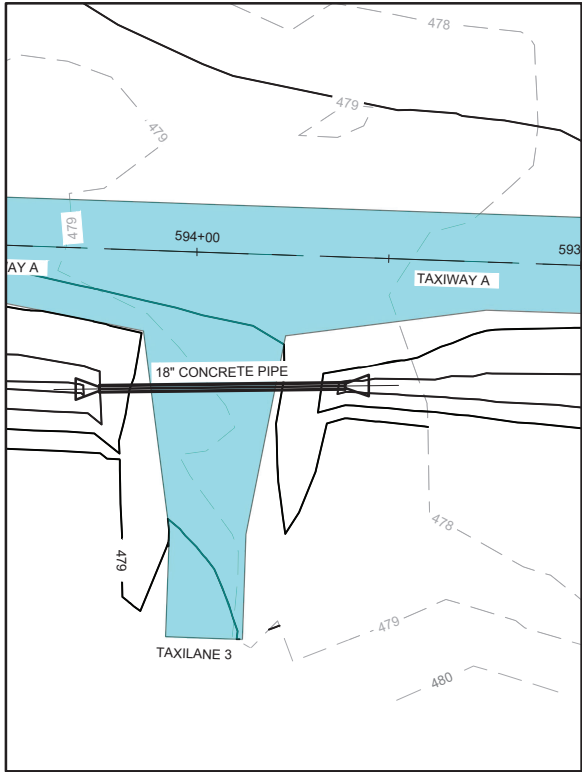
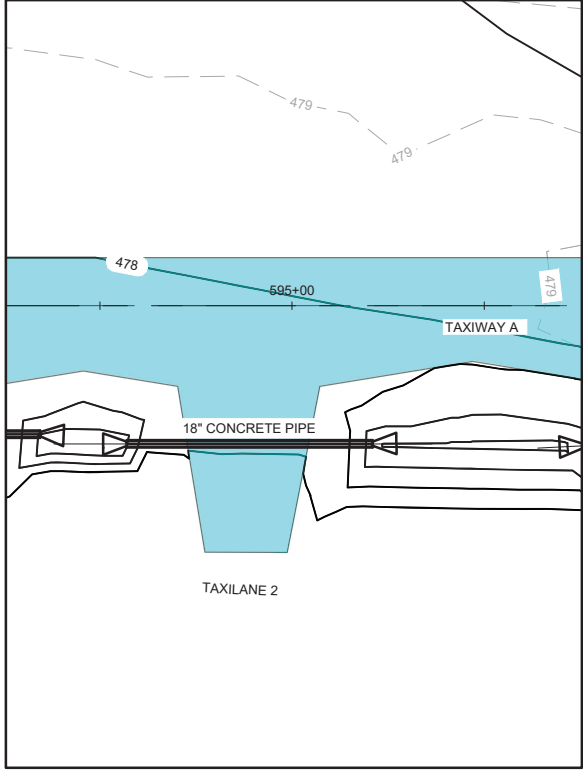
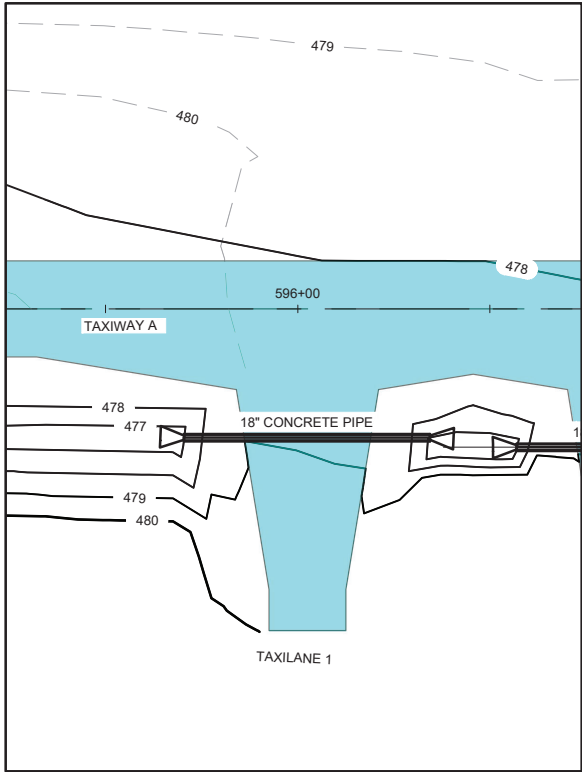
RUNWAY WIDENING, TAXIWAY
EXTENSION & AIRFIELD ELECTRICAL

DRAINAGE PLAN AND PROFILE
TAXIWAY A3

STATE PROJ. NO.
TXDOT CSJ NO.:2618ENNIS

WOOLPERT PROJ. NO.
10022171.00.001.01

SHEET NAME
C501
SHEET NO.
80 of 109



STORM PLAN AND PROFILE NOTES

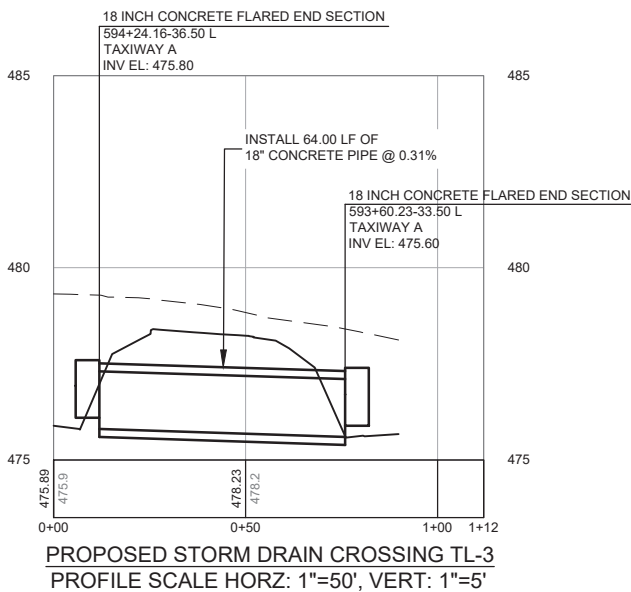
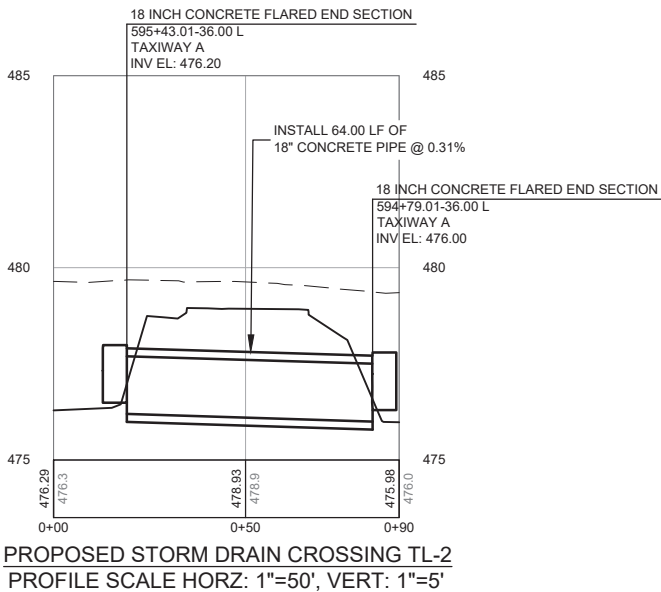
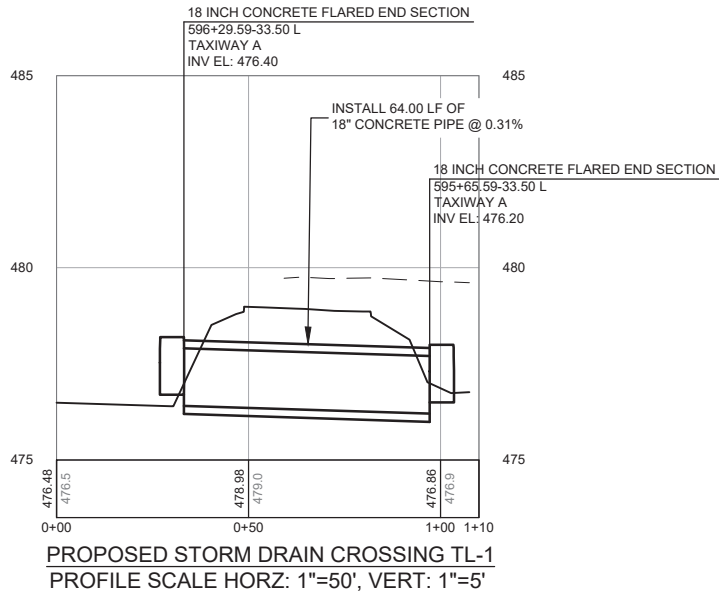
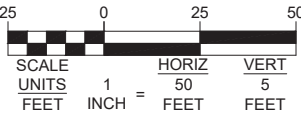
- FOR DRAINAGE DETAILS, SEE SHEETS C521 THRU C522.
- THE DEPTH OF EXISTING UTILITIES ARE APPROXIMATE. ACTUAL DEPTHS MAY VARY AND SHOULD BE FIELD VERIFIED.
- ALL STATIONING FOR STORM PIPE IS AT CENTERLINE OF STORM PIPE.
- STATION AND OFFSETS FOR DRAINAGE STRUCTURES ARE TO THE CENTER OF THE STRUCTURE.

STORM LEGEND

- FULL DEPTH ASPHALT PAVEMENT
- PARTIAL DEPTH ASPHALT PAVEMENT
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- SWALE FLOW LINE
- STORM PIPE
- TRENCH DRAIN
- RIPRAP PAD
- STORM INLET
- FLARED END SECTION
- STORM MANHOLE

PROFILE LEGEND

- PROPOSED GRADE
- EXISTING GROUND
- PROFILE BAND
- EXISTING ELEVATION
- PROPOSED ELEVATION



ISSUED FOR BID



GREGORY S. MOORE PE NO. 157775 5/15/2026
FOR AND ON BEHALF OF WOOLPERT, INC. TBPE #1001



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	NO.	BY	DATE	DESCRIPTION
DR: J.K.W.	2	G.S.M.	5/15/2026	ISSUED FOR BIDDING
	3	A.W.N.	09/14/2026	REMOVED PER ADDENDUM 1
CH: C.L.G.				
APP: G.S.M.				

RUNWAY WIDENING, TAXIWAY
EXTENSION & AIRFIELD ELECTRICAL

DRAINAGE PLAN & PROFILE
TAXILANE 1, TAXILANE 2, AND TAXILANE 3
ADDITIVE ALTERNATE BID NO. 1

STATE PROJ. NO. TXDOT CSJ NO.:2618ENNIS
WOOLPERT PROJ. NO. 10022171.00.001.01

SHEET NAME
C502
SHEET NO.
81 of 109

Plotted September 16, 2026 @ 12:13 PM by Nelson, Adam
C:\P1\2026 Runway Widening, Taxiway Extension, Airfield Electrical\F-CAD\PLANS\505-F41-TXDOT-24-C502-STRM ALT.dwg

Plotted September 16, 2026 @ 12:26 PM by Nelson, Adam
C:\P1\2026 Runway Widening, Taxiway Extension, Airfield Electrical\F-CAD\PLANS\075-F41-TXDOT-24-C700-PANT.dwg



ENNIS MUNICIPAL
AIRPORT

DES: A.D.	ISSUE RECORD				
	NO.	BY	DATE	DESCRIPTION	
DR: J.K.W.	2	G.S.M.	5/15/2026	ISSUED FOR BIDDING	
	3	A.W.N.	09/14/2026	REVISED PER ADDENDUM 1	
CH: C.L.G.					
APP: G.S.M.					

RUNWAY WIDENING, TAXIWAY
EXTENSION & AIRFIELD ELECTRICAL

PAVEMENT MARKING PLAN
STA. 1042+61.82 TO STA. 1038+00
RUNWAY 16/34

STATE PROJ. NO.
TXDOT CSJ NO.:2618ENNIS

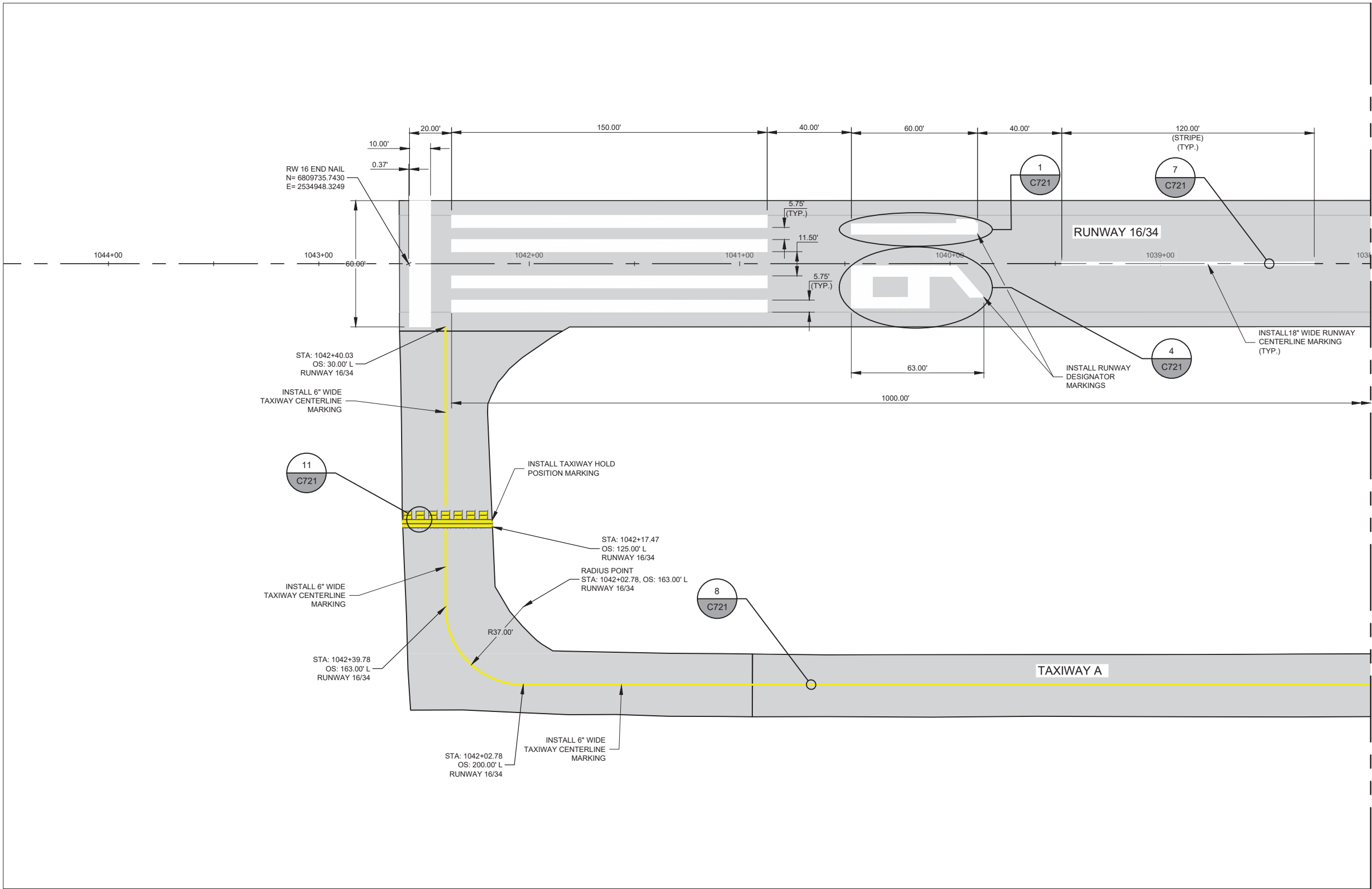
WOOLPERT PROJ. NO.
10022171.00.001.01

SHEET NAME

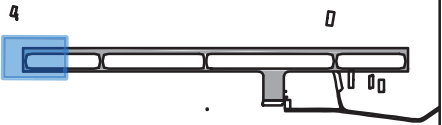
C701

SHEET NO.

82 of 109



MATCHLINE STA. 1038+00 - SEE SHEET C702



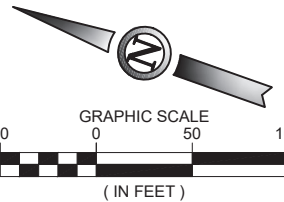
KEY MAP

PAINTING LEGEND

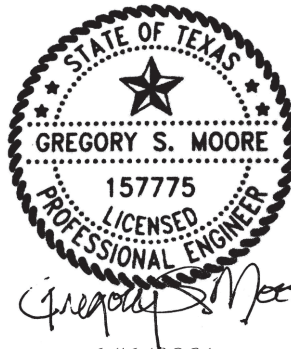
	PROPOSED RUNWAY MARKINGS
	PROPOSED TAXIWAY MARKINGS
	EXISTING MARKINGS

NOTES

- UNLESS OTHERWISE SPECIFIED, ALL TAXIWAY MARKINGS SHALL BE YELLOW AND ALL RUNWAY MARKINGS SHALL BE WHITE IN ACCORDANCE WITH SPECIFICATION P-620.
- ADJUST RUNWAY CENTERLINE STRIPE AND SPACING BETWEEN STRIPES AT CENTER POINT OF RUNWAY TO ACCOMMODATE RUNWAY LENGTH.
- CONTRACTOR WILL BE REQUIRED TO REPAINT ANY MARKINGS THAT ARE OUTSIDE THE PROJECT WORK LIMITS WHICH ARE DAMAGED BY THE CONTRACTORS OPERATIONS. REPAINTING OF THESE DAMAGED AREAS WILL BE AT THE CONTRACTORS EXPENSE.
- PAINT SHOULD BE STORED IN A CLIMATE-CONTROLLED ENVIRONMENT IN ORDER TO MEET MANUFACTURERS RECOMMENDED TEMPERATURES BEFORE IT IS APPLIED. MATERIAL THAT DOES NOT MEET REQUIRED TEMPERATURE REQUIREMENTS WILL BE WARMED TO THE MINIMUM TEMPERATURE FOR 24 HOURS BEFORE IT IS APPLIED OR AS APPROVED BY THE RESIDENT ENGINEER.
- RATES OF APPLICATION SHALL BE AS SPECIFIED IN SECTION P-620.
- ALL PERMANENT MARKINGS SHALL BE APPLIED DURING DAYLIGHT HOURS ONLY.
- GLASS BEADS SHALL BE APPLIED TO ALL TEMPORARY AND PERMANENT PAVEMENT MARKINGS. APPLICATION RATES AND GLASS BEAD TYPE SHALL BE AS SPECIFIED IN ITEM P-620. GLASS BEADS SHALL NOT BE APPLIED TO BLACK PAINT.
- UNLESS OTHERWISE SPECIFIED, ALL TAXIWAY MARKINGS ARE 6" WIDE (YELLOW).
- UNLESS OTHERWISE SPECIFIED, ALL RUNWAY MARKINGS ARE 3'-0" WIDE (WHITE).
- RUNWAY MARKINGS HAVE PRECEDENCE OVER THE TAXIWAY LEAD IN LINES ON CENTERLINE MARKINGS.
- PLEASE FIND CONTINUED PAVEMENT MARKING GENERAL NOTES ON PAVEMENT MARKING DETAIL SHEET C721.



ISSUED FOR BID



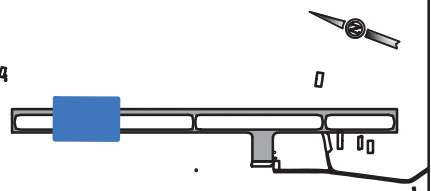
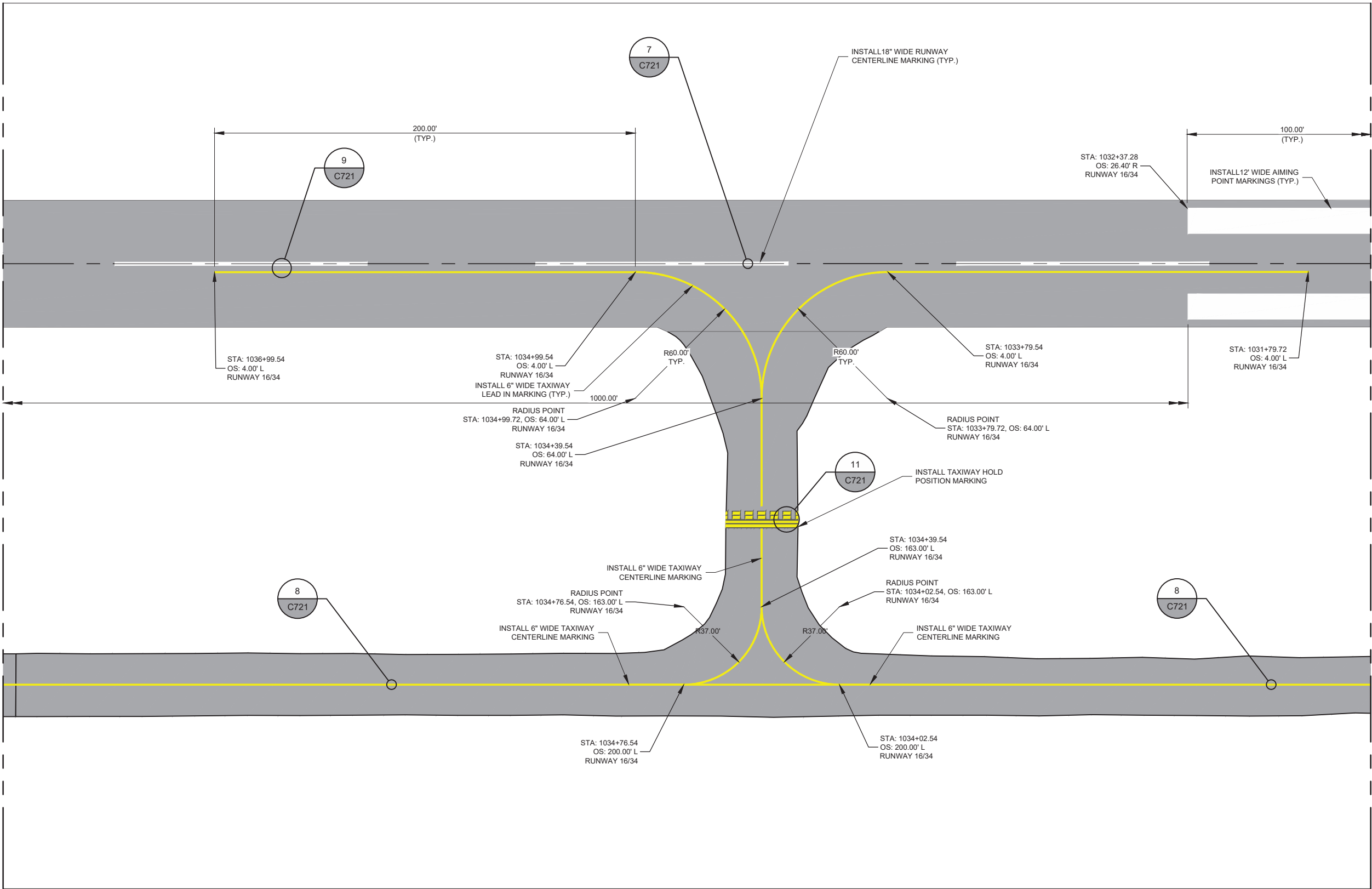
GREGORY S. MOORE PE NO. 157775 5/15/2026

FOR AND ON BEHALF OF WOOLPERT, INC. TBPE #1001

Plotted September 16, 2026 @ 1:13 PM by: Nelson, Adam
C:\P1\2026 Runway Widening, Taxiway Extension, Airfield Electrical\F- CAD\PLANS\075-F41-TXDOT-24-C702-PANT.dwg

MATCHLINE STA. 1038+00 - SEE SHEET C701

MATCHLINE STA. 1031+50 - SEE SHEET C703



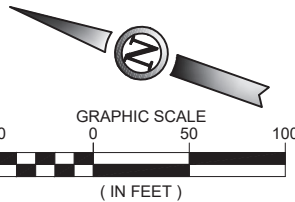
KEY MAP

PAINTING LEGEND

	PROPOSED RUNWAY MARKINGS
	PROPOSED TAXIWAY MARKINGS
	EXISTING MARKINGS

NOTES

- UNLESS OTHERWISE SPECIFIED, ALL TAXIWAY MARKINGS SHALL BE YELLOW AND ALL RUNWAY MARKINGS SHALL BE WHITE IN ACCORDANCE WITH SPECIFICATION P-620.
- ADJUST RUNWAY CENTERLINE STRIPE AND SPACING BETWEEN STRIPES AT CENTER POINT OF RUNWAY TO ACCOMMODATE RUNWAY LENGTH.
- CONTRACTOR WILL BE REQUIRED TO REPAINT ANY MARKINGS THAT ARE OUTSIDE THE PROJECT WORK LIMITS WHICH ARE DAMAGED BY THE CONTRACTORS OPERATIONS. REPAINTING OF THESE DAMAGED AREAS WILL BE AT THE CONTRACTORS EXPENSE.
- PAINT SHOULD BE STORED IN A CLIMATE-CONTROLLED ENVIRONMENT IN ORDER TO MEET MANUFACTURERS RECOMMENDED TEMPERATURES BEFORE IT IS APPLIED. MATERIAL THAT DOES NOT MEET REQUIRED TEMPERATURE REQUIREMENTS WILL BE WARMED TO THE MINIMUM TEMPERATURE FOR 24 HOURS BEFORE IT IS APPLIED OR AS APPROVED BY THE RESIDENT ENGINEER.
- RATES OF APPLICATION SHALL BE AS SPECIFIED IN SECTION P-620.
- ALL PERMANENT MARKINGS SHALL BE APPLIED DURING DAYLIGHT HOURS ONLY.
- GLASS BEADS SHALL BE APPLIED TO ALL TEMPORARY AND PERMANENT PAVEMENT MARKINGS. APPLICATION RATES AND GLASS BEAD TYPE SHALL BE AS SPECIFIED IN ITEM P-620. GLASS BEADS SHALL NOT BE APPLIED TO BLACK PAINT.
- UNLESS OTHERWISE SPECIFIED, ALL TAXIWAY MARKINGS ARE 6" WIDE (YELLOW).
- UNLESS OTHERWISE SPECIFIED, ALL RUNWAY MARKINGS ARE 3'-0" WIDE (WHITE).
- RUNWAY MARKINGS HAVE PRECEDENCE OVER THE TAXIWAY LEAD IN LINES ON CENTERLINE MARKINGS.
- PLEASE FIND CONTINUED PAVEMENT MARKING GENERAL NOTES ON PAVEMENT MARKING DETAIL SHEET C721.



ISSUED FOR BID



GREGORY S. MOORE PE NO. 157775 5/15/2026

FOR AND ON BEHALF OF WOOLPERT, INC. TBPE #1001



ENNIS MUNICIPAL
AIRPORT

DES: A.D.	ISSUE RECORD			
	NO.	BY	DATE	DESCRIPTION
DR: J.K.W.	2	G.S.M.	5/15/2026	ISSUED FOR BIDDING
	3	A.W.N.	09/14/2026	REVISED PER ADDENDUM 1
CH: C.L.G.				
APP: G.S.M.				

RUNWAY WIDENING, TAXIWAY
EXTENSION & AIRFIELD ELECTRICAL

PAVEMENT MARKING PLAN
STA. 1038+00 TO STA. 1031+50
RUNWAY 16/34

STATE PROJ. NO.
TXDOT CSJ NO.: 2618ENNIS

WOOLPERT PROJ. NO.
10022171.00.001.01

SHEET NAME

C702

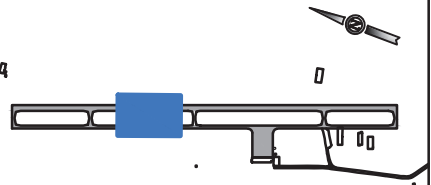
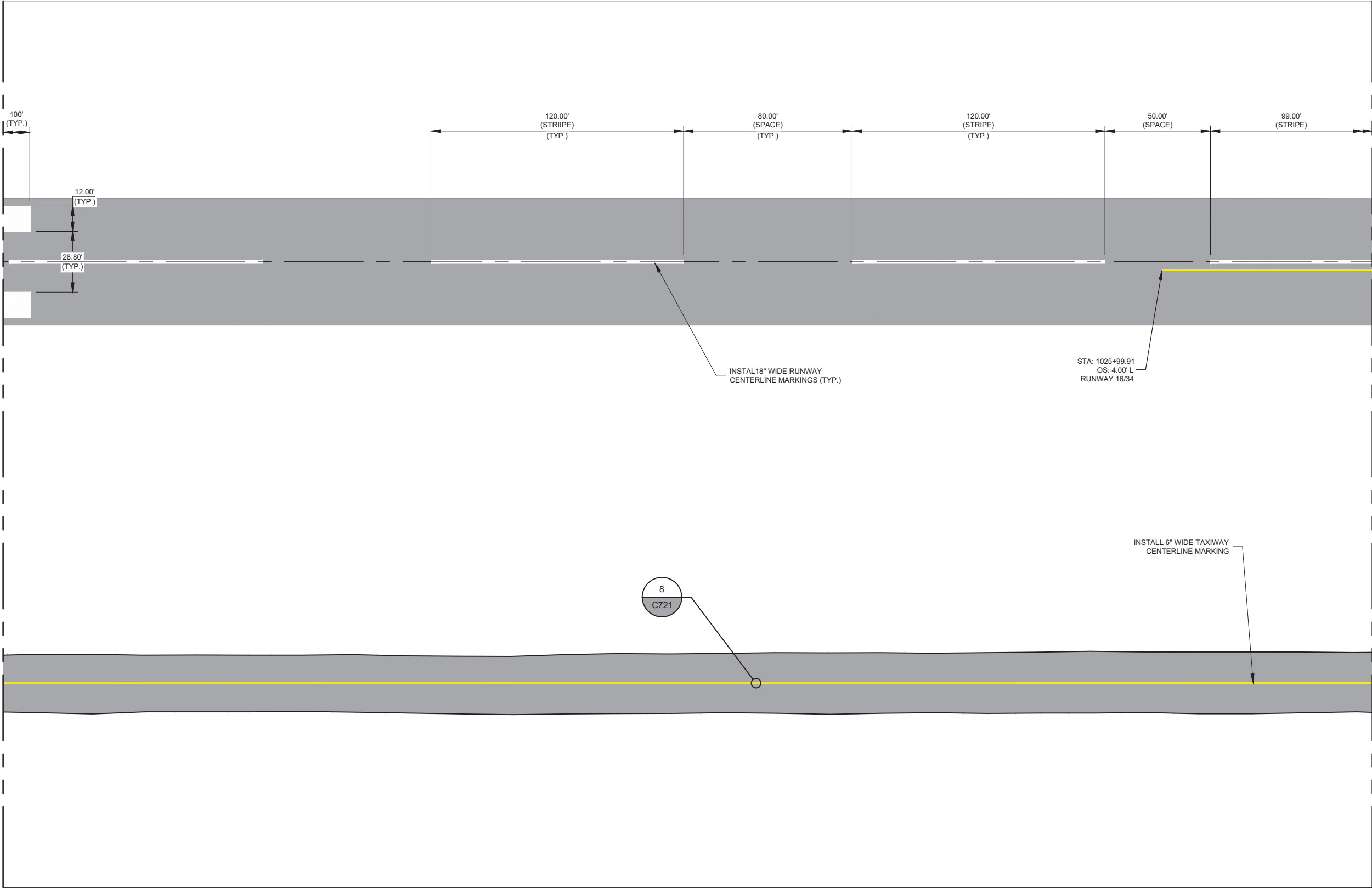
SHEET NO.

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Plotted September 16, 2026 @ 1:14 PM by: Nelson, Adam
C:\P1\2026 Runway Widening, Taxiway Extension, Airfield Electrical\F-CAD\PLANS\075-F41-TXDOT-24-C703-PANT.dwg

MATCHLINE STA. 1031+50 - SEE SHEET C702

MATCHLINE STA. 1025+00 - SEE SHEET C704

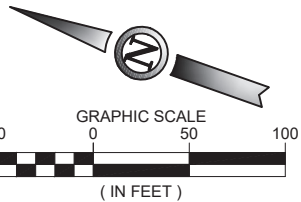


KEY MAP

PAINTING LEGEND	
	PROPOSED RUNWAY MARKINGS
	PROPOSED TAXIWAY MARKINGS
	EXISTING MARKINGS

NOTES

- UNLESS OTHERWISE SPECIFIED, ALL TAXIWAY MARKINGS SHALL BE YELLOW AND ALL RUNWAY MARKINGS SHALL BE WHITE IN ACCORDANCE WITH SPECIFICATION P-620.
- ADJUST RUNWAY CENTERLINE STRIPE AND SPACING BETWEEN STRIPES AT CENTER POINT OF RUNWAY TO ACCOMMODATE RUNWAY LENGTH.
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- UNLESS OTHERWISE SPECIFIED, ALL RUNWAY MARKINGS ARE 3'-0" WIDE (WHITE).
- RUNWAY MARKINGS HAVE PRECEDENCE OVER THE TAXIWAY LEAD IN LINES ON CENTERLINE MARKINGS.
- PLEASE FIND CONTINUED PAVEMENT MARKING GENERAL NOTES ON PAVEMENT MARKING DETAIL SHEET C721.



ISSUED FOR BID



GREGORY S. MOORE PE NO. 157775 5/15/2026

FOR AND ON BEHALF OF WOOLPERT, INC. TBPE #1001



ENNIS MUNICIPAL
AIRPORT

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	3	A.W.N.	09/14/2026	REVISED PER ADDENDUM 1
CH: C.L.G.				
APP: G.S.M.				

RUNWAY WIDENING, TAXIWAY
EXTENSION & AIRFIELD ELECTRICAL

PAVEMENT MARKING PLAN
STA. 1031+50 TO STA. 1025+00
RUNWAY 16/34

STATE PROJ. NO.
TXDOT CSJ NO.:2618ENNIS

WOOLPERT PROJ. NO.
10022171.00.001.01

SHEET NAME

C703

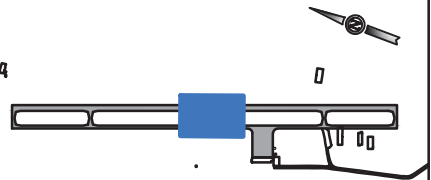
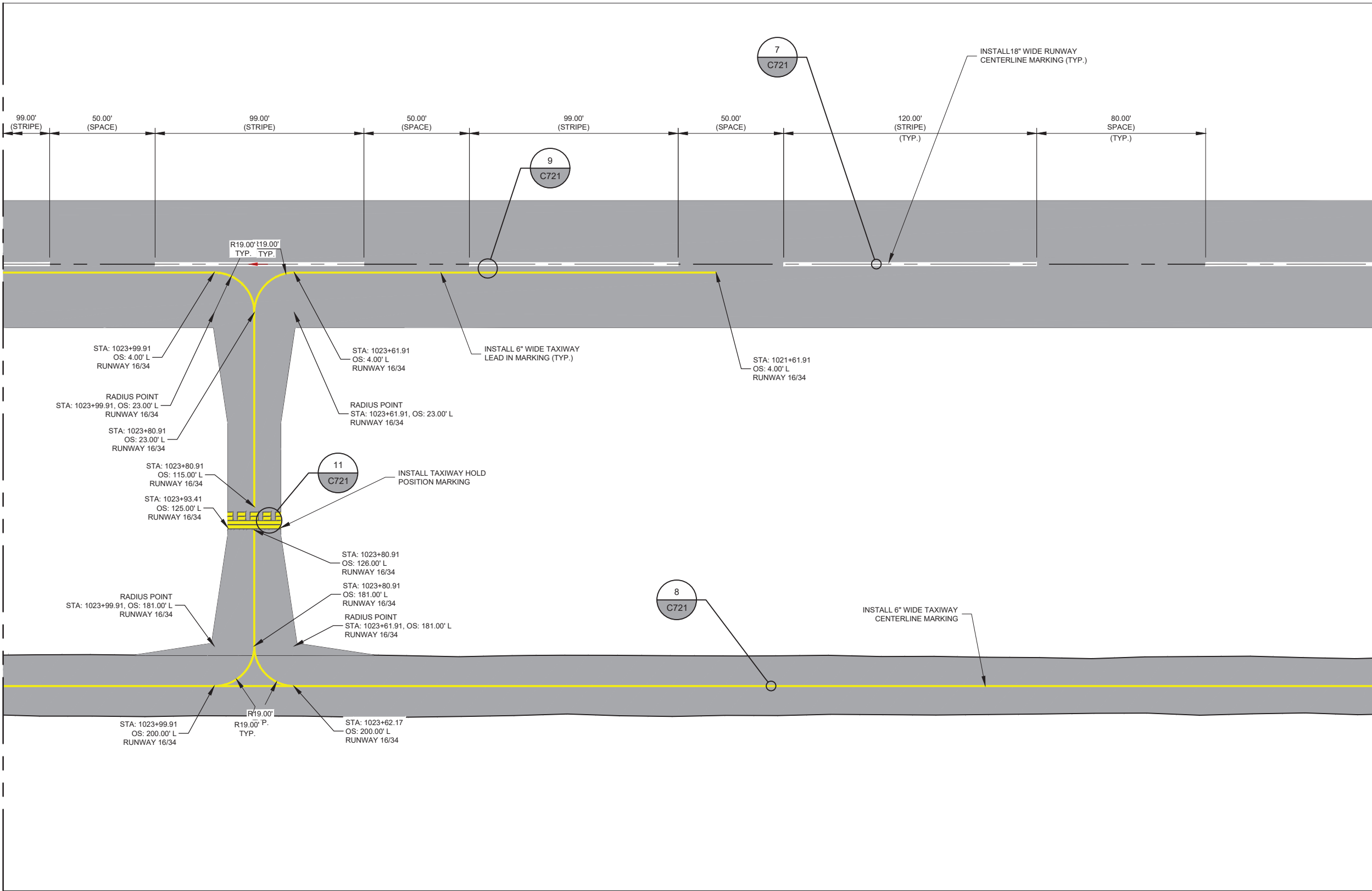
SHEET NO.

84 of 109

Plotted September 16, 2026 @ 1:15 PM by Nelson, Adam
C:\P1\2026 Runway Widening, Taxiway Extension, Airfield Electrical\F-CAD\PLANS\075-F41-TXDOT-24-C704-PANT.dwg

MATCHLINE STA. 1025+00 - SEE SHEET C703

MATCHLINE STA. 1018+50 - SEE SHEET C705

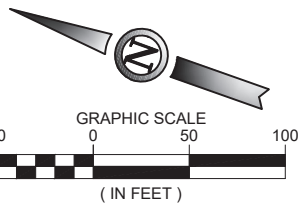


KEY MAP

PAINTING LEGEND	
	PROPOSED RUNWAY MARKINGS
	PROPOSED TAXIWAY MARKINGS
	EXISTING MARKINGS

NOTES

- UNLESS OTHERWISE SPECIFIED, ALL TAXIWAY MARKINGS SHALL BE YELLOW AND ALL RUNWAY MARKINGS SHALL BE WHITE IN ACCORDANCE WITH SPECIFICATION P-620.
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- UNLESS OTHERWISE SPECIFIED, ALL RUNWAY MARKINGS ARE 3'-0" WIDE (WHITE).
- RUNWAY MARKINGS HAVE PRECEDENCE OVER THE TAXIWAY LEAD IN LINES ON CENTERLINE MARKINGS.
- PLEASE FIND CONTINUED PAVEMENT MARKING GENERAL NOTES ON PAVEMENT MARKING DETAIL SHEET C721.



ISSUED FOR BID



GREGORY S. MOORE PE NO. 157775 5/15/2026
FOR AND ON BEHALF OF WOOLPERT, INC. TBPE #1001



ENNIS MUNICIPAL
AIRPORT

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	3	A.W.N.	09/14/2026	REVISED PER ADDENDUM 1
CH: C.L.G.				
APP: G.S.M.				

RUNWAY WIDENING, TAXIWAY
EXTENSION & AIRFIELD ELECTRICAL

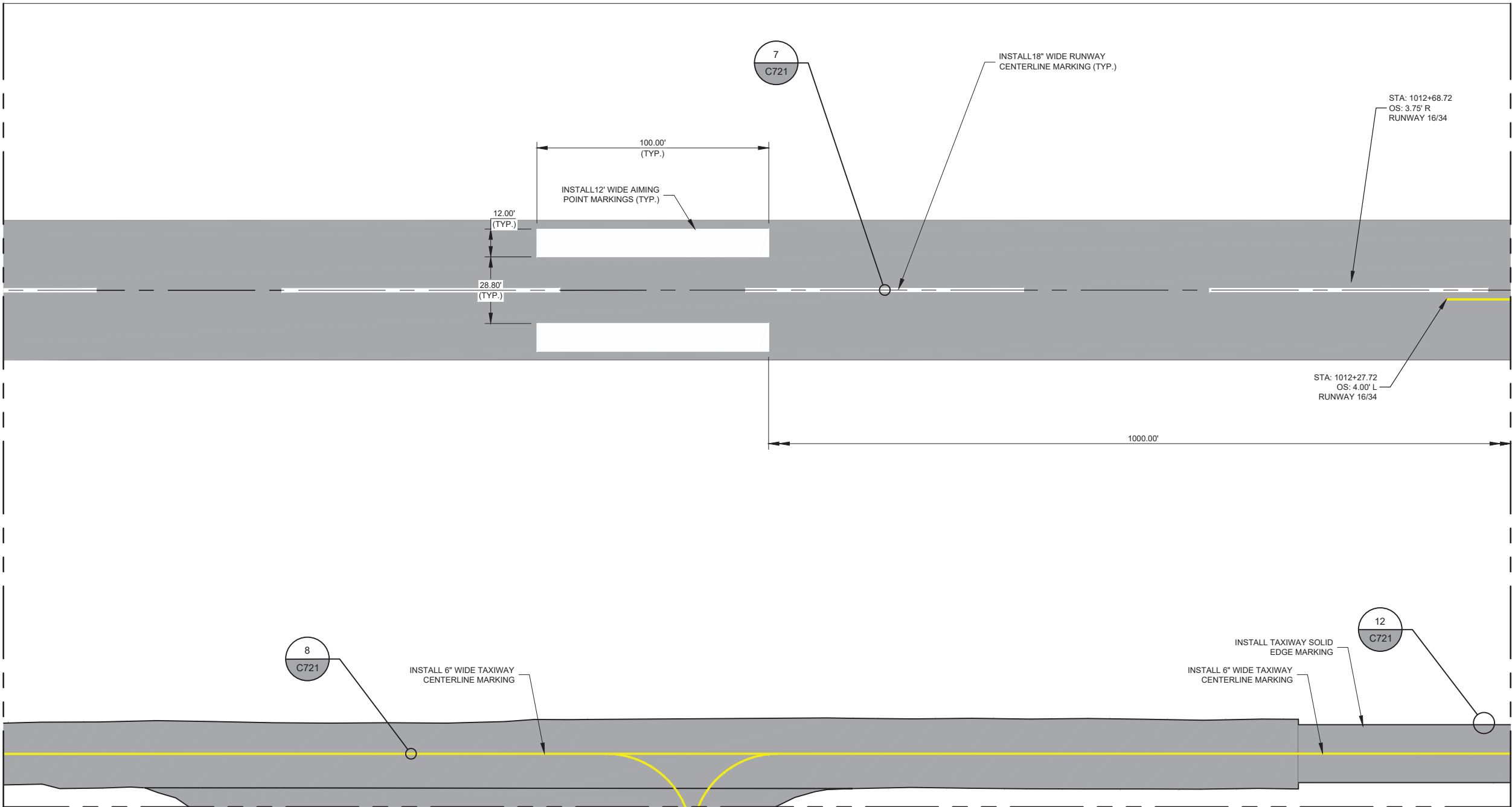
PAVEMENT MARKING PLAN
STA. 1025+00 TO STA. 1018+50
RUNWAY 16/34

STATE PROJ. NO. TXDOT CSJ NO.: 2618ENNIS
WOOLPERT PROJ. NO. 10022171.00.001.01

SHEET NAME
C704
SHEET NO.
85 of 109

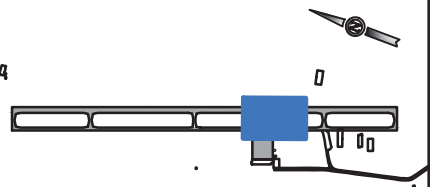
Plotted September 16, 2026 @ 1:16 PM by Nelson, Adam
C:\P1\2026 Runway Widening, Taxiway Extension, Airfield Electrical\F- CAD\PLANS\075-F41-TXDOT-24-C700-PANT.dwg

MATCHLINE STA. 1012+00 - SEE SHEET C704



MATCHLINE A - SEE SHEET C705A

MATCHLINE STA. 1018+50 - SEE SHEET C706

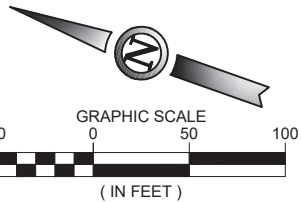


KEY MAP

PAINTING LEGEND	
	PROPOSED RUNWAY MARKINGS
	PROPOSED TAXIWAY MARKINGS
	EXISTING MARKINGS

NOTES

- UNLESS OTHERWISE SPECIFIED, ALL TAXIWAY MARKINGS SHALL BE YELLOW AND ALL RUNWAY MARKINGS SHALL BE WHITE IN ACCORDANCE WITH SPECIFICATION P-620.
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- PLEASE FIND CONTINUED PAVEMENT MARKING GENERAL NOTES ON PAVEMENT MARKING DETAIL SHEET C721.



ISSUED FOR BID



GREGORY S. MOORE PE NO. 157775 5/15/2026
FOR AND ON BEHALF OF WOOLPERT, INC. TBPE #1001



ENNIS MUNICIPAL
AIRPORT

DES: A.D.	ISSUE RECORD			
	NO.	BY	DATE	DESCRIPTION
DR: J.K.W.	2	G.S.M.	5/15/2026	ISSUED FOR BIDDING
	3	A.W.N.	09/14/2026	REVISED PER ADDENDUM 1
CH: C.L.G.				
APP: G.S.M.				

RUNWAY WIDENING, TAXIWAY
EXTENSION & AIRFIELD ELECTRICAL

PAVEMENT MARKING PLAN
STA. 1018+50 TO STA. 1012+00 AND MATCHLINE A
RUNWAY 16/34

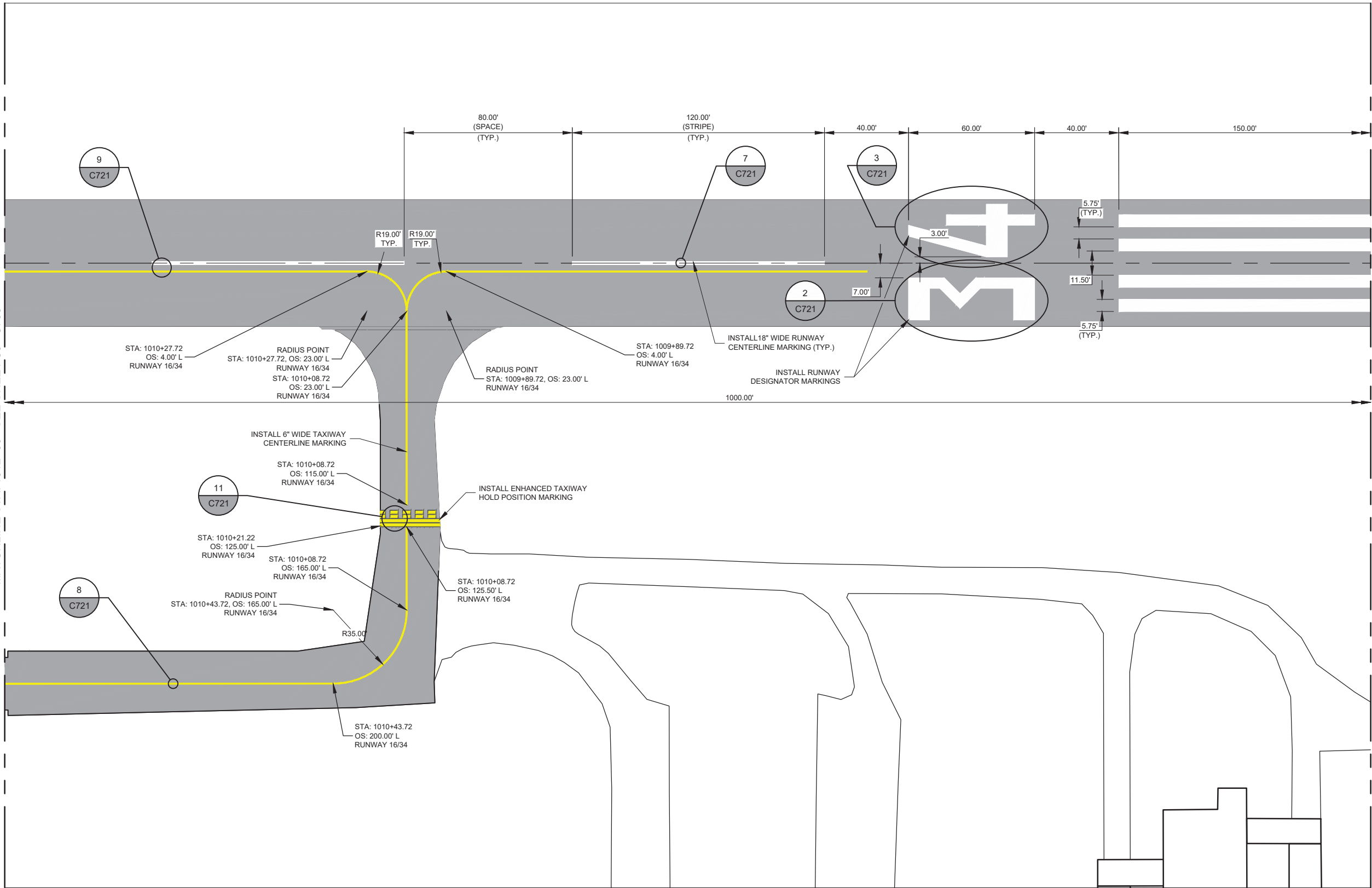
STATE PROJ. NO. TXDOT CSJ NO.:2618ENNIS
WOOLPERT PROJ. NO. 10022171.00.001.01

SHEET NAME
C705

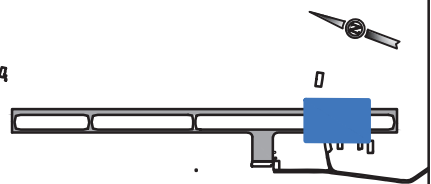
SHEET NO.
86 of 109

Printed September 16, 2026 @ 1:18 PM by: Nelson, Adam
C:\P1\2026 Runway Widening, Taxiway Extension, Airfield Electrical\CAD\PLANS\075-F41-TXD01-24-C706-PANT.dwg

MATCHLINE STA. 1012+00 - SEE SHEET 86 - C705



MATCHLINE STA. 1005+50 - SEE SHEET C707



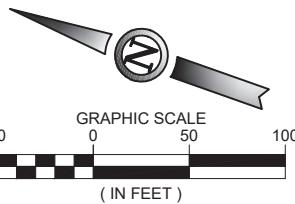
KEY MAP

PAINTING LEGEND

	PROPOSED RUNWAY MARKINGS
	PROPOSED TAXIWAY MARKINGS
	EXISTING MARKINGS

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ISSUED FOR BID



Gregory S. Moore
5/15/2026

GREGORY S. MOORE PE NO. 15775 06/05/2026

FOR AND ON BEHALF OF WOOLPERT, INC. TBPE #1001



ENNIS MUNICIPAL
AIRPORT

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CH: C.L.G.	4	A.W.N.	09/14/2026	REVISED PER ADDENDUM 1
APP: G.S.M.				

RUNWAY WIDENING, TAXIWAY
EXTENSION & AIRFIELD ELECTRICAL

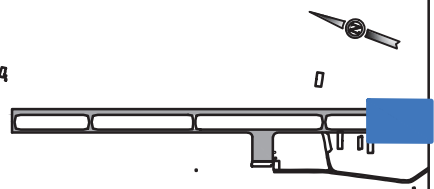
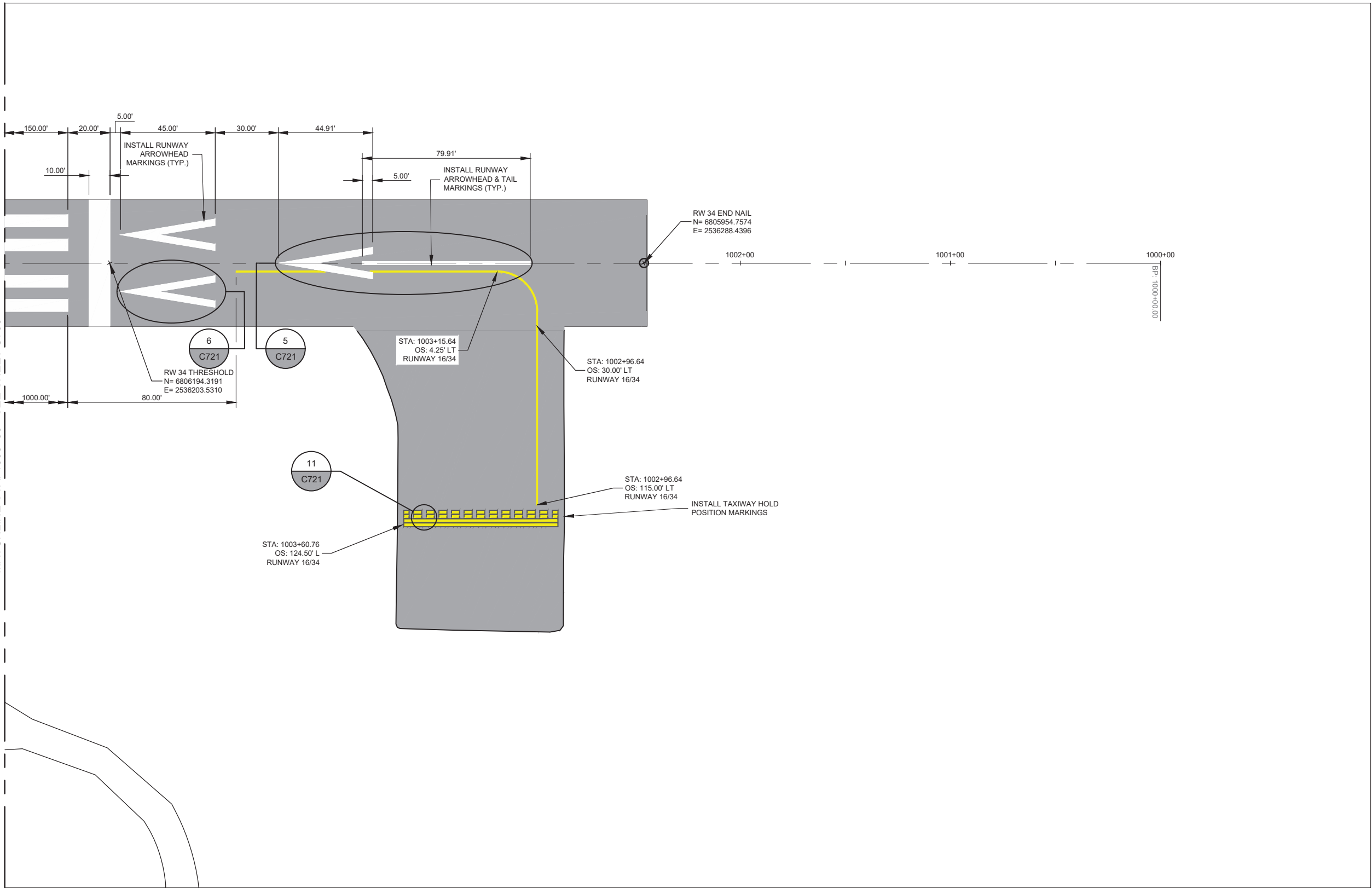
PAVEMENT MARKING PLAN
STA. 1012+00 TO STA. 1005+50
RUNWAY 16/34

STATE PROJ. NO. TXDOT CSJ NO.:2618ENNIS	WOOLPERT PROJ. NO. 10022171.00.001.01
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SHEET NAME
C706
SHEET NO.
88 of 109

Plotted September 16, 2026 @ 1:19 PM by: Nelson, Adam
C:\P1\2026 Runway Widening, Taxiway Extension, Airfield Electrical\F- CAD\PLANS\075-F41-TXDOT-24-C700-PANT.dwg

MATCHLINE STA. 1005+50 - SEE SHEET C706



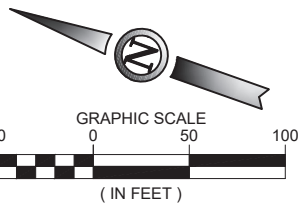
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APP: G.S.M.				

RUNWAY WIDENING, TAXIWAY
EXTENSION & AIRFIELD ELECTRICAL

PAVEMENT MARKING PLAN
STA. 1005+50 TO STA. 1002+44.29
RUNWAY 16/34

STATE PROJ. NO.
TXDOT CSJ NO.: 2618ENNIS

WOOLPERT PROJ. NO.
10022171.00.001.01

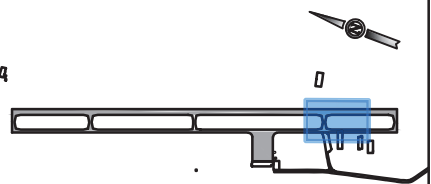
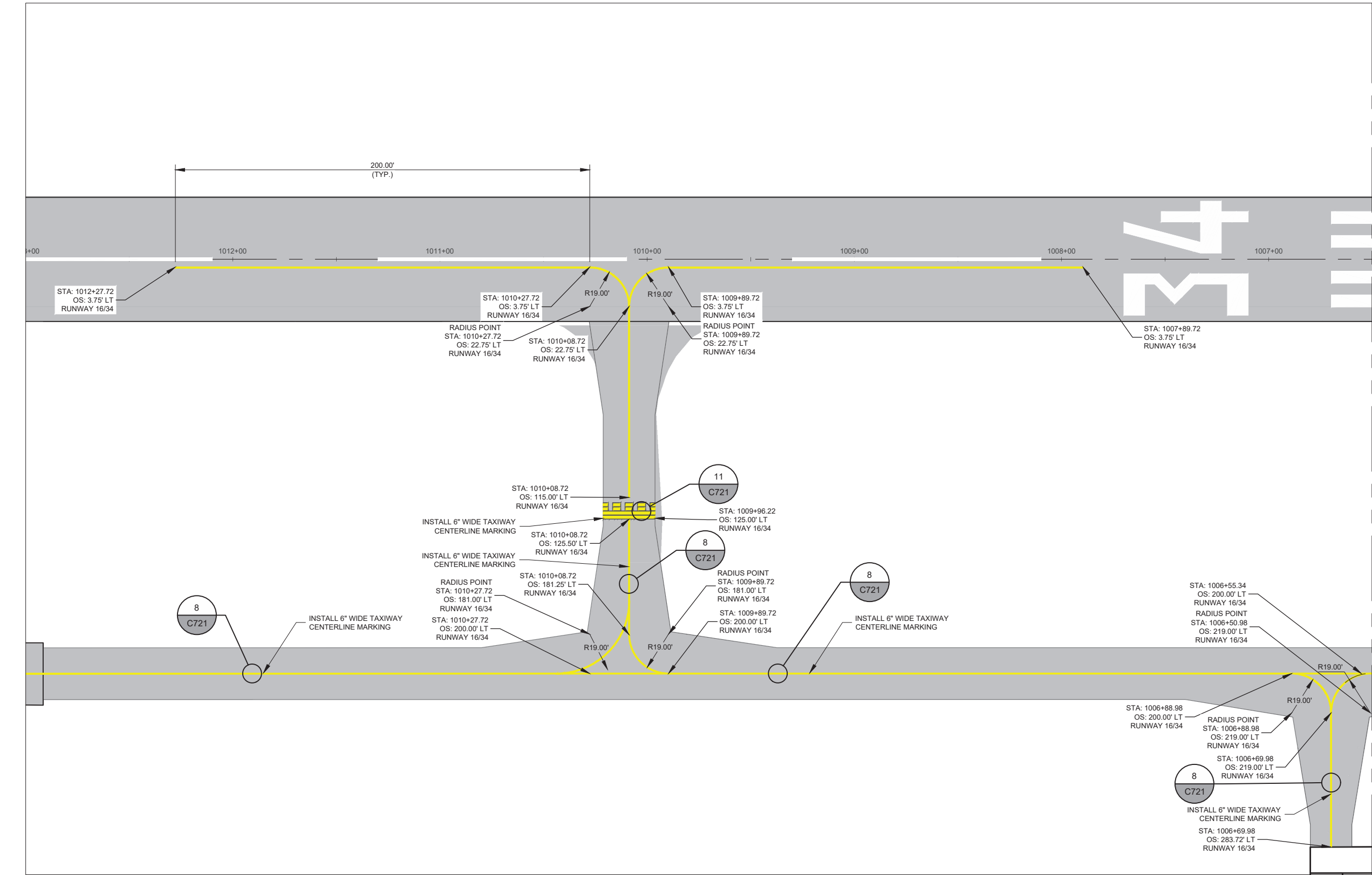
SHEET NAME

C707

SHEET NO.

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Printed September 16, 2026 @ 12:53 PM by Nelson, Adam
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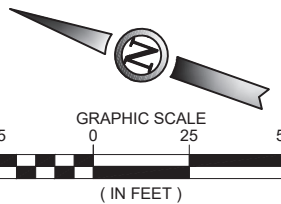
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APP: G.S.M.				

RUNWAY WIDENING, TAXIWAY
EXTENSION & AIRFIELD ELECTRICAL

MARKING PLAN
STA. 1012+91.5 TO STA. 1006+50
RUNWAY 16/34
ADDITIVE ALTERNATE BID NO. 1

STATE PROJ. NO.
TXDOT CSJ NO.: 2618ENNIS

WOOLPERT PROJ. NO.
10022171.00.001.01

SHEET NAME

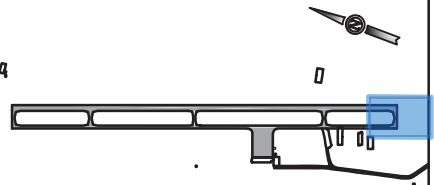
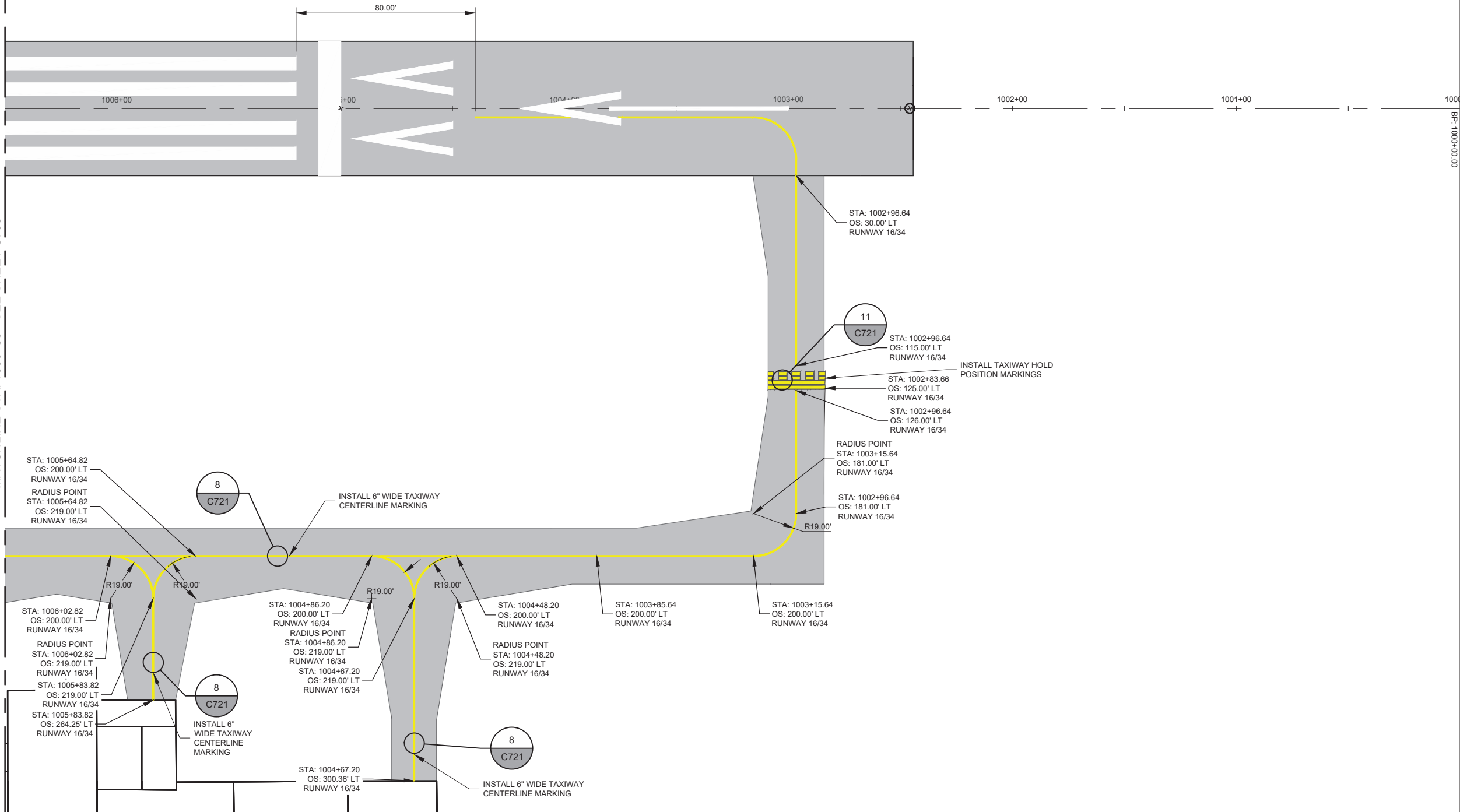
C708

SHEET NO.

90 of 109

Printed September 16, 2026 @ 12:55 PM by Nelson, Adam
C:\P1\2026 Runway Widening, Taxiway Extension, Airfield Electrical\F-CAD\PLANS\075-F41-TXDOT-24-C709-PANT-BID-ALT.dwg

MATCHLINE STA. 1006+50 - SEE SHEET C708

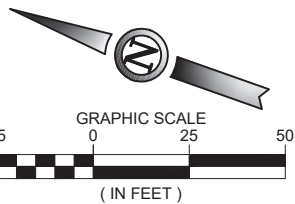


KEY MAP

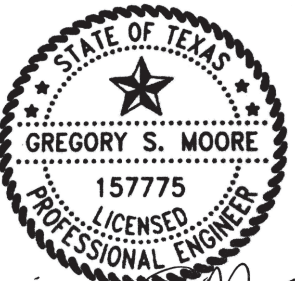
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	PROPOSED RUNWAY MARKINGS
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ENNIS MUNICIPAL
AIRPORT

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RUNWAY WIDENING, TAXIWAY
EXTENSION & AIRFIELD ELECTRICAL

MARKING PLAN
STA. 1006+50 TO STA. 1002+44.29
RUNWAY 16/34
ADDITIVE ALTERNATE BID NO. 1

STATE PROJ. NO.
TXDOT CSJ NO.:2618ENNIS

WOOLPERT PROJ. NO.
10022171.00.001.01

SHEET NAME

C709

SHEET NO.

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Printed September 17, 2026 @ 6:11 AM by: Ambarianitz, Zach
 C:\P1022\Runway Widening, Taxiway Extension, Airfield Electrical\F-CAD\PLANS\100-F41-TXDOT-24-ED1-ELEC-LGD.dwg

MASTER ELECTRICAL LEGEND				
	EXISTING	NEW	DEMOLITION	ADJUST
L-850C R/W EDGE IN PAVEMENT LIGHT				—
L-861 R/W EDGE ELEVATED LIGHT				—
L-861E R/W END ELEVATED LIGHT				—
L-852G R/W IN-PAVEMENT GUARD LIGHT	—		—	—
L-804 R/W ELEVATED GUARD LIGHT			—	—
R/W MALSR LIGHT				
L-861T T/W EDGE LIGHT				
L-863 RETRO-REFLECTIVE MARKER				—
ROAD FLUSH RETRO-REFLECTIVE MARKER	—		—	—
BIDIRECTIONAL GREEN RUNWAY/TAXIWAY SIGN				—
L-867 JUNCTION BOX				
HAND HOLE			—	
ELECTRICAL MANHOLE	EMH	EMH	—	EMH
2" ELECTRICAL CONDUIT (DEB)	—	—	—	—
2" ELECTRICAL CONDUIT (CE)	—	—	—	—
2" ELECTRICAL CONDUIT (CLSM)	—	—	—	—
ELECTRICAL DUCT BANK (DEB)	—	—	—	—
ELECTRICAL DUCT BANK (CE)	—	—	—	—
L-824C CABLE (HASH MARKS INDICATE THE NUMBER OF CONDUCTORS)			—	—

ABBREVIATIONS LEGEND (NOT ALL ABBREVIATIONS ARE USED)					
A	-	AMP	OHT	-	OVERHEAD TELEPHONE
AFF	-	ABOVE FINISHED FLOOR	P	-	PHASE
AFG	-	ABOVE FINISHED GRADE	PAPI	-	PRECISION APPROACH PATH INDICATOR
ATS	-	AUTOMATIC TRANSFER SWITCH	PT	-	POINT OF TANGENCY
BC	-	BARE COPPER	PVC	-	POLYVINYL CHLORIDE CONDUIT
C	-	CONDUIT	REIL	-	RUNWAY END INDICATOR LIGHT
CCR	-	CONSTANT CURRENT REGULATOR	RGL	-	RUNWAY GUARD LIGHT
CE	-	CONCRETE ENCASED	RGS	-	RIGID GALVANIZED STEEL CONDUIT
CKT.	-	CIRCUIT	RE	-	REFER TO
CLSM	-	CONTROLLED LOW STRENGTH MATERIAL	RW	-	RUNWAY
COMM.	-	COMMUNICATION	S	-	SEWER
CONC.	-	CONCRETE	SCHD.	-	SCHEDULE
DEB	-	DIRECT EARTH BURIED	SHT.	-	SHEET
ELEC.	-	ELECTRIC/ELECTRICAL	STA.	-	STATION
EXIST., EX.	-	EXISTING	TDZ	-	TOUCH DOWN ZONE
FAA	-	FEDERAL AVIATION ADMINISTRATION	TW	-	TAXIWAY
F.O.	-	FIBER OPTIC	TYP	-	TYPICAL
GFI	-	GROUND FAULT INTERRUPTING	UE, UGE	-	UNDERGROUND ELECTRICAL
GND., G	-	GROUND	U.G.	-	UNDERGROUND
HDPE	-	HIGH-DENSITY POLYETHYLENE	UON	-	UNLESS OTHERWISE NOTED
kV	-	KILOVOLTS	UT	-	UNDERGROUND TELEPHONE
kW	-	KILOWATTS	V	-	VOLT
MALSR	-	MEDIUM INTENSITY APPROACH LIGHT SYSTEM WITH RUNWAY ALIGNMENT INDICATOR LIGHTS	VA	-	VOLT AMP
MH.	-	MANHOLE	W	-	WATT, WIRE
N.I.C.	-	NOT IN CONTRACT	W/	-	WITH
NO.	-	NUMBER	WP	-	WEATHERPROOF
OHP	-	OVERHEAD POWER	XFMR	-	TRANSFORMER

CIRCUIT LEGEND		R/W LIGHT KEY
①	RUNWAY EDGE LIGHTS	
②	RUNWAY 16 PAPI	
②	RUNWAY 34 PAPI	
⑥	GROUND	
		C - WHITE Y - YELLOW G - GREEN R - RED O - OBSCURED

LEGEND NOTES:

- ALL ELECTRICAL CONDUITS ARE 1-2" SCH. 40 PVC CONDUIT UNLESS IDENTIFIED OTHERWISE.
- SIZE AND NUMBER OF CONDUITS IN A DUCT BANK ARE AS INDICATED ON PLAN SHEETS.
- ALL L-867 JUNCTION BOXES ARE SIZE B, 12" DIA. X 24" DEEP WITH 3/8" THICK BLANK COVER, UNLESS OTHERWISE INDICATED.

PROJECT SPECIFIC DEMOLITION NOTES

- ALL COMPONENTS OF THE AIRFIELD LIGHTING SYSTEM OUTSIDE OF THE PROJECT AREA AND CLOSED PORTIONS OF THE AIRFIELD SHALL NOT BE DAMAGED BY THE CONTRACTOR. ANY DAMAGE TO THESE COMPONENTS WILL BE REPLACED BY THE CONTRACTOR AT NO EXPENSE TO THE SPONSOR.
- THE CONTRACTOR SHALL REMOVE ALL WIRES AND CABLES FROM CONDUITS WHICH ARE TO BE ABANDONED. NO ADDITIONAL PAYMENT WILL BE MADE FOR REMOVAL OF WIRES AND CABLES.

ELECTRICAL NOTES

- THE PROJECT PAY ITEMS PROVIDED ARE TO BE INCLUSIVE OF ALL WORK TO BE PERFORMED AS SHOWN IN THE CONTRACT DOCUMENTS. ALL WORK NOT IDENTIFIED WITH A SPECIFIC PAY ITEM IS TO BE CONSIDERED REQUIRED WORK TO COMPLETE THE PROJECT, AND IS TO BE INCIDENTAL TO THE COST OF PROJECT PAY ITEMS PROVIDED.
- WHENEVER, IN THE CONTRACT DOCUMENTS, THE WORDS "PROVIDE", "INSTALL", "FURNISH AND INSTALL", OR SIMILAR WORDS ARE USED, IT SHALL BE UNDERSTOOD THAT THE INTENT OF THE CONTRACT DOCUMENT IS TO PROVIDE FOR THE CONSTRUCTION AND COMPLETION IN EVERY DETAIL THE WORK DESCRIBED. IT IS FURTHER INTENDED THAT THE CONTRACTOR SHALL FURNISH ALL LABOR, SUPERVISION, MATERIALS, EQUIPMENT, TOOLS, TRANSPORTATION, SUPPLIES, TESTING, AND INCIDENTALS REQUIRED TO COMPLETE THE WORK IN ACCORDANCE WITH THE DRAWINGS (PLANS), SPECIFICATIONS, AND TERMS OF THE CONTRACT.
- THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL REQUIRED PERMITS, LICENSES, ETC., PRIOR TO COMMENCEMENT OF WORK. THE COST OF PERMITS, LICENSES, ETC. SHALL BE INCIDENTAL TO, AND INCLUDED IN THE BID PRICE FOR THE RESPECTIVE PAY ITEMS.
- ALL DAMAGE TO UTILITIES OR EXISTING STRUCTURES FROM CONSTRUCTION ACTIVITIES SHALL BE IMMEDIATELY REPORTED TO THE RESIDENT PROJECT REPRESENTATIVE. THE RESIDENT PROJECT REPRESENTATIVE SHALL DETERMINE WHETHER REPAIR OR REPLACEMENT IS NECESSARY. ALL REPAIR METHODS SHALL BE SUBMITTED TO THE RESIDENT PROJECT REPRESENTATIVE FOR REVIEW AND APPROVAL PRIOR TO INITIATING THE WORK.
- IN NEW OR EXISTING PAVEMENT ALL CONDUITS, DUCT BANKS, BASE CANS, COUNTERPOISE, GROUND CONDUCTORS, ETC. SHALL BE INSTALLED PRIOR TO PLACEMENT OF THE FINAL LIFT OF PAVEMENT.
- AIRFIELD SIGNS PROVIDING DIRECTIONS TO CLOSED AREAS SHALL BE COVERED. ALL AREAS CLOSED TO AIRCRAFT SHALL NOT BE LIGHTED. ADEQUATE LIGHTING, IN THE OPINION OF THE RESIDENT PROJECT REPRESENTATIVE, SHALL BE PROVIDED TO DELINEATE THE ACTIVE AND CLOSED AREAS OF THE AOA. THE ABOVE ITEMS ARE CONSIDERED INCIDENTAL TO THE VARIOUS BID ITEMS.
- ALL COMPONENTS OF THE AIRFIELD LIGHTING SYSTEM OUTSIDE OF THE PROJECT AREA AND CLOSED PORTIONS OF THE AIRFIELD SHALL BE OPERATIONAL AT THE END OF EACH WORK SHIFT AND FOR EVERY PERIOD OF LOW VISIBILITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL TEMPORARY JUMPER AND OTHER EQUIPMENT NECESSARY TO MAINTAIN AN OPERATIONAL SYSTEM DURING CONSTRUCTION. TEMPORARY JUMPERS SHALL BE CONSIDERED INCIDENTAL TO THE VARIOUS BID ITEMS. ALL TEMPORARY JUMPERS SHALL BE INSTALLED IN CONDUIT.
- CONTRACTOR SHALL BE REQUIRED TO PROVE TO THE SATISFACTION OF THE RESIDENT PROJECT REPRESENTATIVE THAT THE LIGHTING SYSTEM IS OPERATIONAL BEFORE LEAVING THE WORK SITE AFTER EVERY WORK SHIFT.
- THE AIRPORT MAINTENANCE DEPARTMENT'S "LOCKOUT/TAGOUT" PROCEDURE AND NFPA 70E SHALL BE COMPLIED WITH BY THIS CONTRACTOR.
- THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO STARTING WORK.
- EXISTING CONDUIT, DUCT BANK, CIRCUITING, AND UTILITY INFORMATION IS BASED ON "AS-BUILT" AND "RECORD" DRAWINGS AND SITE VISITS BY THE ENGINEER. THE EXISTING UTILITY LOCATIONS SHOWN ON THE PLANS ARE APPROXIMATE AND SHALL NOT BE SCALED FOR EXACT LOCATION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO CONTACT THE APPROPRIATE UTILITY/AGENCY PRIOR TO STARTING WORK AND STAKE/MARK THE LOCATION OF ALL EXISTING UTILITIES. ANY INTERRUPTION OF AN EXISTING SYSTEM OR UTILITY SERVICE SHALL BE COORDINATED AND APPROVED BY THE AIRPORT AND THE AUTHORITY, AGENCY, OR UTILITY HAVING JURISDICTION PRIOR TO STARTING WORK.
- ALL REMOVED FIXTURES, BASEPLATES, SPACERS, SIGNS, TRANSFORMERS, ETC. SHALL BE TURNED OVER TO THE AIRPORT'S MAINTENANCE DEPARTMENT. ALL REMOVED CABLES, DUCT, BASECANS, CONCRETE PADS, MANHOLES, ETC. SHALL BE PROPERLY AND LEGALLY DISPOSED OF OFF THE SITE BY THE CONTRACTOR. ALL ITEMS TO BE RELOCATED SHALL BE REMOVED FIRST AND PROPERLY STORED FOR FUTURE INSTALLATION.
- PROVIDE WORK, EQUIPMENT AND MATERIALS THAT COMPLY WITH FAA REQUIREMENTS, NATIONAL ELECTRICAL CODE, AND ALL LOCAL CODES.
- PROVIDE PROPER CONSTRUCTION WARNINGS AND BARRICADES PER FAA REQUIREMENTS, AND PRESENT PLANS FOR SAME TO ENGINEER AND AIRPORT OPERATIONS MANAGER FOR APPROVAL PRIOR TO COMMENCING WORK.
- NOTIFY ENGINEER OF ANY SIGNIFICANT DIFFERENCES BETWEEN DRAWINGS AND FIELD CONDITIONS.
- DAMAGE TO EXISTING EQUIPMENT NOT ASSOCIATED WITH DEMOLITION FOR THIS PROJECT TO BE REPAIRED AND OPERATIONAL AT CONTRACTOR'S EXPENSE.
- LOCATION OF EXISTING UTILITIES AND STRUCTURES IS BASED ON THE BEST AVAILABLE INFORMATION AND IS NOT WARRANTED TO BE EXACT, NOR IS IT WARRANTED THAT ALL UTILITIES ARE SHOWN.
- WHERE NEW DUCT BANKS OR OTHER UTILITIES ARE NEAR EXISTING UTILITIES THE CONTRACTOR SHALL HAND EXCAVATE AROUND THE EXISTING UTILITIES IN ORDER TO PREVENT DAMAGE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMMEDIATELY REPAIRING ANY UTILITY DAMAGED DURING CONSTRUCTION.
- THE CONTRACTOR SHALL REMOVE ALL CONDUIT AND CONDUCTORS MARKED FOR REMOVAL ON DEMOLITION SHEETS. ALL ABANDONED/UNUSED CONDUCTORS SHALL BE REMOVED FROM EXISTING CONDUITS IN WHICH NEW CONDUCTORS ARE INSTALLED. NO ABANDONED CONDUCTORS SHALL BE LEFT IN PLACE AT THE COMPLETION OF THE JOB. NO PAYMENT WILL BE MADE FOR REMOVAL OF EXISTING CONDUCTORS. ALL REMOVED WIRE SHALL BE THE PROPERTY OF THE CONTRACTOR.
- THE DIMENSION BETWEEN LIGHTS SHOWN ON A RADIUS IS DEFINED AS THE CHORD LENGTH. LOCATIONS SHOWN ARE TO THE CENTER OF THE LIGHTING FIXTURE.
- CONTRACTOR TO FIELD VERIFY ALL ELEVATION ADJUSTMENTS PRIOR TO ORDERING EXTENSION RINGS OR EXCAVATING ELECTRICAL STRUCTURES.
- AT LOCATIONS WHERE NEW RUNWAY LIGHTS, TAXIWAY LIGHTS, SIGNS, OR CONDUIT ARE TO BE INSTALLED IN EXISTING PAVEMENT THE CONTRACTOR SHALL NEATLY SAWCUT, REMOVE, AND PATCH EXISTING PAVEMENT AS NECESSARY TO ALLOW THE INSTALLATION OF THE NEW EQUIPMENT. PAVEMENT REMOVAL AND PATCHING SHALL BE CONSIDERED INCIDENTAL TO INSTALLATION OF THE NEW EQUIPMENT. NO ADDITIONAL PAYMENT WILL BE MADE FOR PAVEMENT REMOVAL AND PATCHING.
- THE CONTRACTOR SHALL KEEP A SET OF AS-BUILT DRAWINGS THAT SHALL BE SUBMITTED TO THE ENGINEER AT THE COMPLETION OF THE JOB. THE CONTRACTOR SHALL NOTE, AND BRING TO THE ENGINEER'S ATTENTION, ANY DISCREPANCIES BETWEEN THE PLANS AND ACTUAL FIELD CONDITIONS. REDLINES AND SURVEY AUTOCAD AS-BUILTS SHALL BE PROVIDED UPON COMPLETION.
- THE ELECTRICAL CONTRACTOR SHALL ATTEND THE CONSTRUCTION MEETINGS FOR THE DURATION OF THE PROJECT.
- ALL ELECTRICAL WORK, INCLUDING CONDUITS, HANDHOLES, GROUNDING, POWER DISTRIBUTION EQUIPMENT, WIRING, JUNCTION BOXES, ETC., PERTAINING TO NAVIGATIONAL AIDS (LOCALIZER, LOCALIZER EQUIPMENT SHELTER, REILS, AND PAPI) SHALL BE CONSTRUCTED IN ACCORDANCE WITH FAA SPECIFICATIONS FAA-C-1217f, FAA-C-1391b, AND FAA-STD-019e IN ADDITION TO THE SPECIFICATIONS CONTAINED WITHIN THE CONTRACT DOCUMENTS.
- THE CONTRACTOR SHALL MEASURE THE INSULATION RESISTANCE OF ALL AIRFIELD CIRCUITS PRIOR TO STARTING ANY ELECTRICAL WORK.
- THE CONTRACTOR'S OPTION, NEW CONDUIT PROVIDED UNDER EXISTING PAVEMENT MAY BE INSTALLED BY DIRECTIONAL BORING IN LIEU OF CUTTING AN OPEN TRENCH AS DESCRIBED ABOVE. ALL CONDUIT INSTALLED BY DIRECTIONAL BORING SHALL BE SCHEDULE 40 HDPE. HDPE CONDUIT SHALL NOT BE USED OUTSIDE OF DIRECTIONAL BORING APPLICATIONS. ANY DAMAGE TO EXISTING PAVEMENT FROM BORING OPERATIONS (INCLUDING HEAVING) SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE SPONSOR, AND TO THE APPROVAL OF THE ENGINEER.
- CONDUITS, ELECTRIC LINES, AND DUCT BANKS MARKED FOR REMOVAL ON UTILITY DEMOLITION SHEETS MAY BE ABANDONED IN PLACE IF THEY ARE NOT DISTURBED DURING CONSTRUCTION ACTIVITIES. ANY CONDUIT, ELECTRIC LINES, OR DUCT BANK ENCOUNTERED DURING CONSTRUCTION SHALL BE REMOVED. NO PAYMENT SHALL BE MADE FOR REMOVAL OF CONDUITS, DUCT BANKS, AND ELECTRIC LINES.
- THE CONTRACTOR SHALL REMOVE ALL ABANDONED/UNUSED CONDUCTORS AND CABLES FROM EXISTING CONDUITS IN WHICH NEW CONDUCTORS OR CABLES ARE INSTALLED. NO ABANDONED CONDUCTORS OR CABLES SHALL BE LEFT IN PLACE AT THE COMPLETION OF THE PROJECT. NO PAYMENT WILL BE MADE FOR REMOVAL OF EXISTING CONDUCTORS OR CABLES. ALL REMOVED CONDUCTORS AND CABLES SHALL BE THE PROPERTY OF THE CONTRACTOR.

ISSUED FOR BID		
ZACHARY C. AMBARIANTZ	P.E. 146546	5/15/2026
FOR AND ON BEHALF OF WOOLPERT, INC. TBPE #1001		



ENNIS MUNICIPAL
AIRPORT

DES: A.D.	ISSUE RECORD			
	NO.	BY	DATE	DESCRIPTION
DR: J.K.W.	2	G.S.M.	5/15/2026	ISSUED FOR BIDDING
	3	G.S.M.	9/17/2026	ISSUED FOR ADDENDUM NO. 1
CH: C.L.G.				
APP: G.S.M.				

RUNWAY WIDENING, TAXIWAY
EXTENSION & AIRFIELD ELECTRICAL

ELECTRICAL LEGEND
AND NOTES

STATE PROJ. NO.
TXDOT CSJ NO.:2618ENNIS

WOOLPERT PROJ. NO.
10022171.00.001.01

SHEET NAME

E001

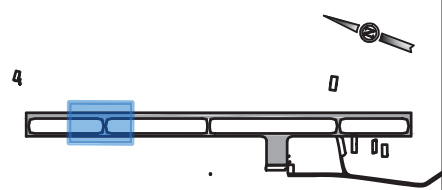
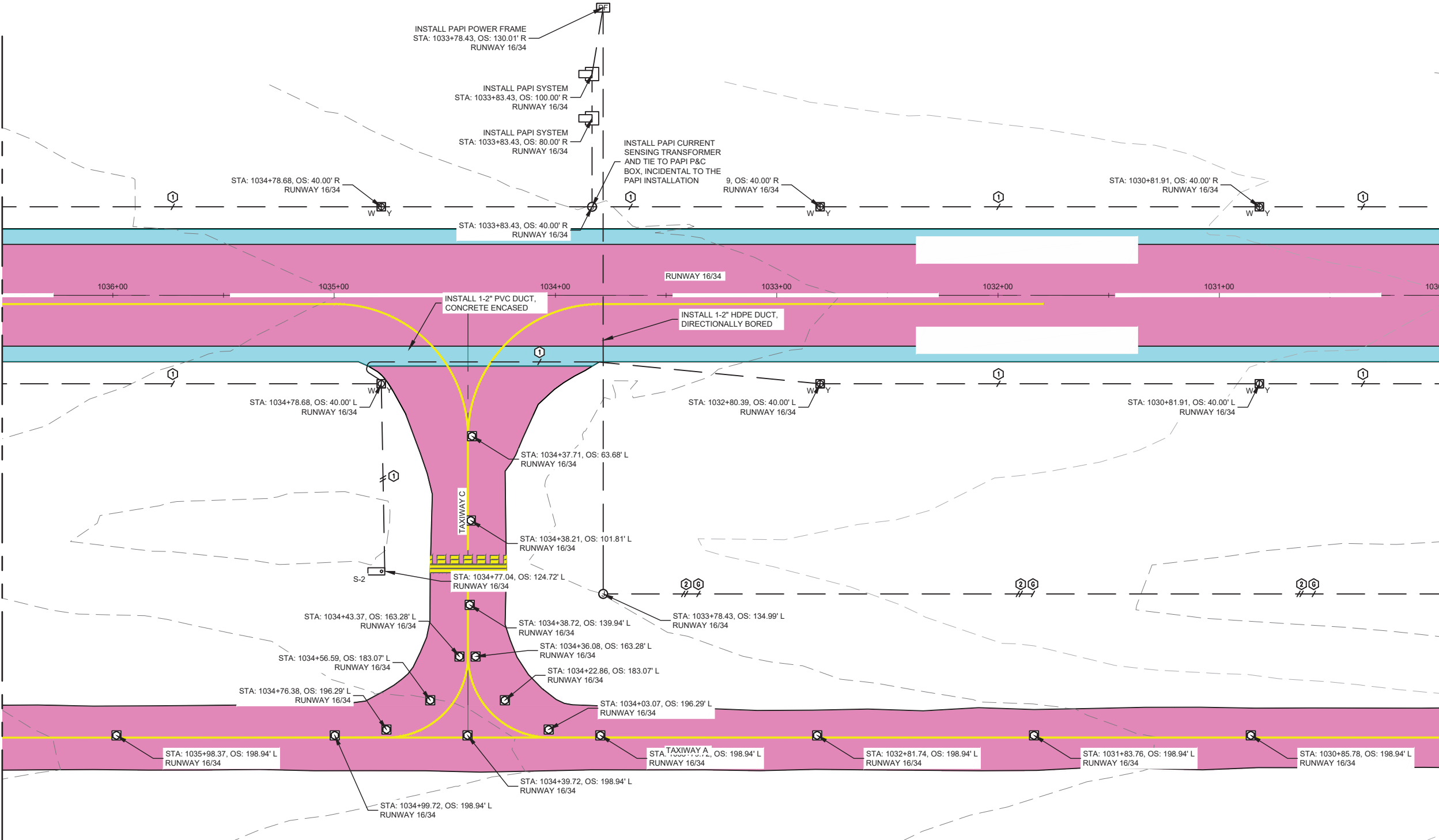
SHEET NO.

93 of 113

Plotted September 17, 2026 @ 6:11 AM by Ambariantz, Zach
C:\P1\2026 Runway Widening, Taxiway Extension, Airfield Electrical\F-CAD\PLANS\1036+50-F41-TXDOT-24-E202-ELEC-CMTY.dwg

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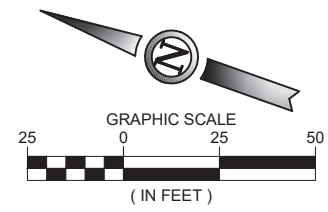
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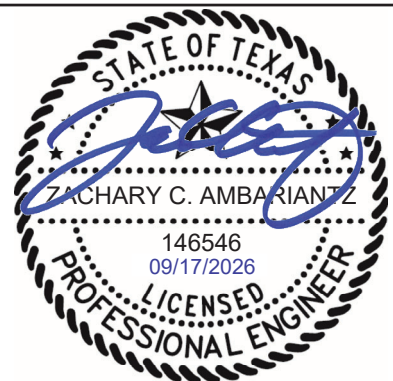
KEY MAP

GENERAL NOTES

1. CONTRACTOR TO USE SURVEY CONTROL POINTS AS SHOWN ON SHEET G006 PROJECT LAYOUT AND SURVEY CONTROL PLAN.
2. ALL LINE CALLOUTS ARE AT EDGE OF ASPHALT UNLESS OTHERWISE NOTED.
3. SEE SHEETS G050 THRU G055 FOR CONSTRUCTION PHASING.
4. SEE SHEETS C221 THRU C222 FOR TYPICAL PAVEMENT SECTIONS.
5. SEE SHEETS C701 THRU C702 FOR PAVEMENT MARKING INFORMATION.
6. SEE SHEET E001 FOR ELECTRICAL LEGEND.
7. SEE SHEETS E201 THRU E207 FOR AIRFIELD LIGHTING LAYOUT.
8. SEE SHEETS E250 THRU E256 FOR ELECTRICAL DETAILS.
9. ANY PAVEMENT DAMAGE DURING CONSTRUCTION OUTSIDE THE PROPOSED PROJECT REMOVAL LIMITS SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER. ALL COSTS ASSOCIATED WITH RECONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
10. CONTRACTOR SHALL LOCATE AND PROTECT ALL EXISTING UTILITIES.



ISSUED FOR BID



ZACHARY C. AMBARIANTZ P.E. 146546 5/15/2026
FOR AND ON BEHALF OF WOOLPERT, INC. TBPE #1001

REISSUE SHEET 3



DES: A.D.	ISSUE RECORD			
	NO.	BY	DATE	DESCRIPTION
DR: J.K.W.	2	G.S.M.	5/15/2026	ISSUED FOR BIDDING
	3	G.S.M.	9/17/2026	ISSUED FOR ADDENDUM NO. 1
CH: C.L.G.				
APP: G.S.M.				

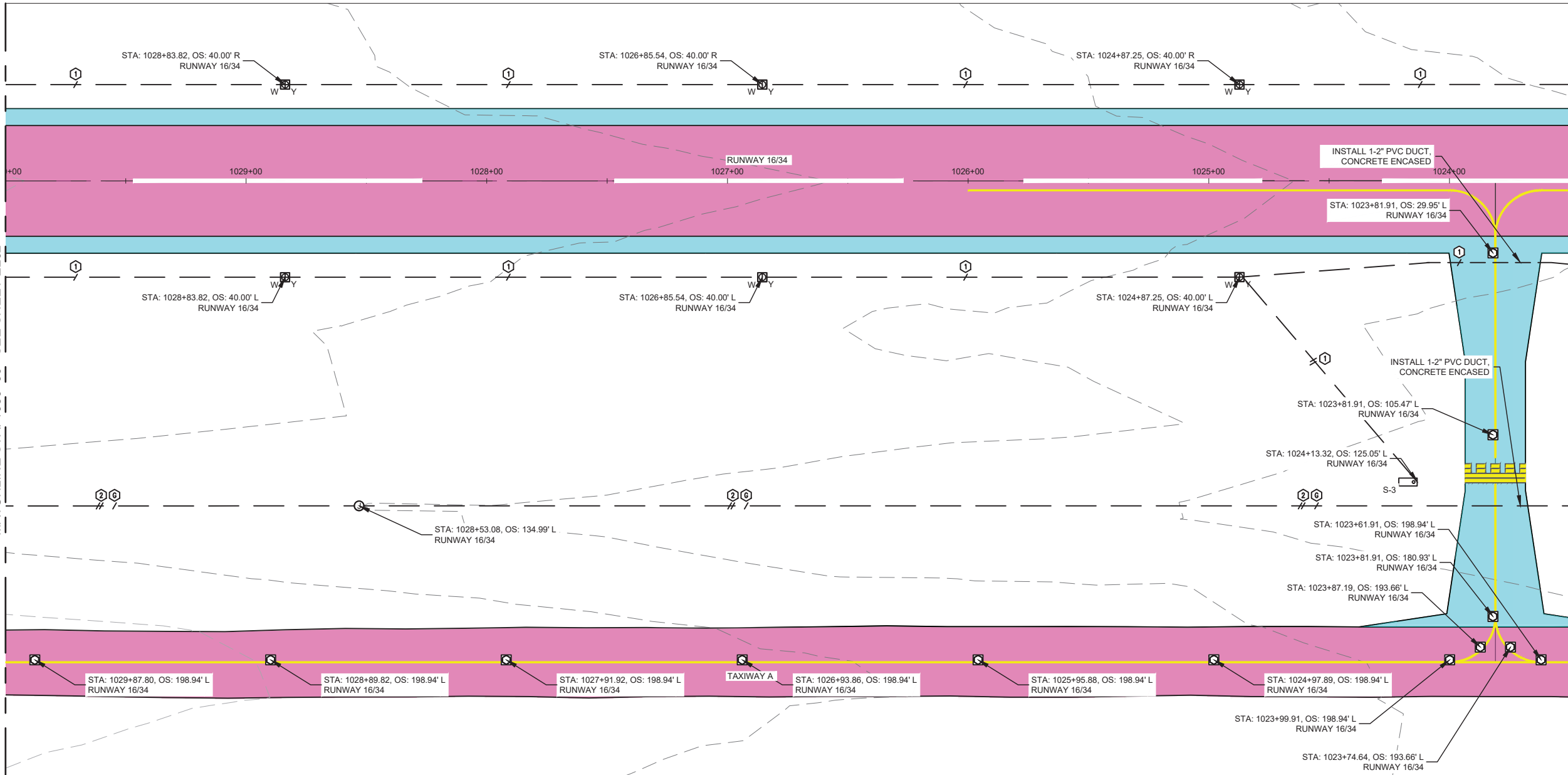
RUNWAY WIDENING, TAXIWAY
EXTENSION & AIRFIELD ELECTRICAL

ELECTRICAL GEOMETRY
STA. 1036+50 TO STA. 1030+00
RUNWAY 16/34
STATE PROJ. NO. TXDOT CSJ NO.: 2618ENNIS
WOOLPERT PROJ. NO. 10022171.00.001.01

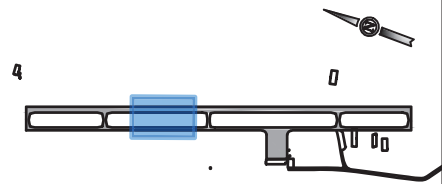
SHEET NAME
E202
SHEET NO.
95 of 113

Plotted September 17, 2026 @ 6:11 AM by Ambariantz, Zach
C:\P1\2026 Runway Widening, Taxiway Extension, Airfield Electrical\F-CAD\PLANS\100-F41-TXDOT-24-E203-ELEC-CMTY.dwg

MATCHLINE STA. 1030+00 - SEE SHEET E202



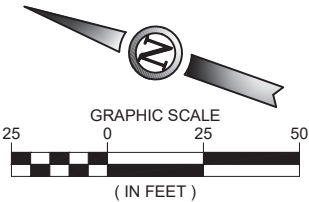
REISSUE SHEET 3



KEY MAP

GENERAL NOTES

1. CONTRACTOR TO USE SURVEY CONTROL POINTS AS SHOWN ON SHEET G006 PROJECT LAYOUT AND SURVEY CONTROL PLAN.
2. ALL LINE CALLOUTS ARE AT EDGE OF ASPHALT UNLESS OTHERWISE NOTED.
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10. CONTRACTOR SHALL LOCATE AND PROTECT ALL EXISTING UTILITIES.



ISSUED FOR BID



ZACHARY C. AMBARIANTZ P.E. 146546 5/15/2026

FOR AND ON BEHALF OF WOOLPERT, INC. TBPE #1001



ENNIS MUNICIPAL
AIRPORT

DES: A.D.	ISSUE RECORD				
	NO.	BY	DATE	DESCRIPTION	
DR: J.K.W.	2	G.S.M.	5/15/2026	ISSUED FOR BIDDING	
	3	G.S.M.	9/17/2026	ISSUED FOR ADDENDUM NO. 1	
CH: C.L.G.					
APP: G.S.M.					

RUNWAY WIDENING, TAXIWAY
EXTENSION & AIRFIELD ELECTRICAL

ELECTRICAL GEOMETRY
STA. 1030+00 TO STA. 1023+50
RUNWAY 16/34

STATE PROJ. NO.
TXDOT CSJ NO.: 2618ENNIS

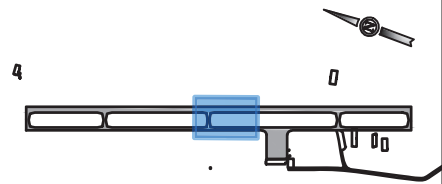
WOOLPERT PROJ. NO.
10022171.00.001.01

SHEET NAME

E203

SHEET NO.

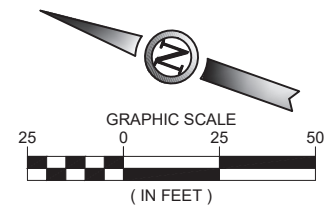
96 of 113



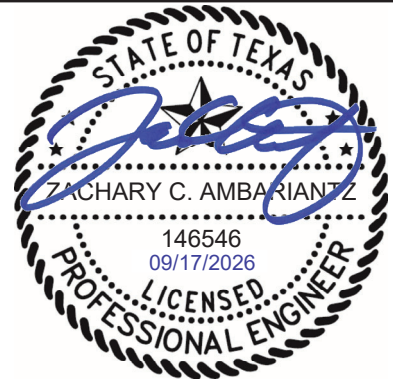
KEY MAP

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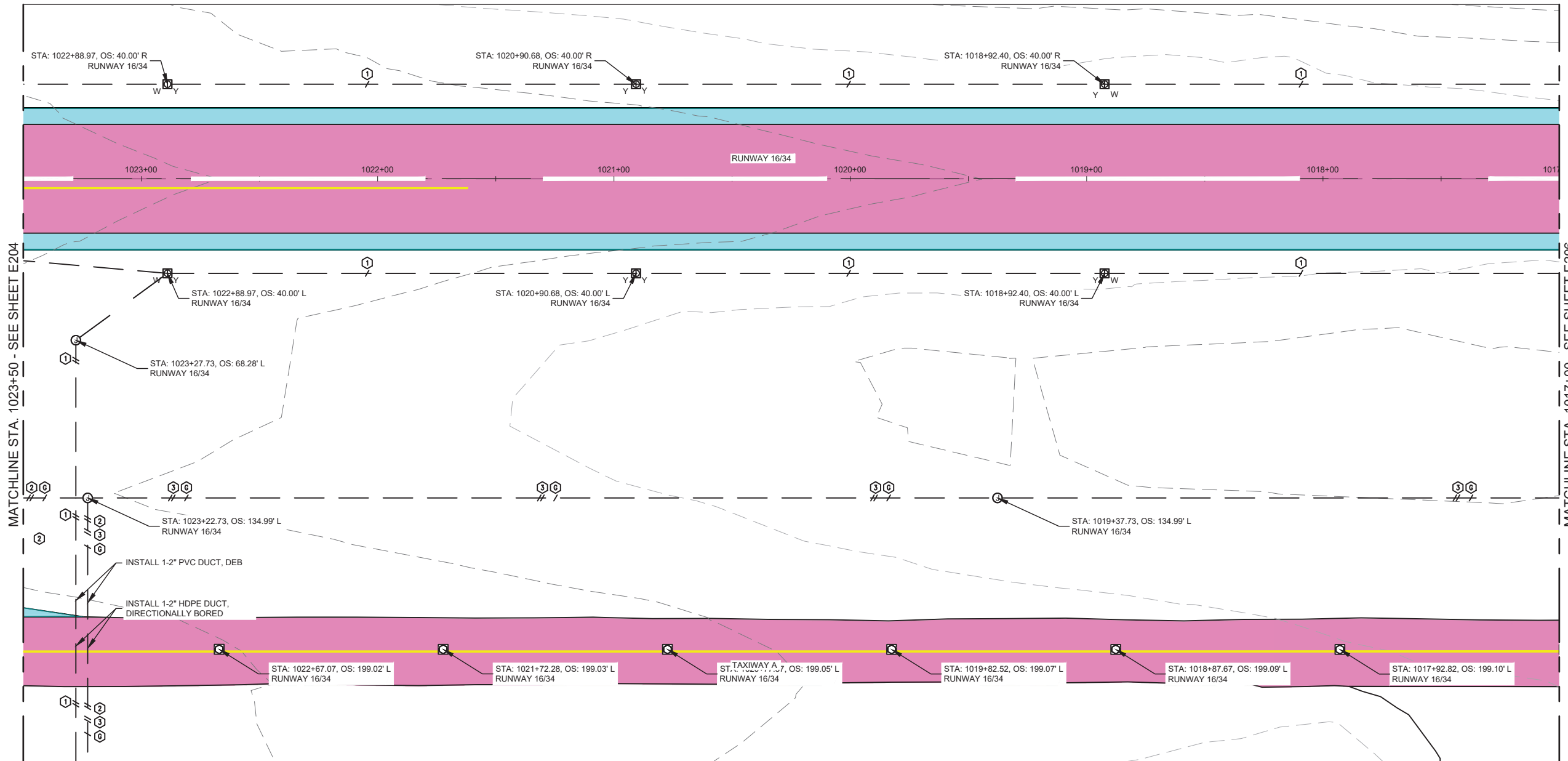


ISSUED FOR BID



ZACHARY C. AMBARIANTZ P.E. 146546 5/15/2026

FOR AND ON BEHALF OF WOOLPERT, INC. TBPE #1001



REISSUE SHEET

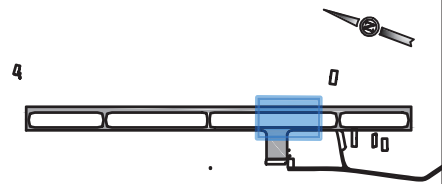
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DES: A.D.	ISSUE RECORD			
	NO.	BY	DATE	DESCRIPTION
DR: J.K.W.	2	G.S.M.	5/15/2026	ISSUED FOR BIDDING
	3	G.S.M.	9/17/2026	ISSUED FOR ADDENDUM NO. 1
CH: C.L.G.				
APP: G.S.M.				

RUNWAY WIDENING, TAXIWAY
EXTENSION & AIRFIELD ELECTRICAL

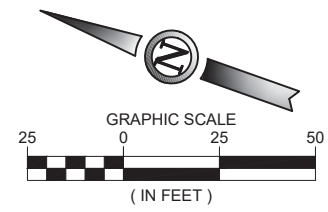
ELECTRICAL GEOMETRY STA. 1023.50 TO STA. 1017+00 RUNWAY 16/34		SHEET NAME E204
STATE PROJ. NO. TXDOT CSJ NO.: 2618ENNIS	WOOLPERT PROJ. NO. 10022171.00.001.01	
		SHEET NO. 97 of 113



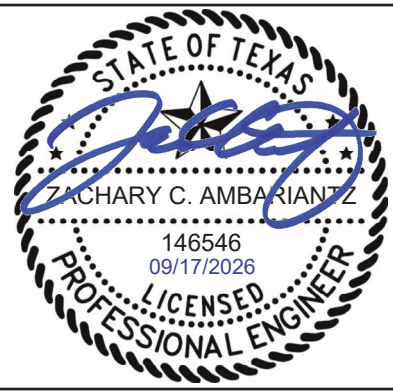
KEY MAP

GENERAL NOTES

1. CONTRACTOR TO USE SURVEY CONTROL POINTS AS SHOWN ON SHEET G006 PROJECT LAYOUT AND SURVEY CONTROL PLAN.
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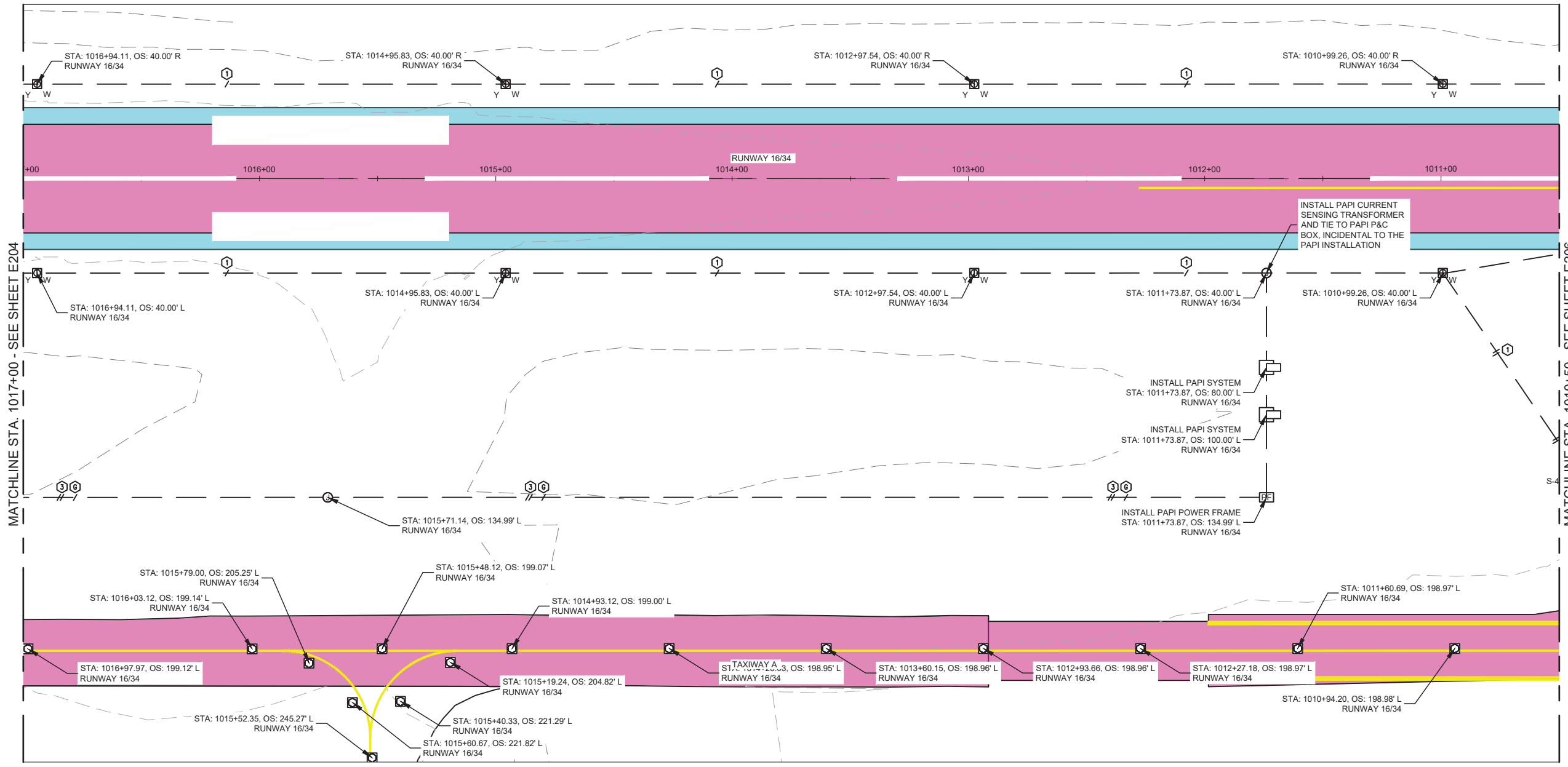


ISSUED FOR BID



ZACHARY C. AMBARIANTZ P.E. 146546 5/15/2026

FOR AND ON BEHALF OF WOOLPERT, INC. TBPE #1001



REISSUE SHEET 3

Plotted September 17, 2026 @ 6:11 AM by Ambariantz, Zach
C:\P1\2026 Runway Widening, Taxiway Extension, Airfield Electrical\F-CAD\PLANS\100-F41-TXDOT-24-E20-ELEC-ENVT.dwg



DES: A.D.	ISSUE RECORD			
	NO.	BY	DATE	DESCRIPTION
DR: J.K.W.	2	G.S.M.	5/15/2026	ISSUED FOR BIDDING
	3	G.S.M.	9/17/2026	ISSUED FOR ADDENDUM NO. 1
CH: C.L.G.				
APP: G.S.M.				

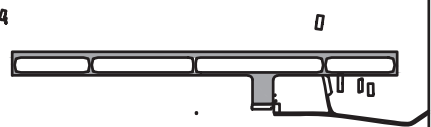
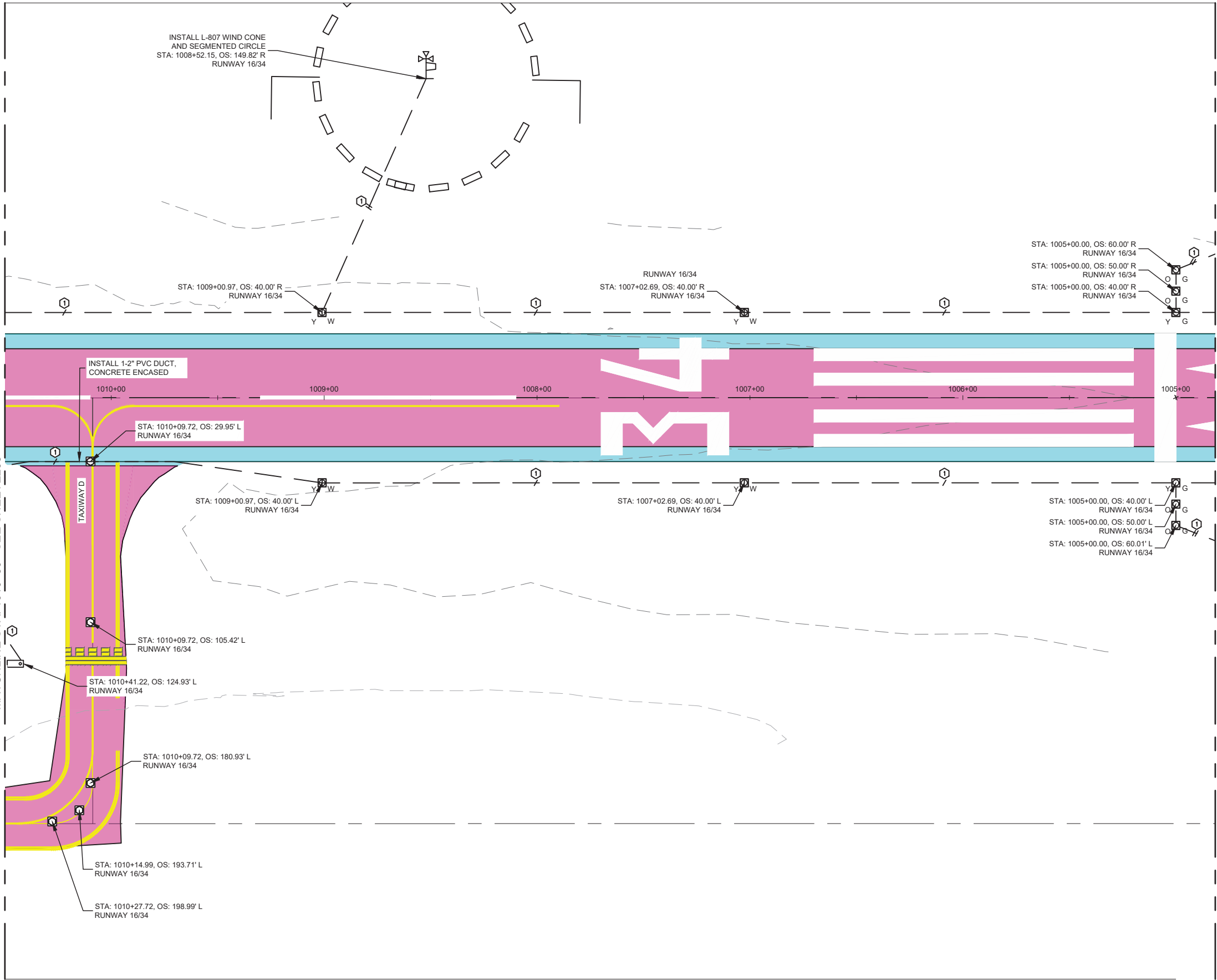
RUNWAY WIDENING, TAXIWAY
EXTENSION & AIRFIELD ELECTRICAL

ELECTRICAL GEOMETRY
STA. 1017+00 TO STA. 1010+50
RUNWAY 16/34

STATE PROJ. NO. TXDOT CSJ NO.: 2618ENNIS
WOOLPERT PROJ. NO. 10022171.00.001.01

SHEET NAME
E205
SHEET NO.
98 of 113

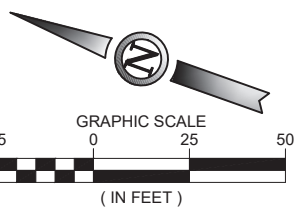
Plotted September 17, 2026 @ 6:11 AM by Ambariantz, Zach
C:\P1\2026 Runway Widening, Taxiway Extension, Airfield Electrical\F-CAD\PLANS\100-F41-TXDOT-24-E206-ELEC-CMNTY.dwg



KEY MAP

GENERAL NOTES

1. CONTRACTOR TO USE SURVEY CONTROL POINTS AS SHOWN ON SHEET G006 PROJECT LAYOUT AND SURVEY CONTROL PLAN.
2. ALL LINE CALLOUTS ARE AT EDGE OF ASPHALT UNLESS OTHERWISE NOTED.
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10. CONTRACTOR SHALL LOCATE AND PROTECT ALL EXISTING UTILITIES.



REISSUE SHEET

ISSUED FOR BID

ZACHARY C. AMBARIANTZ
146546
09/17/2026
LICENSED
PROFESSIONAL ENGINEER

ZACHARY C. AMBARIANTZ P.E. 146546 5/15/2026

FOR AND ON BEHALF OF WOOLPERT, INC. TBPE #1001



DES: A.D.	ISSUE RECORD			
	NO.	BY	DATE	DESCRIPTION
DR: J.K.W.	2	G.S.M.	5/15/2026	ISSUED FOR BIDDING
	3	G.S.M.	9/17/2026	ISSUED FOR ADDENDUM NO. 1
CH: C.L.G.				
APP: G.S.M.				

RUNWAY WIDENING, TAXIWAY
EXTENSION & AIRFIELD ELECTRICAL

ELECTRICAL GEOMETRY
STA. 1010+50 TO STA. 1005+00
RUNWAY 16/34

STATE PROJ. NO.
TXDOT CSJ NO.: 2618ENNIS

WOOLPERT PROJ. NO.
10022171.00.001.01

SHEET NAME
E206

SHEET NO.
99 of 113

Plotted September 17, 2026 @ 6:11 AM by Ambarianz, Zach
C:\P1\2026 Runway Widening, Taxiway Extension, Airfield Electrical\F-CAD\PLANS\1005-F41-TXDOT-24-E207-ELEC-CMTY.dwg



ENNIS MUNICIPAL
AIRPORT

DES: A.D.	ISSUE RECORD				
	NO.	BY	DATE	DESCRIPTION	
DR: J.K.W.	2	G.S.M.	5/15/2026	ISSUED FOR BIDDING	
	3	G.S.M.	9/17/2026	ISSUED FOR ADDENDUM NO. 1	
CH: C.L.G.					
APP: G.S.M.					

RUNWAY WIDENING, TAXIWAY
EXTENSION & AIRFIELD ELECTRICAL

ELECTRICAL GEOMETRY
STA. 1005+00 TO STA. 1002+00
RUNWAY 16/34

STATE PROJ. NO.
TXDOT CSJ NO.: 2618ENNIS

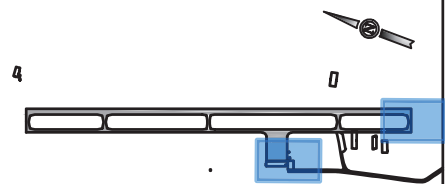
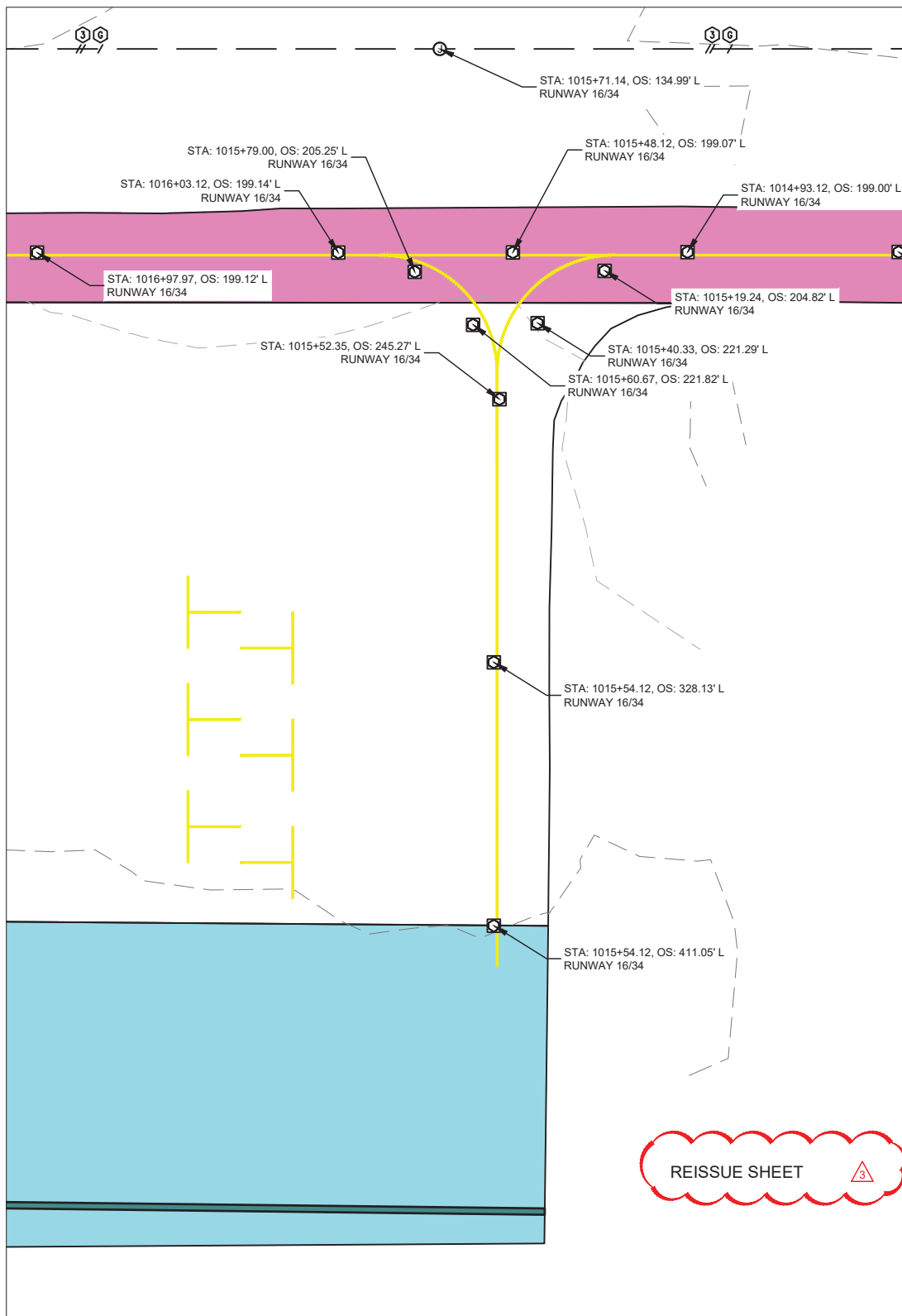
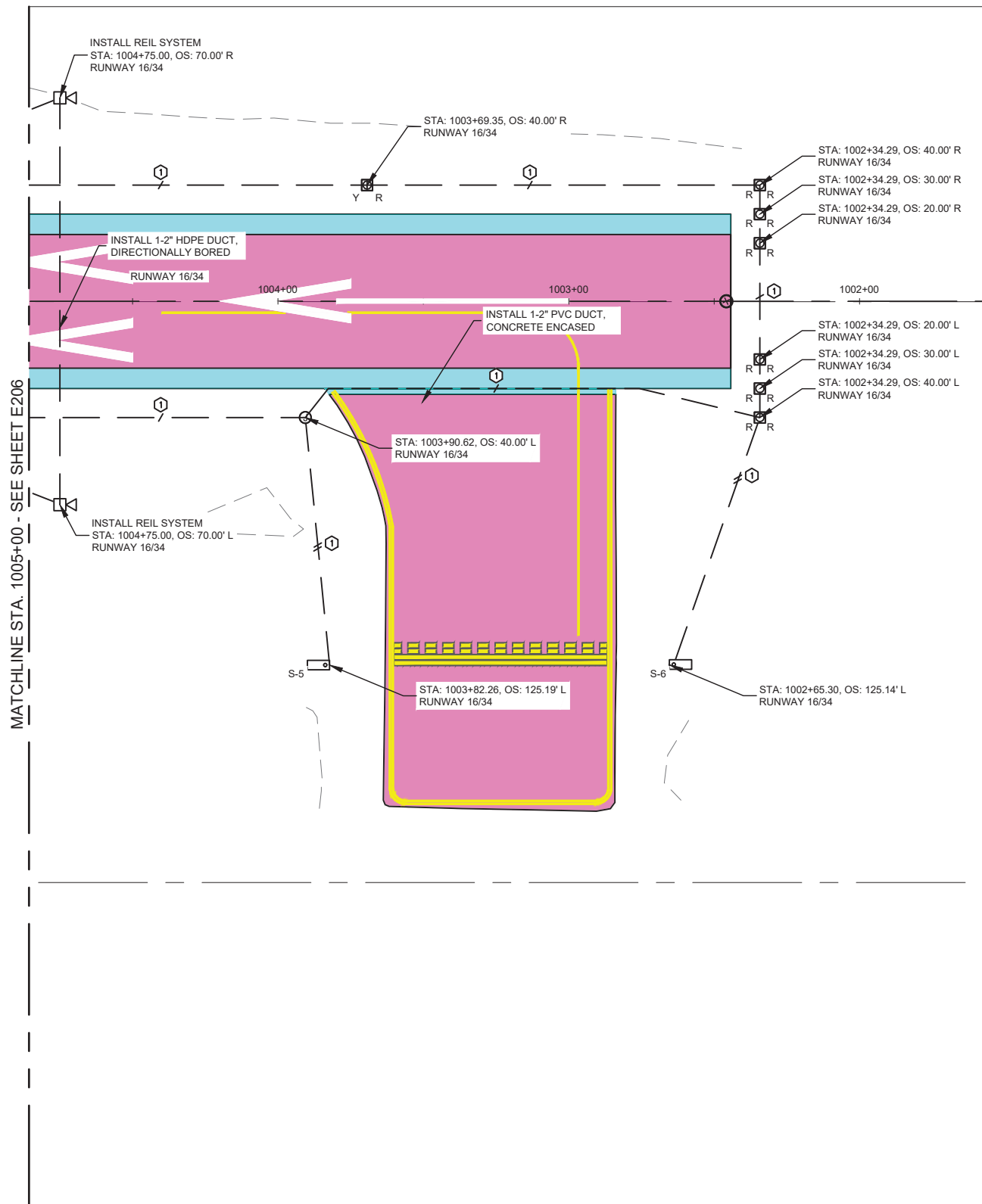
WOOLPERT PROJ. NO.
10022171.00.001.01

SHEET NAME

E207

SHEET NO.

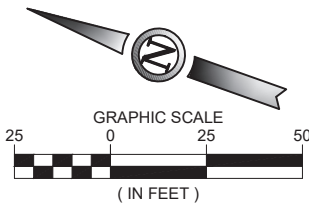
100 of 113



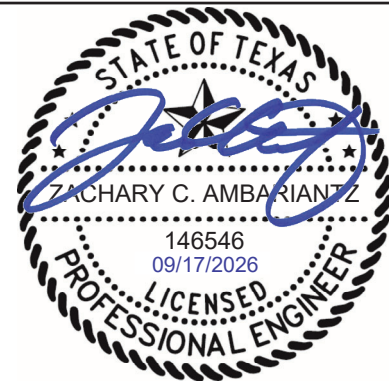
KEY MAP

GENERAL NOTES

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- ALL LINE CALLOUTS ARE AT EDGE OF ASPHALT UNLESS OTHERWISE NOTED.
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- CONTRACTOR SHALL LOCATE AND PROTECT ALL EXISTING UTILITIES.



ISSUED FOR BID



ZACHARY C. AMBARIANTZ P.E. 146546 5/15/2026

FOR AND ON BEHALF OF WOOLPERT, INC. TBPE #1001

Plotted September 17, 2026 @ 6:11 AM by Ambariantz, Zach
C:\P1\2026 Runway Widening, Taxiway Extension, Airfield Electrical\F-CAD\PLANS\100-F41-TXDOT-24-E208-ELEC-CMTY.dwg

MATCHLINE STA. X+XX - SEE SHEETE205

MATCHLINE STA. X+XX - SEE SHEETE207

STA: 1023+22.73, OS: 260.79' L
RUNWAY 16/34
STA: 1023+27.73, OS: 260.79' L
RUNWAY 16/34

INSTALL 1-2" PVC DUCT, DEB

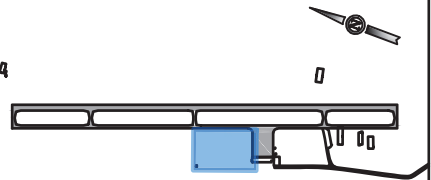
INSTALL 1-2" PVC DUCT, DEB

TAXIWAY D

STA: 1023+27.73, OS: 596.92' L
RUNWAY 16/34
STA: 1023+22.73, OS: 596.92' L
RUNWAY 16/34
INSTALL L-801A BEACON
ON NEW TIPDOWN POLE
STA: 1022+94.04, OS: 604.77' L
RUNWAY 16/34

STA: 1023+25.22, OS: 604.99' L
RUNWAY 16/34

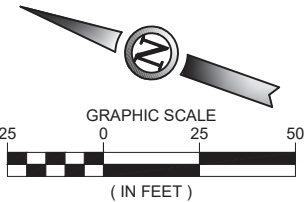
INSTALL PREFABRICATED
AIRFIELD VAULT BUILDING



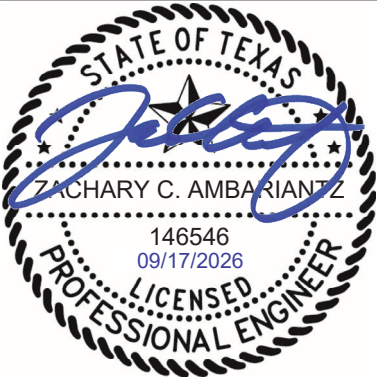
KEY MAP

GENERAL NOTES

- CONTRACTOR TO USE SURVEY CONTROL POINTS AS SHOWN ON SHEET G006 PROJECT LAYOUT AND SURVEY CONTROL PLAN.
- ALL LINE CALLOUTS ARE AT EDGE OF ASPHALT UNLESS OTHERWISE NOTED.
- SEE SHEETS G050 THRU G055 FOR CONSTRUCTION PHASING.
- SEE SHEETS C221 THRU C222 FOR TYPICAL PAVEMENT SECTIONS.
- SEE SHEETS C701 THRU C702 FOR PAVEMENT MARKING INFORMATION.
- SEE SHEET E001 FOR ELECTRICAL LEGEND.
- SEE SHEETS E201 THRU E207 FOR AIRFIELD LIGHTING LAYOUT.
- SEE SHEETS E250 THRU E256 FOR ELECTRICAL DETAILS.
- ANY PAVEMENT DAMAGE DURING CONSTRUCTION OUTSIDE THE PROPOSED PROJECT REMOVAL LIMITS SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER. ALL COSTS ASSOCIATED WITH RECONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- CONTRACTOR SHALL LOCATE AND PROTECT ALL EXISTING UTILITIES.



ISSUED FOR BID



ZACHARY C. AMBARIANTZ P.E. 146546 5/15/2026

FOR AND ON BEHALF OF WOOLPERT, INC. TBPE #1001

ISSUE NEW SHEET

3



ENNIS MUNICIPAL
AIRPORT

DES: A.D.	ISSUE RECORD			
	NO.	BY	DATE	DESCRIPTION
DR: J.K.W.	2	G.S.M.	5/15/2026	ISSUED FOR BIDDING
	3	G.S.M.	9/17/2026	ISSUED FOR ADDENDUM NO. 1
CH: C.L.G.				
APP: G.S.M.				

RUNWAY WIDENING, TAXIWAY
EXTENSION & AIRFIELD ELECTRICAL

ELECTRICAL GEOMETRY
AIRFIELD VAULT BUILDING

STATE PROJ. NO.
TXDOT CSJ NO.:2618ENNIS

WOOLPERT PROJ. NO.
10022171.00.001.01

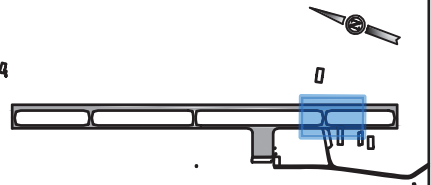
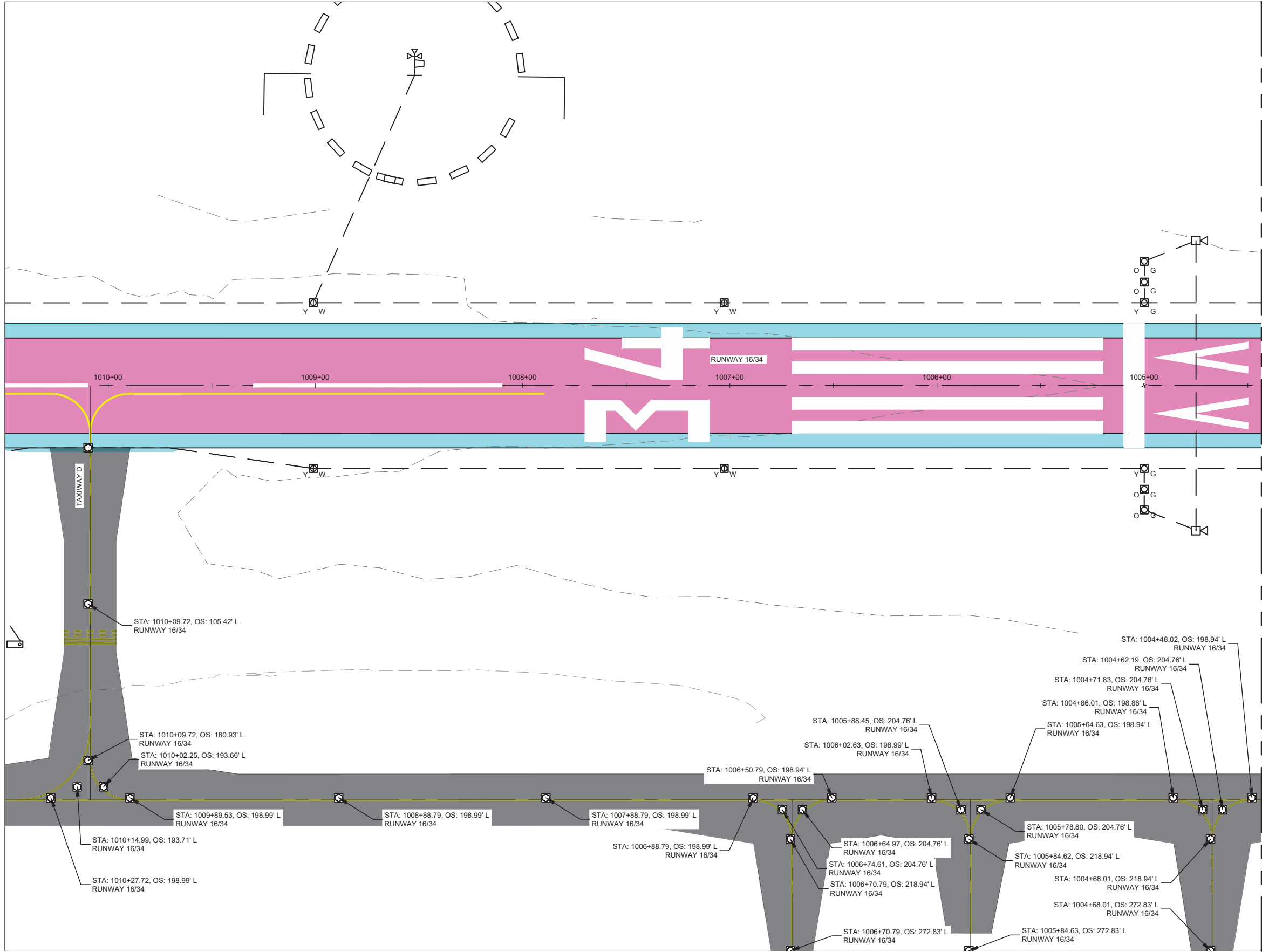
SHEET NAME

E208

SHEET NO.

101 of 113

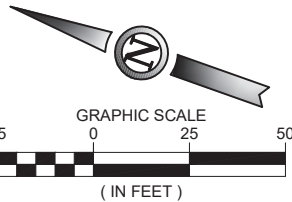
Plotted September 17, 2026 @ 6:12 AM by Ambariantz, Zach
C:\P1\2026 Runway Widening, Taxiway Extension, Airfield Electrical\F-CAD\PLANS\100-F41-TXDOT-24-E209-ELEC-CMTY.dwg



KEY MAP

GENERAL NOTES

1. CONTRACTOR TO USE SURVEY CONTROL POINTS AS SHOWN ON SHEET G006 PROJECT LAYOUT AND SURVEY CONTROL PLAN.
2. ALL LINE CALLOUTS ARE AT EDGE OF ASPHALT UNLESS OTHERWISE NOTED.
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4. SEE SHEETS C221 THRU C222 FOR TYPICAL PAVEMENT SECTIONS.
5. SEE SHEETS C701 THRU C702 FOR PAVEMENT MARKING INFORMATION.
6. SEE SHEET E001 FOR ELECTRICAL LEGEND.
7. SEE SHEETS E201 THRU E207 FOR AIRFIELD LIGHTING LAYOUT.
8. SEE SHEETS E250 THRU E256 FOR ELECTRICAL DETAILS.
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10. CONTRACTOR SHALL LOCATE AND PROTECT ALL EXISTING UTILITIES.



ISSUED FOR BID

ZACHARY C. AMBARIANTZ P.E. 146546 5/15/2026

FOR AND ON BEHALF OF WOOLPERT, INC. TBPE #1001



ENNIS MUNICIPAL
AIRPORT

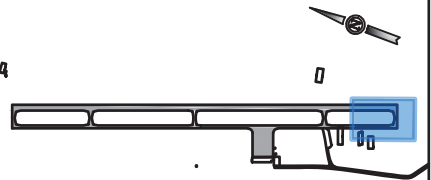
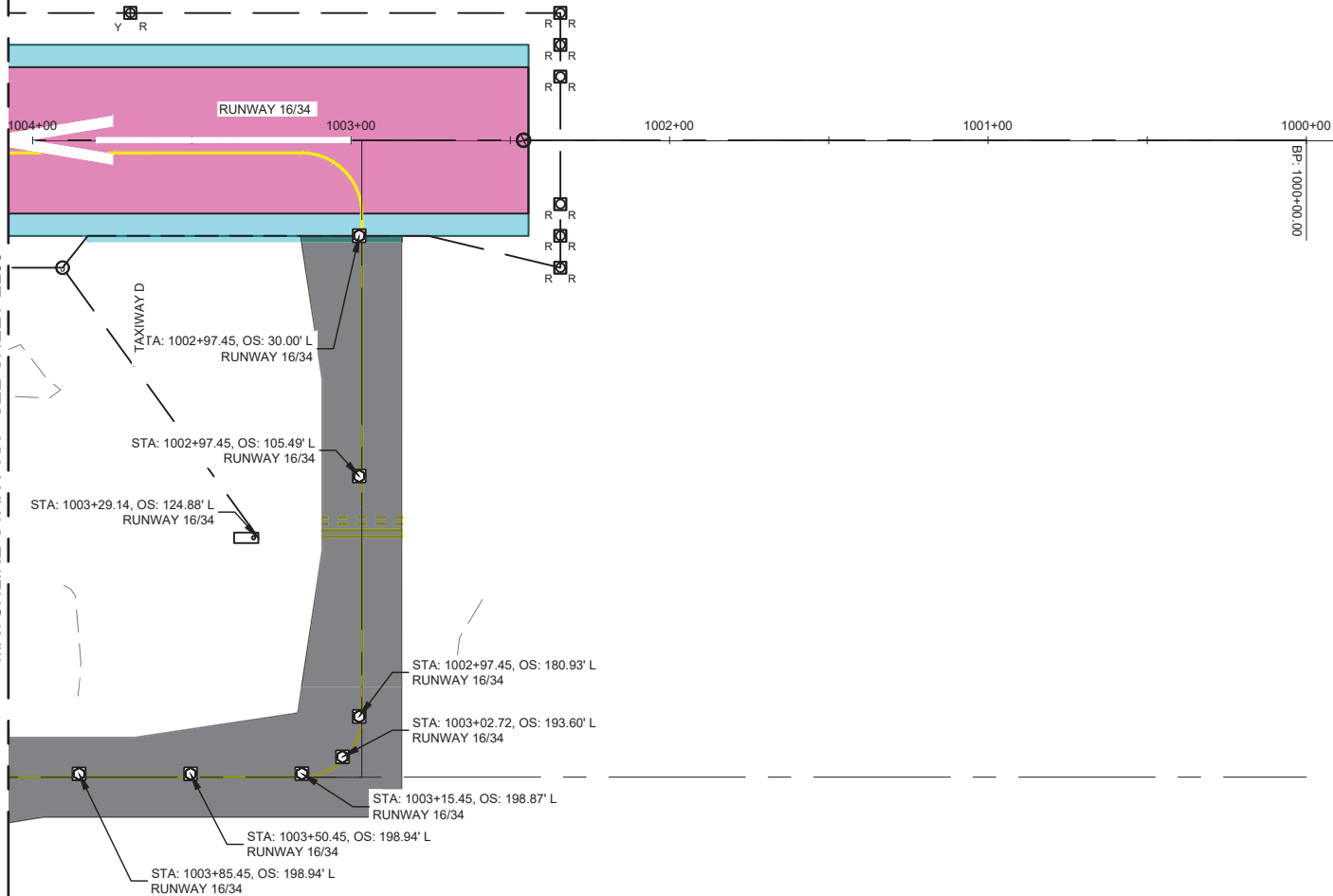
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	NO.	BY	DATE	DESCRIPTION
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CH: C.L.G.				
APP: G.S.M.				

RUNWAY WIDENING, TAXIWAY
EXTENSION & AIRFIELD ELECTRICAL

ELECTRICAL GEOMETRY STA. 1010+50 TO STA. 1005+00 RUNWAY 16/34 ADDITIVE BID ALTERNATE 1		SHEET NAME E209	
STATE PROJ. NO. TXDOT CSJ NO.: 2618ENNIS		SHEET NO. 102 of 113	
WOOLPERT PROJ. NO. 10022171.00.001.01			

Plotted September 17, 2026 @ 6:12 AM by: Ambarianitz, Zach
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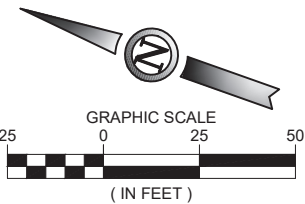
MATCHLINE STA. X+XX - SEE SHEET E209



KEY MAP

GENERAL NOTES

1. CONTRACTOR TO USE SURVEY CONTROL POINTS AS SHOWN ON SHEET G006 PROJECT LAYOUT AND SURVEY CONTROL PLAN.
2. ALL LINE CALLOUTS ARE AT EDGE OF ASPHALT UNLESS OTHERWISE NOTED.
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4. SEE SHEETS C221 THRU C222 FOR TYPICAL PAVEMENT SECTIONS.
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8. SEE SHEETS E250 THRU E256 FOR ELECTRICAL DETAILS.
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10. CONTRACTOR SHALL LOCATE AND PROTECT ALL EXISTING UTILITIES.



ISSUE NEW SHEET 3

ISSUED FOR BID

ZACHARY C. AMBARIANTZ
146546
09/17/2026
LICENSED
PROFESSIONAL ENGINEER

ZACHARY C. AMBARIANTZ	P.E. 146546	5/15/2026
FOR AND ON BEHALF OF WOOLPERT, INC. TBPE #1001		



ENNIS MUNICIPAL
AIRPORT

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APP: G.S.M.				

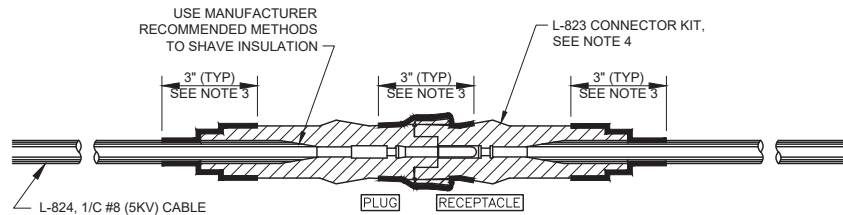
RUNWAY WIDENING, TAXIWAY
EXTENSION & AIRFIELD ELECTRICAL

ELECTRICAL GEOMETRY
STA. 1005+00 TO STA. 1002+00
RUNWAY 6/24
ADDITIVE BID ALTERNATE 1

STATE PROJ. NO.
TXDOT CSJ NO.: 2618ENNIS

WOOLPERT PROJ. NO.
10022171.00.001.01

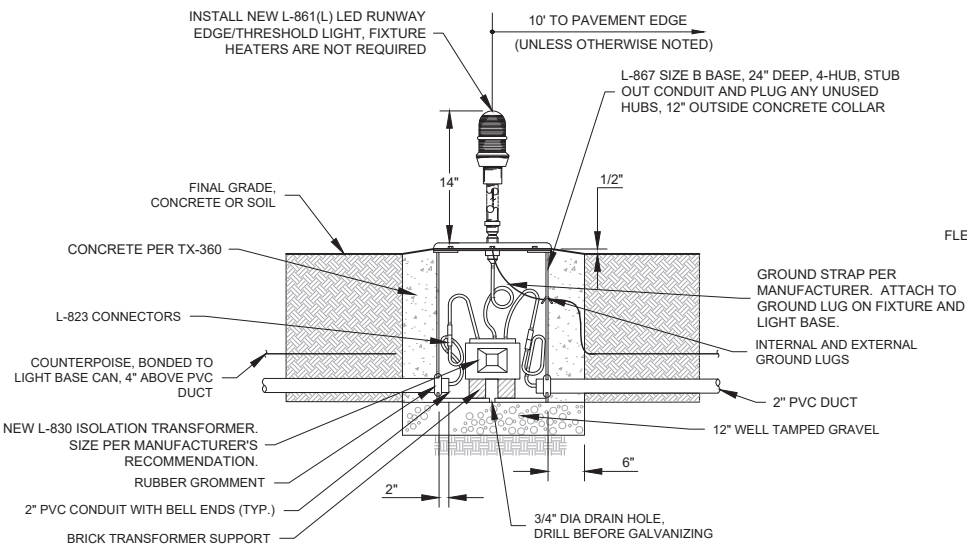
SHEET NAME
E210
SHEET NO.
103 of 113



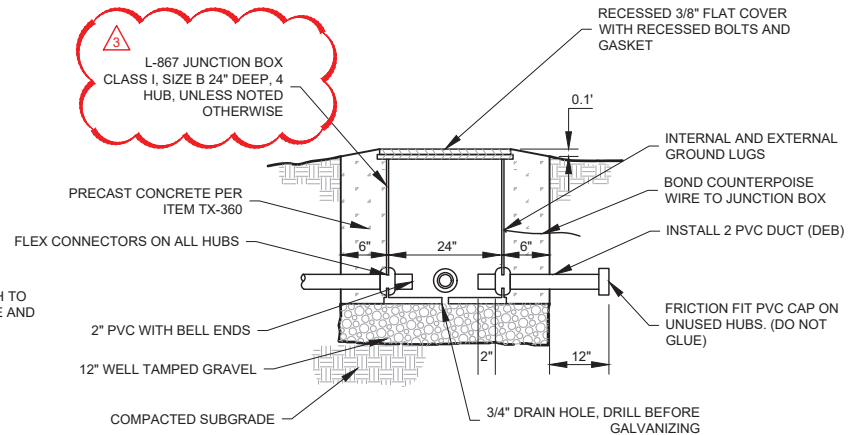
NOTES:

1. THE CABLE SHALL BE THOROUGHLY CLEANED PRIOR TO THE INSTALLATION OF THE L-823 CONNECTOR KIT.
2. INSTALLATION OF THE PIN/RECEPTACLE SHALL BE COMPLETED WITH "CRIMPING" TOOL SUPPLIED OR RECOMMENDED BY THE MANUFACTURER AND DESIGNED FOR THIS SPECIFIC PURPOSE.
3. ALL FIELD MADE JOINTS SHALL BE WRAPPED WITH 3" OF RUBBER TAPE AND HELD IN PLACE WITH VINYL TAPE, 1 1/2" ON EACH SIDE OF JOINT AND HALF LAPPED.
4. PROVIDE CONNECTOR KITS THAT INCLUDE AN INTEGRAL FLAP/BOOT TO SEAL THE JOINT BETWEEN THE PLUG AND RECEPTACLE. WRAP JOINT WITH VINYL TAPE.
5. CONTRACTOR SHALL REMOVE AMERACE CABLE SPREADER PRIOR TO INSTALLATION OF CABLE TO CONNECTOR.
6. SPLICE THE RETURN CONDUCTOR IF IN SAME CONDUIT WITH THE SUPPLY CONDUCTOR AT EVERY TENTH FIXTURE LOCATION. CONTRACTOR SHALL SPLICE ONLY WHEN REQUIRED. LOCATIONS OF RETURN SPLICE ARE TO BE AS-BUILT. RETURN CONDUCTOR SHALL PASS STRAIGHT THROUGH CANS (WITHOUT SLACK) AT LOCATIONS WHERE RETURN CONDUCTOR IS NOT SPLICED.

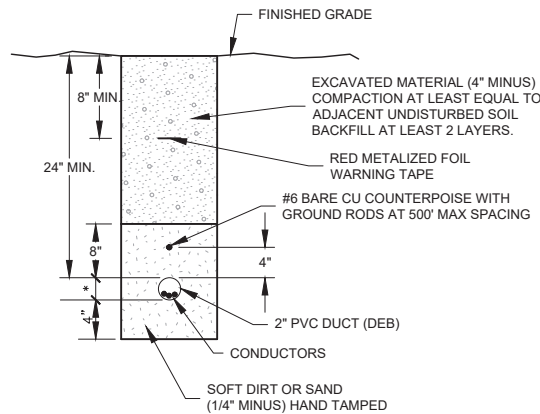
1 TYPICAL L-824 (5KV) CABLE CONNECTOR DETAIL
N.T.S.



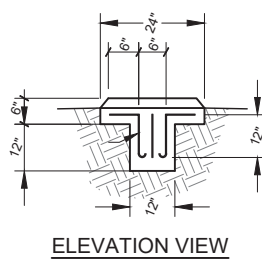
2 BASE MOUNTED RUNWAY/TAXIWAY LIGHT
N.T.S.



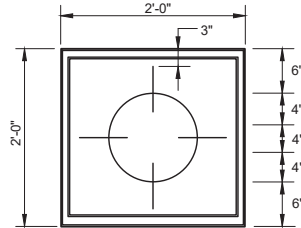
3 JUNCTION BOX DETAIL
N.T.S.



4 DUCT TRENCH (DEB) DETAIL
N.T.S.



ELEVATION VIEW



TOP VIEW

5 DUCT MARKER DETAIL
N.T.S.

ISSUE NEW SHEET

ISSUED FOR BID

STATE OF TEXAS

ZACHARY C. AMBARIANTZ

146546

09/17/2026

PROFESSIONAL ENGINEER

ZACHARY C. AMBARIANTZ P.E. 146546 5/15/2026

FOR AND ON BEHALF OF WOOLPERT, INC. TBPE #1001



ENNIS MUNICIPAL
AIRPORT

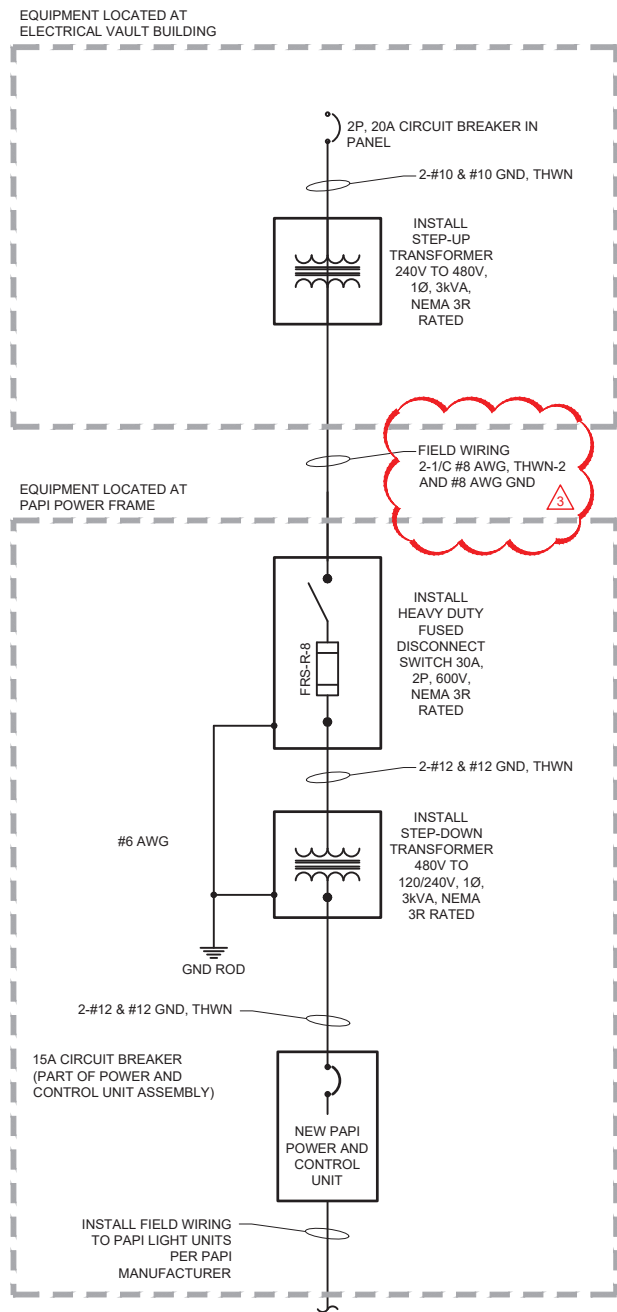
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CH: C.L.G.				
APP: G.S.M.				

RUNWAY WIDENING, TAXIWAY
EXTENSION & AIRFIELD ELECTRICAL

ELECTRICAL DETAILS
AND NOTES

STATE PROJ. NO. TXDOT CSJ NO.:2618ENNIS	WOOLPERT PROJ. NO. 10022171.00.001.01	SHEET NAME E250
		SHEET NO. 104 of 113

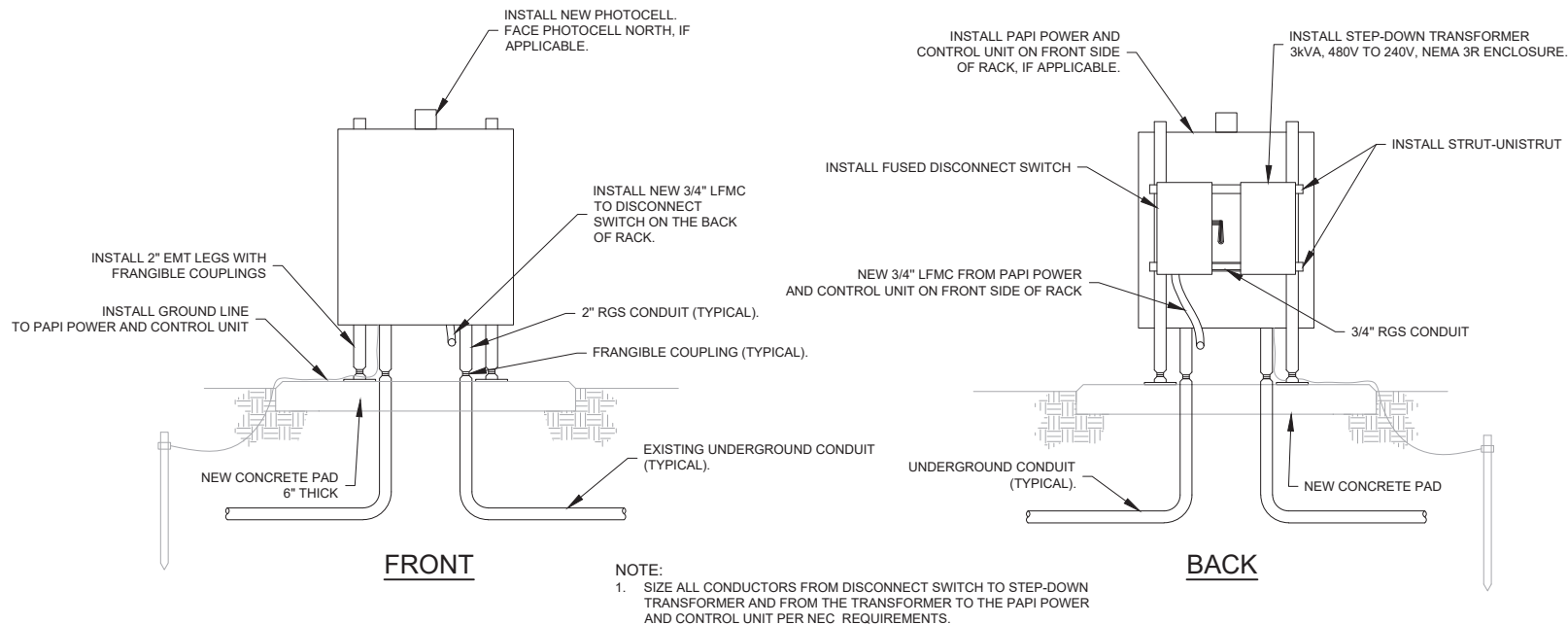
Plotted September 17, 2026 @ 6:12 AM by Ambariantz, Zach
C:\P1\2026 Runway Widening, Taxiway Extension, Airfield Electrical\F-CAD\PLANS\100-F4-1-TXDOT-24-E253-ELEC-DET.dwg



1 PAPI ONE-LINE DIAGRAM, RW 16 AND RW 34

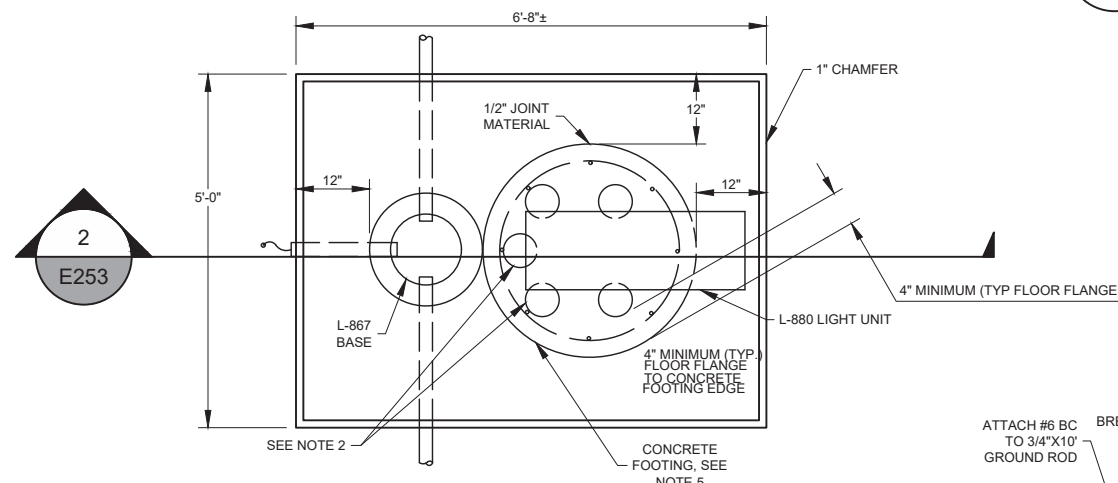
N.T.S

- NOTE:
1. WIRING IN AIRFIELD ELECTRICAL VAULT TO TRANSFORMER AND WIRING ON LOAD SIDE OF THE FUSED DISCONNECT SWITCH SHALL BE CONSIDERED INCIDENTAL TO THE PAPI INSTALLATION.



3 PAPI POWER EQUIPMENT RACK DETAIL

N.T.S

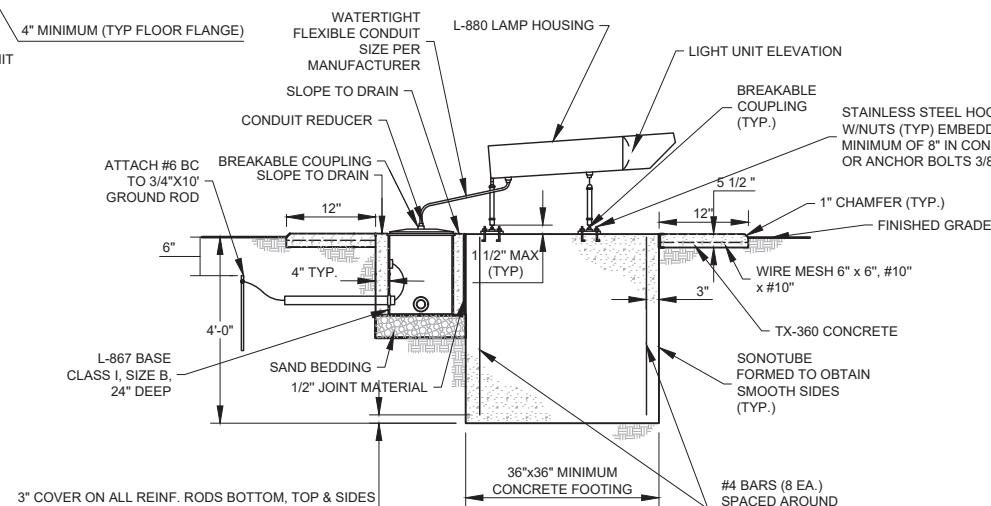


1 PLAN VIEW - PAPI LIGHT UNIT DETAIL

N.T.S

NOTES:

1. PROVIDE FRANGIBLE MOUNTS FOR ALL LEGS OF LIGHT UNITS AND POWER ADAPTERS.
2. NUMBER AND CONFIGURATION OF LEGS PER MANUFACTURER.
3. INSTALL 90P/90R CONNECTORS FOR CABLES ENTERING/LEAVING THE POWER AND CONTROL UNIT AND THE LIGHT UNITS.
4. GROUND EACH LAMP HOUSING AND POWER ADAPTER PER MANUFACTURER.
5. CONTRACTOR MAY MAKE THE CONCRETE FOOTING ROUND OR SQUARE.
6. APPLY "NEVER SEEZ" OR APPROVED EQUAL TO ALL THREAD BOLTS AND FRANGIBLE CONNECTIONS.
7. SEE ITEM L-125 OF THE SPECIFICATIONS FOR INSTALLATION TOLERANCES.



2 SECTION VIEW - PAPI LIGHT UNIT DETAIL

N.T.S

ISSUED FOR BID



ZACHARY C. AMBARIANTZ P.E. 146546 5/15/2026

FOR AND ON BEHALF OF WOOLPERT, INC. TBPE #1001



ENNIS MUNICIPAL
AIRPORT

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RUNWAY WIDENING, TAXIWAY
EXTENSION & AIRFIELD ELECTRICAL

ELECTRICAL DETAILS
AND NOTES

STATE PROJ. NO.
TXDOT CSJ NO.: 2618ENNIS

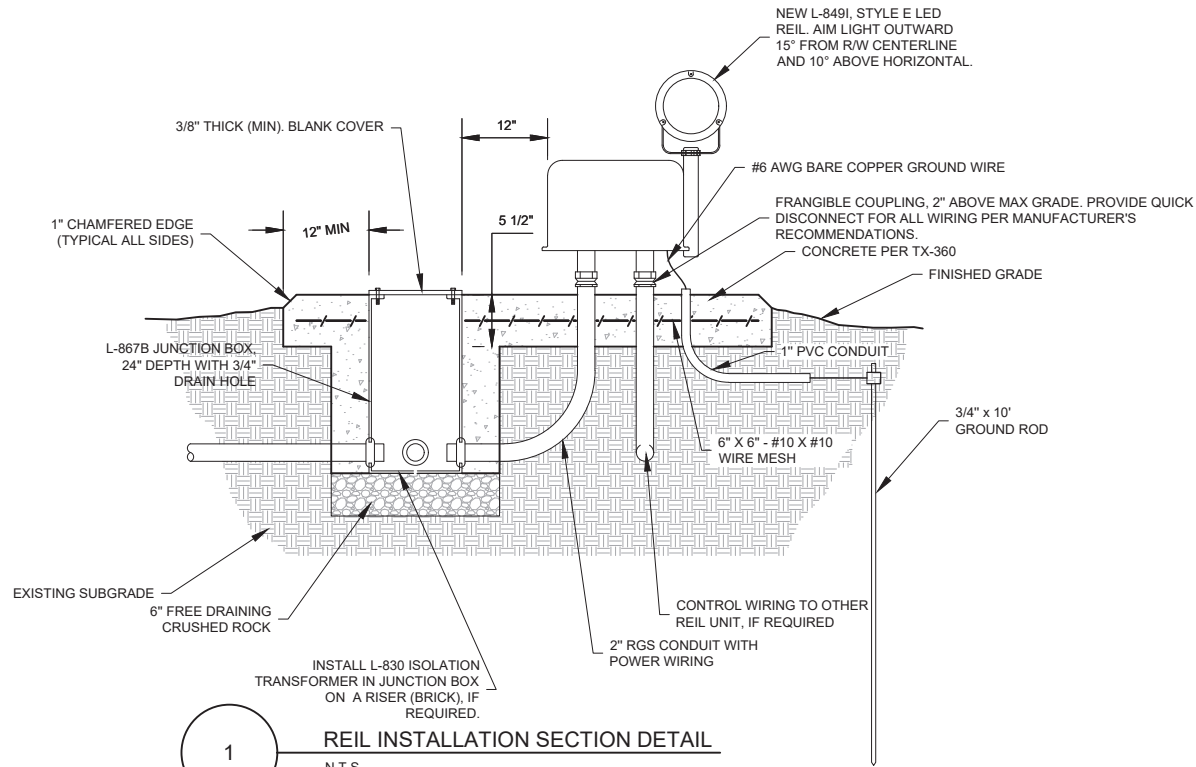
WOOLPERT PROJ. NO.
10022171.00.001.01

SHEET NAME

E253

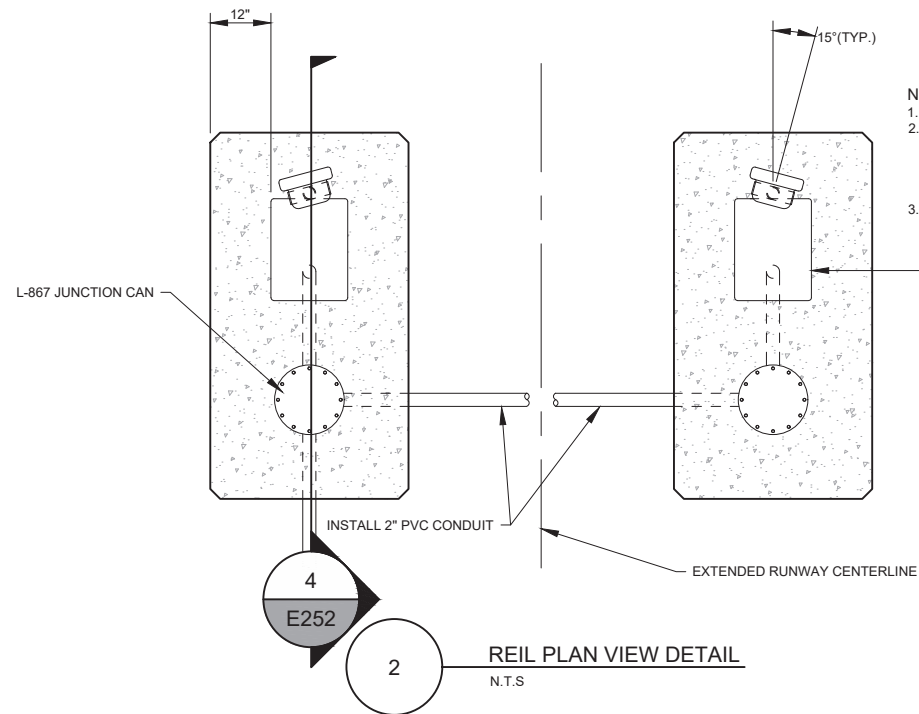
SHEET NO.

107 of 113



NOTES:

- POWER AND CONTROL WIRING FOR THE REIL SYSTEM SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS. ALL WIRE BETWEEN UNITS SHALL BE CONSIDERED INCIDENTAL TO THE REIL INSTALLATION.
- CONDUIT BETWEEN UNITS SHALL BE CONSIDERED INCIDENTAL TO THE REIL INSTALLATION.



NOTES:

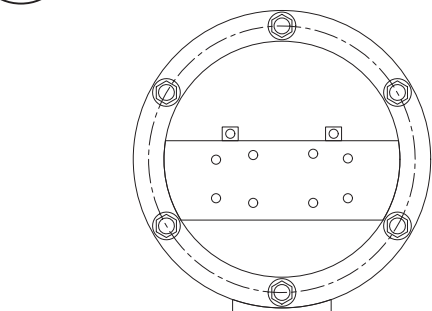
- INSTALL REIL UNITS 40' FROM RUNWAY THRESHOLD.
- POWER AND CONTROL WIRING FOR THE REIL SYSTEM SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS. ALL WIRE SHALL BE CONSIDERED INCIDENTAL TO THE REIL INSTALLATION.
- CONDUIT SHALL BE CONSIDERED INCIDENTAL TO THE REIL INSTALLATION.

APPROXIMATELY 50'-0"



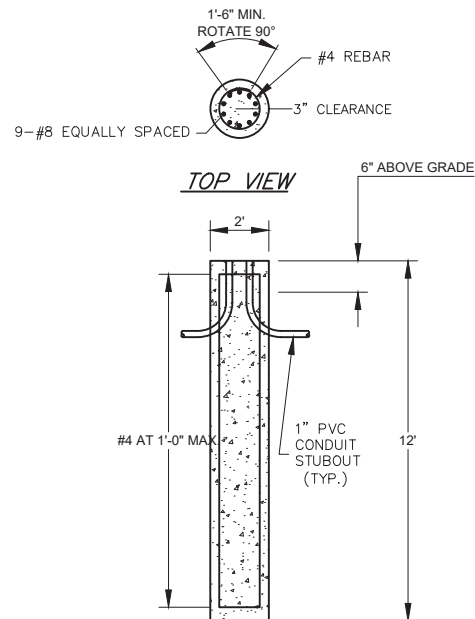
INSTALL NEW L-801A ROTATING BEACON ON NEW POLE. HALI-BRITE, 120V, 60HZ, CLASS 1 OR APPROVED EQUAL. PROVIDE WITH TOWER MOUNTING KIT, OBSTRUCTION LIGHT AND LIGHTNING PROTECTION.

INSTALL TIPDOWN BEACON POLE, HALI-BRITE 8000-50TP OR APPROVED EQUAL. PAINT AVIATION ORANGE AND WHITE.



NOTES:

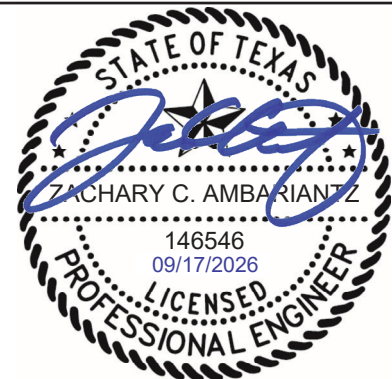
- CONTRACTOR SHALL SUBMIT POLE FOUNDATION DRAWINGS STAMPED BY A PROFESSIONAL STRUCTURAL ENGINEER FOR APPROVAL BY THE ENGINEER.
- CONTRACTOR TO COORDINATE WITH THE AIRPORT/ENGINEER THE FOLLOWING:
 - ORIENTATION OF THE TIPDOWN POLE.
 - ONCE THE ORIENTATION HAS BEEN DETERMINED, CONTRACTOR TO VERIFY LOCATION WHERE BEACON WILL BE ACCESSED ON THE GROUND. AT THIS LOCATION THE CONTRACTOR IS TO PROVIDE A 10'x10' GRAVEL PLATFORM. GRAVEL PLATFORM INCIDENTAL TO PAY ITEM L-103b.



NOTE:

- CONTRACTOR SHALL PROVIDE STRUCTURAL DESIGN FOR THE FOUNDATION, STAMPED BY A REGISTERED TEXAS STRUCTURAL ENGINEER. AT THE MINIMUM THE DESIGN SHALL INCLUDE: STRUCTURE DIMENSIONS, REINFORCEMENT, AND BOLT LAYOUT.
- DIMENSIONS IN THIS DETAIL ARE APPROXIMATE. ALL DIMENSIONS SHALL BE VERIFIED BY A REGISTERED TEXAS STRUCTURAL ENGINEER

ISSUED FOR BID



ZACHARY C. AMBARIANTZ P.E. 146546 5/15/2026

FOR AND ON BEHALF OF WOOLPERT, INC. TBPE #1001



ENNIS MUNICIPAL AIRPORT

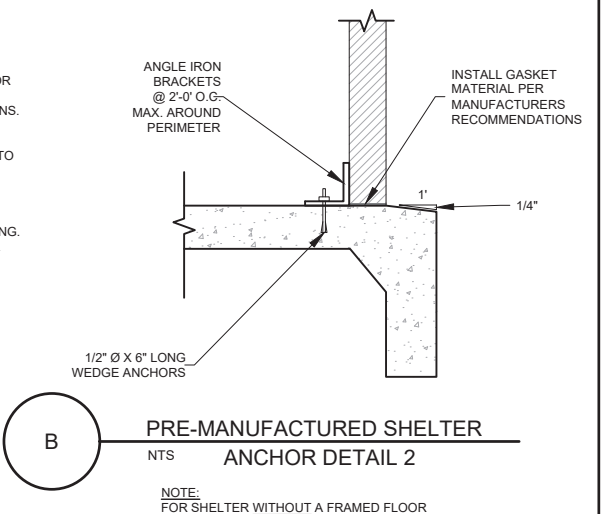
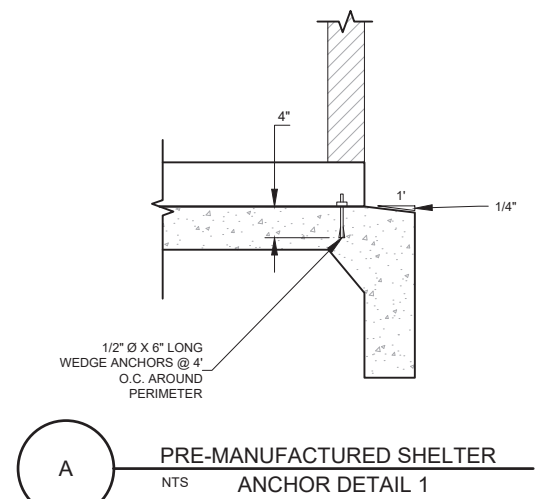
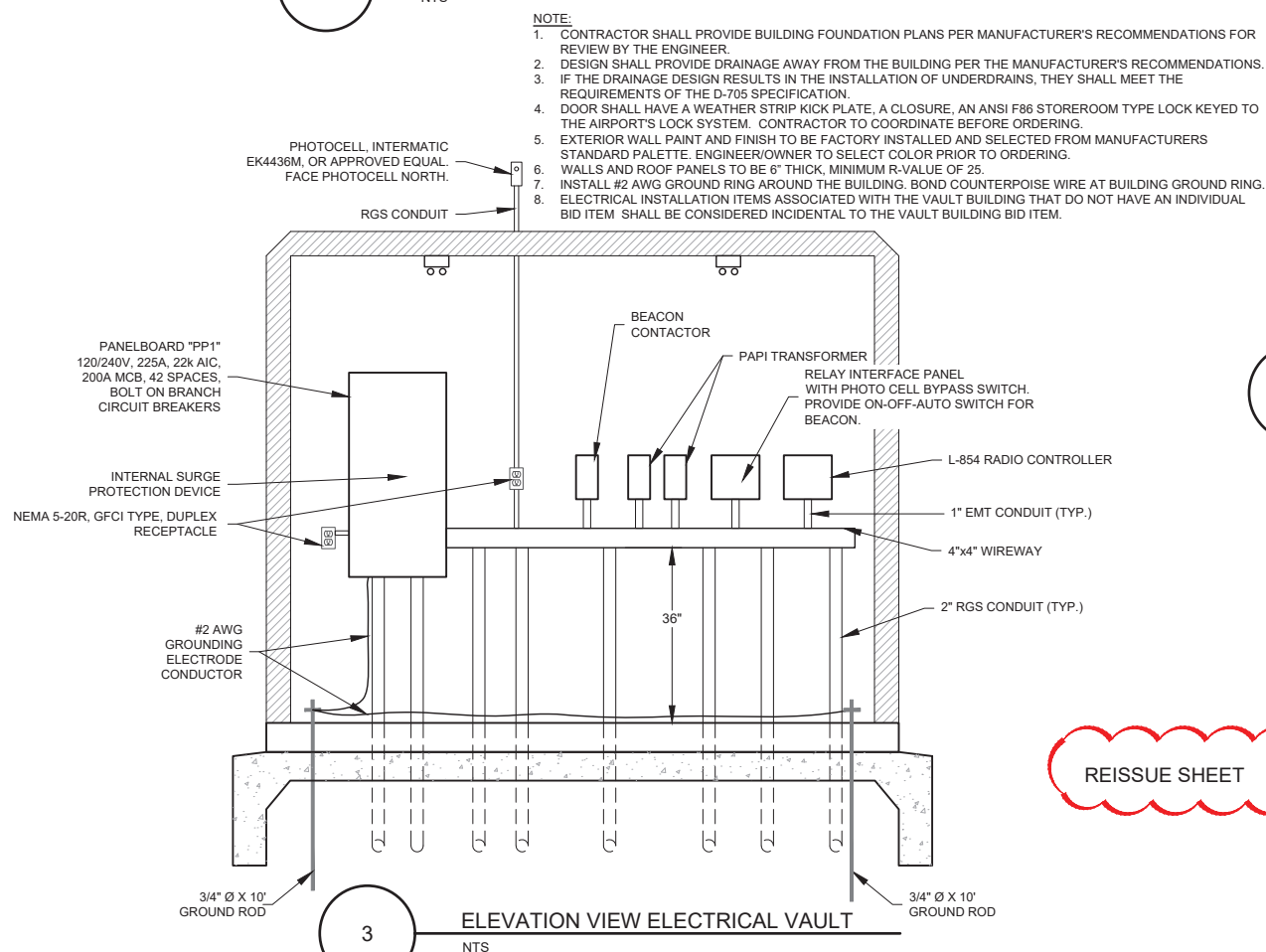
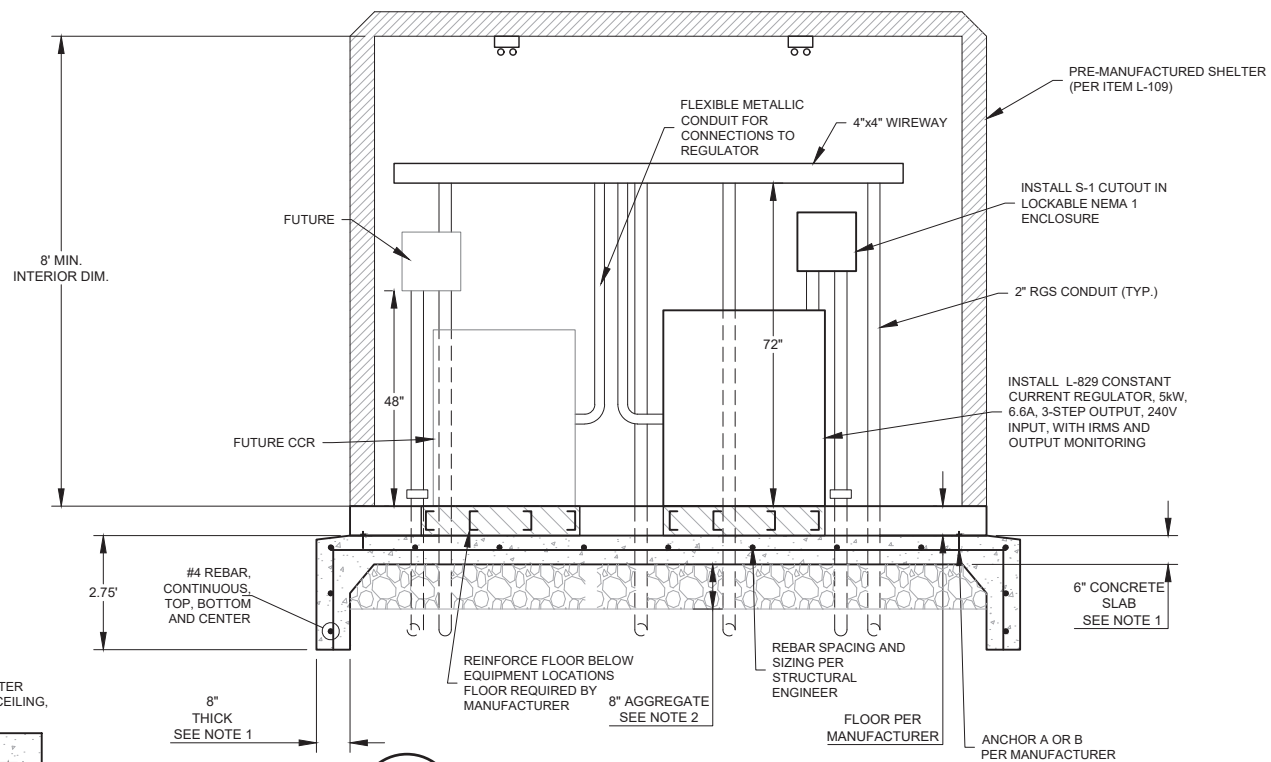
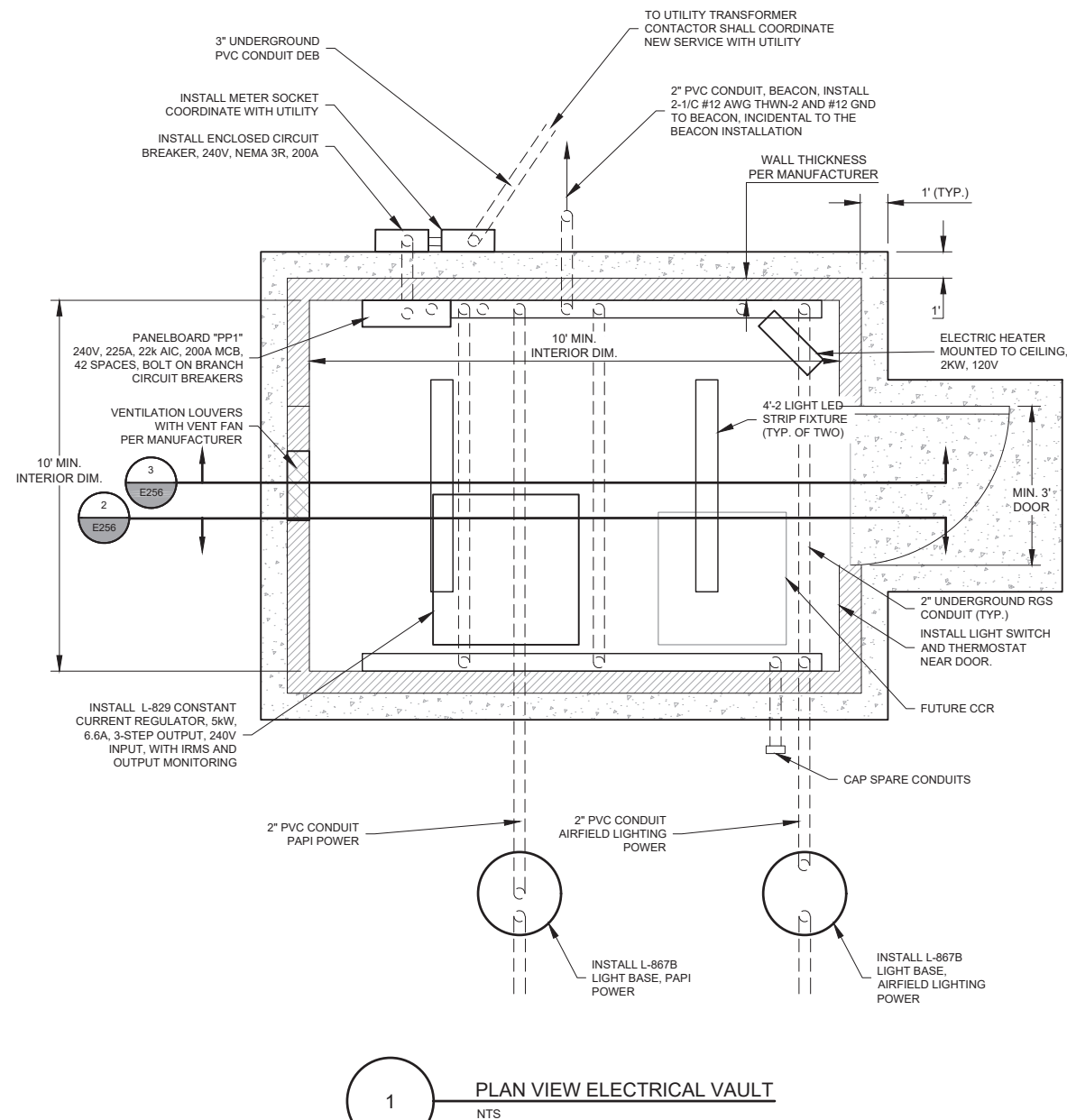
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RUNWAY WIDENING, TAXIWAY EXTENSION & AIRFIELD ELECTRICAL

ELECTRICAL DETAILS AND NOTES

STATE PROJ. NO. TXDOT CSJ NO.:2618ENNIS WOOLPERT PROJ. NO. 10022171.00.001.01

SHEET NAME E254
SHEET NO. 108 of 113



REISSUE SHEET

ISSUED FOR BID



ZACHARY C. AMBARIANTZ P.E. 146546 5/15/2026

FOR AND ON BEHALF OF WOOLPERT, INC. TBPE #1001



ENNIS MUNICIPAL AIRPORT

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APP: G.S.M.				

RUNWAY WIDENING, TAXIWAY EXTENSION & AIRFIELD ELECTRICAL

ELECTRICAL DETAILS AND NOTES

STATE PROJ. NO.
TXDOT CSJ NO.:2618ENNIS

WOOLPERT PROJ. NO.
10022171.00.001.01

SHEET NAME

E256

SHEET NO.

110 of 113



Name	Company	Email Address	Phone
Haley Alsabrook-Taylor	City of Ennis	halsabrooktaylor@ennistx.gov	(972) 875-1234
Miriam Castillo	City of Ennis EDC	micastillo@ennistx.gov	(972) 878-4748
Ryan Hindman	TxDOT (VIA Teams)	ryan.hindman@txdot.gov	(512) 520-7461
Eli Lopez	TxDOT (VIA Teams)	eli_lopez@txdot.gov	(512) 902-0806
Tom Hart	Woolpert	tom.hart@woolpert.com	(346) 409-2082
Greg Moore	Woolpert	greg.moore@woolpert.com	(817) 992-2997
Dustin Munn	City of Ennis	dmunn@ennistx.gov	(972) 875-4455
Clinton Sumerall	City of Ennis	csummerall@ennistx.gov	(972) 875-1234
Mario Melendez	FHP	mmelendez@fhpaschen.com	(214) 490-0502
Mario Silva	FHP	msilva@fhpaschen.com	(469) 504-5421
Stan Allen	Ed Bell Constr.	estimating@edbellconstruction.com	(469) 504-0303
Luis Arriga	Royal Electric	luisar@royalelect.com	(214) 714-7783
Ben Fowler	BMD	hennet.fowler@bmdgroup.com	(713) 854-6188
Jason Dolojan	BMD	jason.dolojan@bmdgroup.com	(713) 854-6188
Clay Stark	Austin Bridge & Road	cstark@austin-ind.com	(214) 681-1634
Jace Mills	Jay Mills Constr.	jace@jmctx.com	(254) 968-6657
Ray Silva-Reyes	Nu-Way Constr.	ray@nu-wayconstruction.net	972-210-9947
Matt Rogers	Estes Electric	matt@esteselectric.net	(972) 268-3265
Paul Robertson	Austin Bridge & Road	probertson@austin-ind.com	(512) 773-7275
Jacqueline Lerma	Royal Electric	jacquelinele@royalelectric.com	(992) 591-4103
Victor Akarichi	Olariche	ocs@contractor.net	(914) 255-2654
Dustin Wren	ProStar Rental	dustin.wren@prostarrental.com	(903) 951-9476
Lane Fouts	Fouts Co Paving Co	lfouts@foutscopaving.com	(940) 222-1312



Meeting Agenda: Pre-Bid Conference

Project #2618ENNIS

R/W Widening, Airfield and Electrical Rehabilitation and T/W Extension

Date: Tuesday, September 8, 2026 1:00PM

Location: Ennis Municipal Airport

Attendees: Refer to Sign-In Sheet

Agenda:

1. RECORDING OF ATTENDEES

- A. Recording of attendees, firm represented, address and phone number.
- B. Attendance & plan holder's list will be sent to all attendees.

2. PROJECT DESCRIPTION & INTRODUCTIONS

- A. Airport Sponsor
 - I. TxDOT Aviation (512) 633-0253
- B. Airport Engineering (Woolpert, Inc.)
 - I. Tom Hart – Project Manager
 - II. Greg Moore – Deputy Project Manager – Construction
- C. Project Scope of Work:
 - I. Base Bid:
 - (1) Runway widening 5 ft each side
 - (2) Pavement rehabilitation
 - (3) Midfield T/W relocation
 - (4) Airfield electrical improvements
 - II. Add Alternate No. 1
 - (1) T/W A extension
- D. Project Schedules
 - I. Phase 1A:
 - (1) R/W 16/34 widening, pavement rehabilitation and lighting
 - (2) T/W A pavement rehabilitation from main apron to T/W A4
 - (3) Main apron rehabilitation and partial reconstruction
 - (4) Connector T/W pavement work inside the RSA
 - II. Phase 1B (concurrent with 1A):
 - (1) Add Alternate No. 1 – T/W Extension (if awarded)
 - III. Phase 2 T/W A pavement rehabilitation from main apron to T/W A1

- E. Major Work Items. See Bid Schedule NOTE: A new bid schedule and bid form will be issued by addendum.

F41 RUNWAY WIDENING, AIRFIELD ELECTRICAL AND PAVEMENT REHABILITATION			BASE BID	ADD ALTERNATE #1
ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY	QUANTITY
C-100	CONTRACTOR QUALITY CONTROL PROGRAM	LS	1	
C-105	MOBILIZATION	LS	1	
TX-105a	FULL DEPTH ASPHALT PAVEMENT AND BASE REMOVAL (RUNWAY/TAXIWAY)	SY	5,755	6,176
TX-105b	FULL DEPTH ASPHALT PAVEMENT AND BASE REMOVAL (APRON)	SY	2,392	
TX-105c	REMOVE EXISTING ASPHALT PAVEMENT (APRON)	SY	4,770	
TX-110	EXCAVATION	CY	9,020	4,384
TX-132	EMBANKMENT (TYPE D)	CY	4,267	4,271
TX-164	BROADCAST SEEDING (PERM)	AC	10	5
TX-168	VEGETATIVE WATERING	TGL	2,400	1,200
TX-247a	6.5" CRUSHED AGGREGATE BASE COURSE (TYPE A, GRADE 1-2)	SY	8,757	5,330
TX-247b	9" CRUSHED AGGREGATE BASE COURSE (TYPE A, GRADE 1-2)	SY	2,392	
TX-260a	LIME TREATED SUBGRADE - 12 INCH	SY	8,024	5,992
TX-260b	LIME TREATED SUBGRADE - 6 INCH	SY	2,392	
TX-260c	LIME	TON	162	105
TX-300	TACK COAT	SY	8,959	4,668
TX-341a	HOT MIX ASPHALT SURFACE COURSE (TYPE D, SAC B, PG 64-22, TAXIWAYS)	TON	3,105	814
TX-341b	HOT MIX ASPHALT SURFACE COURSE (TYPE D, SAC B, PG 64-22, RUNWAY)	TON	5,050	
TX-341c	HOT MIX ASPHALT SURFACE COURSE (TYPE D, SAC B, PG 64-22, APRON)	TON	840	
TX-351	FULL DEPTH SPOT RECONSTRUCTION (FLEXIBLE QUANTITY)	SY	2,000	
TX-354	PLANING AND TEXTURING PAVEMENT	SY	38,135	(1,441)
TX-464a	REINFORCED CONCRETE PIPE (18 IN., CLASS 5)	LF	0	192
TX-464b	REINFORCED CONCRETE PIPE (ELLIPTICAL, 18 IN. X 12 IN., CLASS 5)	LF	56	
TX-467a	SAFETY END TREATMENT (TYPE II, 18 IN.)	EA	0	6
TX-467b	SAFETY END TREATMENT (TYPE II, 18 IN. X 12 IN.)	EA	2	
TX-506	EROSION CONTROL	LS	1	
ST-P-311	PAVEMENT FABRIC	SY	39,890	
P-620a	REFLECTORIZED PAVEMENT MARKING (WHITE)	SF	19,170	
P-620b	REFLECTORIZED PAVEMENT MARKING (YELLOW)	SF	5,680	855
P-620c	PAVEMENT MARKING (BLACK)	SF	1,905	80
P-640	AIRCRAFT TIE-DOWN ANCHOR	EA	27	
L-101a	REMOVE L-801A AIRPORT ROTATING BEACON	EA	1	
L-101b	INSTALL LED L-801A AIRPORT ROTATING BEACON	EA	1	
L-103a	REMOVE BEACON TOWER	EA	1	
L-103b	INSTALL TIP-DOWN BEACON POLE	EA	1	
L-107a	REMOVE L-807 PRIMARY WIND CONE	EA	1	
L-107b	REMOVE SEGMENTED CIRCLE	EA	1	
L-107c	INSTALL LED L-807 PRIMARY WIND CONE	EA	1	
L-107d	INSTALL SEGMENTED CIRCLE	EA	1	
L-108a	INSTALL #8 AWG, L-824C, 5000V WIRE	LF	25,000	
L-108b	INSTALL #6 AWG BARE COPPER COUNTERPOISE INCL GROUND RODS & TERMINATIONS	LF	13,000	
L-109a	REMOVE AIRFIELD LIGHTING VAULT	LS	1	
L-109b	INSTALL PREFAB AIRFIELD LIGHTING VAULT	LS	1	
L-109c	INSTALL L-829 CONSTANT CURRENT REGULATOR, FERRORESONANT TYPE	EA	1	
L-110a	INSTALL 1-2" SCH 40 PVC CONDUIT, DIRECT EARTH BURIED (DEB)	LF	12,000	
L-110b	INSTALL 1-2" SCH 40 PVC CONDUIT, CONCRETE ENCASED (CE)	LF	600	
L-110c	INSTALL 1-2" HDPE CONDUIT, DIRECTIONALLY BORED	LF	100	
L-115a	INSTALL NEW L-867 JUNCTION BOX	EA	4	
L-125a	REMOVE RUNWAY EDGE LIGHT	EA	50	
L-125b	REMOVE RUNWAY THRESHOLD LIGHT	EA	24	
L-125c	REMOVE PAPI SYSTEM	EA	2	
L-125d	REMOVE REIL SYSTEM	EA	2	
L-125e	REMOVE GUIDANCE SIGN	EA	12	
L-125f	REMOVE RETROREFLECTIVE MARKER	EA	200	
L-125g	INSTALL L-861 LED RUNWAY EDGE LIGHT ON NEW BASE	EA	50	
L-125h	INSTALL L-861E LED RUNWAY THRESHOLD LIGHT ON NEW BASE	EA	24	
L-125i	INSTALL LED L-881 PAPI SYSTEM	EA	2	
L-125j	INSTALL LED L-849 REIL SYSTEM	EA	2	
L-125k	INSTALL LED L-858 LIGHTED GUIDANCE SIGN ON NEW CONCRETE PAD, SIZE 1	EA	12	
L-125l	INSTALL RETROREFLECTIVE MARKER	EA	200	

3. **BID OPENING DATE & TIME**

- A. Date: Thursday September 24th, 2026, 1:00PM (Prevailing Central Time)
- B. Submitted to: Sheri Quinlan
TxDOT Aviation Division
6230 E Stassney Lane
Austin, TX 78744
MUST BE CLEARLY MARKED: Bid Proposal
- C. Plan holders will receive an option for call-in.
- D. Bid security: 2% of total bid amount must accompany bid.
- E. Bid proposal: Carefully review required documents listed in Notice to Bidders

4. **HUB/DBE GOALS**

- I. Eli Lopez TxDOT Aviation

5. **QUALIFICATION OF BIDDERS**

- A. Please review Section 20-02 Prequalification of Bidders.

6. **CRITICAL CONTRACT DATES**

- A. Notice of Award: August 2026
 - I. 60 days bid hold
- B. Project Time: 150 calendar days

7. **BONDING**

- A. Bid Bond: 2% of Bid Amount
- B. Payment Bond: 100% of Bid Amount.
- C. Performance Bond: 100% of Bid Amount.

8. **INSURANCE REQUIREMENTS**

- A. Please Review Section 30-10 Certificate of Insurance.

9. **WAGE RATES**

- A. Wage rates are required for this project. Please review Wage, Labor, EEO Safety and General Requirements Section of the General Provisions.
- B. Contractor and all Subcontractors are required to submit certified payrolls.

10. **NON-RESPONSIVE BIDS PLEASE SEE RFI UPDATES**

- ~~A. Please review Section 20-07 Non-Responsive Bids of the General Provisions. The following sub-paragraph will be added to this section when the addendum is issued:
I. The bidder fails to be both registered and active on the website SAM.gov.~~

11. **PROJECT ADDENDUM**

- A. The project addendum will be submitted to TxDOT on September 17th, 2026.

12. **CONSTRUCTION SAFETY AND PHASING PLAN (CSPP)**

- A. Construction Safety and Phasing Plan (CSPP) – Refer to Sheets 27 – 33.
- B. Note Traffic control req'd.
- C. The Contractor shall review and adhere to the CSPP prepared by the Engineer.

- D. The Contractor shall submit a Safety Plan Compliance Document (SPCD) to the Engineer and Airport for approval PRIOR to the issuance of Notice to Proceed as required by FAA Advisory Circular (AC) 150/5370-2G “Operational Safety on Airports During Construction”.

13. ENVIRONMENTAL REQUIREMENTS

- A. Discuss all project specific requirements for environmentally sensitive areas. Discuss protocols for working in and around these sensitive areas. Adherence to these requirements will be strictly enforced.
- B. All changes to haul routes, staging areas, material storage areas, borrow/waste areas, and limits of disturbance will require approval by the Engineer and the Airport.

14. LIQUIDATED DAMAGES

- A. Refer to Bid Form.
- B. As compensation for non-use, the Contractor shall be assessed a liquidated damage of \$1,000/Calendar Day for each day that the work remains uncompleted beyond the contract period.

15. MISCELLANEOUS

- A. Airport Security – Gate Access as shown.
- B. Airport Driving – The airport will require coordination of supervising personnel working near the aircraft movement area in Phase II.
- C. Review Construction Layout and Safety Drawing – note the Staging Area & Airport Access.
- D. Contractor shall stay within project boundaries.
- E. Radios for the project will be required.
- F. State Sales & Use Tax Exempt – See Contract docs for clarification.
- G. Quality Control Program by Contractor – Review Item C-100 Contractor Quality Control Program.
- H. Survey requirements. Make sure control lines up. Control, hardshots, close loop.
- I. Notices to Airmen (NOTAMs) – All NOTAMs will be issued by the Airport and must be in place prior to beginning work in affected area.
- J. Water availability – Airport will issue meter for hydrants at airport.
- K. Questions must be delivered in writing to the Project Manager, Greg Moore, by hand at the pre-bid conference or by email to greg.moore@woolpert.com. Questions will be accepted until 5:00PM Prevailing Central Time on September 15th, 2026.

16. QUESTIONS/GENERAL COMMENTS

- A. Eli Lopez (TxDOT) stated no DBE forms are required in the %-day window as DBE goal is 0%.
- B. The City of Ennis does want the extra millings. They will identify a stockpile area near the airport.
- C. For Contractor’s pre-construction survey, the surveyor needs to be an RPLS as per Sheet G003 under Note 1 of “Survey”.
- D. Questions to be answered by addendum:
 - I. Electrical:
 - (1) L-125G L861 – Bid Schedule Indicates 50EA while only 37EA can be found on the runway layout in the Plans. **Follow plans, summary to be corrected by addendum.**
 - (2) L-125H L861E – Bid Schedule Indicates 24EA while only 18EA can be found on the runway layout in the Plans. **Follow plans, summary to be corrected by addendum.**

- (3) L-125K L858 – Bid Schedule Indicates 12EA while only 6EA can be found on the runway layout and sign schedule in the Plans. **Follow plans, summary to be corrected by addendum.**
- (4) L-125I Retroreflective Marker – Plans appear to indicate L-853 RETRO-REFLECTIVE MARKER ON J-BOX. Are the markers to be **Flush Unlighted** or Lighted (Solar)? Is the J-BOX to be **L-867** as in Bid Item L-115a OR L-868 for taxiway centerline? Bid Schedule Indicates 200EA but there does not appear to be that many. **Follow plans, summary to be corrected by addendum.**
- (5) Is a Radio (L854) required as part of the new Lighting Vault? **Yes. Will be corrected.**
- (6) Signage drawing shows one tether per leg. Should we go by the drawing? **Yes.**
- (7) Provide the airfield electrical demolition sheets and the circuiting / homerun plan referenced by Sheet E001 Notes 19 and 28, together with duct bank routing and counterpoise layout. **Electrical demolition is shown on sheets C101-C109. The homerun routing will be shown on addendum. Counterpoise wire shall be installed per the project details and specification L-110 Airport Underground Electrical Duct Banks.**
- (8) Confirm the cutover sequence from the existing lighting vault to the new prefabricated vault, and who obtains the new utility service. **The existing airfield lighting system will not be operational during the project. The Contractor can cutover to the new vault building at anytime during the project. The Contractor shall coordinate with the service provider to obtain the new service for the Airport.**
- (9) Is there a plan sheet showing the existing vault building to be removed? **This will be corrected by addendum.**
- (10) Is there a plan sheet showing the existing beacon tower to be removed? **This will be corrected by addendum.**
- (11) Is there a plan sheet showing the location of new vault building? **This will be corrected by addendum.**
- (12) Is there a plan sheet showing the location of the new beacon pole? **This will be corrected by addendum.**
- (13) Is there a plan sheet showing the home run from the airfield lights to the vault building. **This will be corrected by addendum.**
- (14) Is there a plan sheet showing the one-line diagram for the RW 16/34? There is an one-line diagram for the PAPI's. **This will be corrected by addendum.**
- (15) Where is Item L-110c, 100 LF of 1-2" HDPE Conduit Directionally Bored to be installed? **This will be corrected by addendum.**
- (16) Plans Call for an L-802A beacon, specs call out an L-801A Class 1, please clarify. **Beacon will be an L-801A LED Beacon.**
- (17) The contract documents indicate a quantity of 200 EA for Retro-Reflective Markers; however, takeoffs from the electrical plan drawings identify approximately 68 EA on the taxiway centerline, resulting in a quantity variance of 132 EA. In addition, no installation details appear to be provided within the drawings or specifications. Can the Owner/Engineer confirm the required quantity Retro-Reflective Markers and provide the applicable installation details? **See previous response. They will be installed according to manufacturer's instructions. Additionally, please clarify whether the existing markers are mounted on light base cans and require removal of existing base cans to facilitate pavement milling. Existing markers are pav't mounted edge reflectors.**

- (18) The APAPI systems are understood to be voltage-driven equipment rather than series-circuit airfield lighting loads. The contract drawings do not appear to identify a dedicated conduit system and field wiring consisting of 2-1/C #8 AWG XHHW conductors and #8 AWG grounding conductor for the APAPI installations. Based on the contract quantities, it appears the APAPI field wiring may be included under Pay Item L-108a – Install #8 AWG, L-824C, 5000V Cable. Can the Owner/Engineer confirm whether the APAPI power wiring is intended to be installed in a separate conduit; and if wiring is to be included and priced under Pay Item L-108a, or to be measured and paid for under a separate bid item? **This will be reviewed by our electrical staff and answered in the addendum.**
- (19) The Construction Phasing Drawings indicate electrical work occurring within Phase 1B (Alternative #1); however, no corresponding alternative electrical bid items or quantities appear to be included within the Schedule of Quantities/Pay Item Table. Can the Owner/Engineer clarify the electrical scope associated with Phase 1B (Alternative #1)? **The “electrical” bid items in Add Alternate #1 are the T/W centerline reflectors.**
- (20) Sheet E251 Note 7 and the Aircraft Tiedown Anchor Detail on Sheet C222 both require concrete complying with Item TX-360. No Item TX-360 appears in the Technical Specifications index or anywhere in the bid documents. Provide the specification. **TX-360 refers to Standard TxDOT specifications. One will be added for clarity. Note all concrete will be incidental to the specific pay item.**
- (21) Provide a milling depth exhibit or confirm that **TX-354 at 38,135 SY** is measured by area at any depth required to achieve the 3-inch minimum overlay and finished grade. **38,135 is SY at any depth to achieve 3-inch minimum.**
- (22) Core 31 is labeled "Concrete = 9-1/4" " on Appendix H sheet H-11 of the Geotechnical Report (bid documents p. 405), but boring B31 is tabulated as 9-1/4 in. of asphalt in that report's Table 6, "Summary of Pavement Thickness" (Section 6.4, report pp. 12-14 / bid documents pp. 298-300). Confirm the material at that location and the applicable removal pay item. **Core 31 is correct on the plan sheets.**
- (23) Confirm whether an Item C-105A Mobilization exists for Additive Alternate 1. Sheet G053 Notes 10 and 13 charge haul route and barricade cost to C-105A; Sheet G002 shows no such item. **Add Alternate 1, if awarded, is concurrent with Phase 1. No additional mobilization will be added.**
- (24) Provide drainage detail sheets C521 through C522, referenced on Sheets C501 and C502 but not in the set. **This note will be eliminated by addendum.**
- (25) Provide the runway centerline stripe spacing sheet referenced as "SHEET ####" on Sheets C701 through C709, and the matchline sheet reference on Sheet C306. **Centerline stripe spacing can be found on the pavement marking plans. No additional sheets are required.**
- (26) Provide length, invert, profile and bedding detail for the 30-inch RCP called out on Sheet C407 and the 18-inch pipe extension on Sheets C407 and C408 and identify the pay items. **These RCPs were eliminated from the project and sheets will be corrected as needed.**
- (27) Confirm the glass bead type and application rate for P-620, and whether black border under yellow holding position markings is paid or at contractor cost (Sheet C721 Notes 14 and 15). **Please follow specifications, Type III, Gradation A @ 10lb/gal. minimum.**

- (28) Confirm whether obliteration or removal of existing pavement markings is required and identify the pay item. Sheet C705A directs marking over existing markings. This marking is improperly labeled. All markings will be obliterated during demolition.
- (29) Typical section 1/C221 shows a Leveling Course. What is the HMA mix design for the leveling course and how will it be paid? All asphalt on this project is TX-341, Type D, SAC B, PG 64-22, paid for under item TX-341.
- (30) Grading plan sheet C305A shows detail 3/C221 (2" TX-341 HMA) for the lower part of the apron. Demolition plan C105A shows this area as Pavement Removal – Full Depth. Please confirm the correct detail for this area. Please follow the Demolition Legend on C105A. The Typical Section numbers on sheet C305A are reversed.