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June 6, 2023

2306ANDRW - Addendum No. 2
To Contract Documents and Plans

Andrews County Airport (E11)
Runway 16-34 and Taxiway A Reconstruction
TxDOT CSJ No. 2306ANDRW

This addendum shall be a part of the Plans, Contract Documents and Specifications to the same extent as though it were originally included therein, and it shall supersede anything contained in the Plans, Contract Documents, and Specifications with which it might conflict. This addendum, including all attachments, shall become part of the Contract and all provisions of the Contract shall apply thereto. The time provided for completion of the Contract has not been changed as noted in this addendum. Acknowledgement of receipt of this Addendum must be provided on TxDOT Bid Form page 7 included in the Contract Documents.

Questions asked before June 6th, 2023 include:

1. Detail 1 on Sheet CP-005 says that the soil material used to fill the void caused by the removal of existing asphalt and base will be subsidiary to P-101. Can you verify that this quantity is not included in the 8,994 C.Y. of Embankment shown for Schedule 1?

    - Detail 1 on Sheet CP-005 was updated in this Addendum to read, “shall be paid for under P-152.” The quantity was calculated within the 8,994 C.Y. of embankment for Schedule 1.

2. In Specification Section 152-2.3 Borrow Excavation, it states that “Caliche base course material obtained from on-site pavement demolition operations may be utilized as select fill beneath pavements, embankment construction, or undercut backfill” If that is the case, in areas where pavement is removed and no new-pavement section constructed (south end of runway, Taxiway G, Taxiway 11 Ext), can the existing base be left in place and only the asphalt pavement be removed?

    - The existing base may be left in-place in areas where the pavement is to be removed but where no new pavement is to be reconstructed. The contractor will be responsible for 4-inches of topsoil, seeding/sodding, and establishing the proposed grades in these areas.

3. Shouldn’t Schedule 2 have a Full Depth Asphalt Pavement Removal Item for the removal of the existing Taxiway G?

    - The Full Depth Asphalt Pavement Removal Item for Schedule 2 for Taxiway G was calculated to be 2,787 S.Y. and has been updated on the Bid Form of this Addendum.

4. Will the engineer’s estimate be provided to bidders?

    - No, the engineer’s opinion of probably cost was not provided. However, the overall estimate totals for the Base Bid and Additive Alternate 1 are provided on the TxDOT Aviation Bidder’s List.

June 6, 2023
Addendum No.1

Revisions or additions made to the Contract Documents and Plans:

Bid Form

1. Added Pay Item D-701-5.2 12" Reinforced Concrete Pipe to Schedule 1 for a quantity of 330 L.F.
2. Added Pay Item D-752-5.1 Safety End Treatment (12" Dia, 2 Barrel, Type II, TxDOT SETP-PD) to Schedule 1 for a quantity of 2 E.A.
3. Added Pay Item P-153-6.1 Controlled Low-Strength Material (CLSM) to Schedule 1 for a quantity of 18 C.Y.
4. Added Pay Item P-101-5.1 Asphalt Pavement Removal to Schedule 2 for a quantity of 2,787 S.Y.
5. Increased Pay Item P-152-4.3 Embankment In Place for Schedule 1 to 9,574 C.Y.
6. Reduced Pay Item P-207-5.1 In-Place Full Depth Recycled (FDR) Asphalt Aggregate Base Course (8" Depth) for Schedule 1 to 69,745 S.Y.
7. Increased Pay Item P-156-8.1 Cement Treated Subgrade (6") for Schedule 1 to 11,875 S.Y.
8. Increased Pay Item P-209-5.1 Crushed Aggregate Base Course (6") for Schedule 1 to 11,300 S.Y.
9. Decreased Pay Item T-901-5.1 Seeding for Schedule 1 to 20.2 A.C.

Specification

1. Updated the "Table of Contents of Technical Specifications" to include D-752 Concrete Culverts, Headwalls, and Miscellaneous Drainage Structures.
2. Updated the "Drawing Index" to include sheets CC-102 and CC-502.
3. Added Specification D-752 Concrete Culverts, Headwalls, and Miscellaneous Drainage Structures.
4. Unstruck section D-701-3.4a for Concrete Pipe.
5. Unstruck section D-701-3.5-1a to include, "If CLSM embedment material is used, it shall conform to the plan details."
6. Updated D-701-5.0 to include Pay Item D-701-5.2 for 12" Reinforced Concrete Pipe per linear foot.

Plans

1. Updated the Sheet List on sheet GI-002 to include added sheets CC-102 and CC-502.
2. Updated GI-101 to include the additional New Construction pavement limits on Taxiway A and updated the earthwork table quantity for Schedule 1.
3. Updated sheet GI-201 to include the Taxiway A drainage pipe baseline "Storm Line A".
4. Updated the "Number" column for the Taxiway G Baselines on sheet GI-202.
5. Updated the asphalt pavement removal and full depth reclamation areas on Taxiway A on sheet CD-102.
6. Updated Typical Section 4 on sheet CP-002 to reflect the updated New Construction pavement limits on Taxiway A from Sta 207+00.00 to Sta 218+52.00
7. Updated callout on Detail 1 on sheet CP-005 for the fill material to be subsidiary to P-152.
8. Updated sheet CP-202 to include the adjustments to the profile and New Construction pavement limits on Taxiway A from Sta 207+00.00 to Sta 218+52.00
9. Updated sheet CP-203 to include the adjustments to the profile and New Construction pavement limits on Taxiway A from Sta 207+00.00 to Sta 218+52.00
10. Added sheet CC-102, Storm Drain Plan & Profile 2
11. Added Detail 4 for Concrete Pipe Encasement to sheet CC-501.
12. Added sheet CC-502, Storm Details 2
13. Updated sheet XS-202 to reflect the updated New Construction pavement limits on Taxiway A at cross section Sta 207+00.00.
14. Updated sheet XS-203 to reflect the updated New Construction pavement limits on Taxiway A from cross sections Sta 208+00.00 to Sta 210+00.00.
15. Updated sheet XS-204 to reflect the updated New Construction pavement limits on Taxiway A from cross sections Sta 211+00.00 to Sta 213+00.00.

By: _____

Alex Jessop, P.E.
Project Engineer

June 6, 2023
Addendum No.1

Attachments:

1. Bid Form
2. Table of Contents of Technical Specifications
3. Drawing Index
4. D-752 Concrete Culverts, Headwalls, and Miscellaneous Drainage Structures
5. D-701Pipe for Storm Drains and Culverts
6. GI-002 – Sheet Index
7. GI-101 – Project Layout Plan
8. GI-201 – Survey Control Plan 1
9. GI-202 – Survey Control Plan 2
10. CD-102 – Runway 16-34 and Taxiway A Demolition Plan 2
11. CP-002 – Typical Sections 2
12. CP-005 – Miscellaneous Details
13. CP-202 – Taxiway A Plan and Profile 2
14. CP-203 – Taxiway A Plan and Profile 3
15. CC-102 – Storm Drain Plan & Profile 2
16. CC-501 – Storm Details 1
17. CC-502 – Storm Details 2
18. XS-202 – Taxiway A Cross Sections 2
19. XS-203 – Taxiway A Cross Sections 3
20. XS-204 – Taxiway A Cross Sections 4

RUNWAY 16-34 AND TAXIWAY A RECONSTRUCTION

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ITEM D-752 CONCRETE CULVERTS, HEADWALLS, AND MISCELLANEOUS DRAINAGE STRUCTURES

DESCRIPTION

752-1.1 This item shall consist of plain ~~**[** reinforced **]** concrete culverts, headwalls, and miscellaneous drainage~~ ***Safety End Treatment*** structures constructed in accordance with these specifications, at the specified locations and conforming to the lines, grades, and dimensions shown on the plans or required by the RPR.

MATERIALS

752-2.1 Concrete. Plain concrete shall meet the requirements of Item P-610.

CONSTRUCTION METHODS

752-3.1 Unclassified excavation.

a. Trenches and foundation pits for structures or structure footings shall be excavated to the lines and grades and elevations shown on the plans. The excavation shall be of sufficient size to permit the placing of the full width and length of the structure or structure footings shown. The elevations of the bottoms of footings, as shown on the plans, shall be considered as approximate only; and the RPR may approve, in writing, changes in dimensions or elevations of footings necessary to secure a satisfactory foundation.

b. Boulders, logs, or any other objectionable material encountered in excavation shall be removed. All rock or other hard foundation material shall be cleaned of all loose material and cut to a firm surface either level, stepped, or serrated, as directed by the RPR. All seams or crevices shall be cleaned out and grouted. All loose and disintegrated rock and thin strata shall be removed. When concrete will rest on a surface other than rock, the bottom of the excavation shall not be disturbed and excavation to final grade shall not be made until immediately before the concrete or reinforcing steel is placed.

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

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

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

752-3.2 Backfilling.

a. After a structure has been completed, backfilling with approved material shall be accomplished by applying the fill in horizontal layers not to exceed 8 inches in loose depth, and compacted. The field density of the compacted material shall be at least 90% of the maximum density for cohesive soils and 95% of the maximum density for noncohesive soils. The maximum density shall be determined in accordance with ASTM D698. The field density shall be determined in accordance with ASTM D1556.

The in-place field density shall be determined in accordance with ASTM D1556

b. No backfilling shall be placed against any structure until approved by the RPR. For concrete, approval shall not be given until the concrete has been in place seven (7) days, or until tests establish that the concrete has attained sufficient strength to withstand any pressure created by the backfill or the placement methods.

c. Fill placed around concrete culverts shall be deposited on each side at the same time and to approximately the same elevation. All slopes bounding or within the areas to be backfilled shall be stepped or serrated to prevent wedge action against the structure.

d. Backfill will not be measured for direct payment. Performance of this work shall be considered as a subsidiary obligation of the Contractor, covered under the *item which it is contained.* ~~contract unit price for "unclassified excavation for structures."~~

752-3.3 Weep holes. Weep holes shall be constructed as shown on the plans.

752-3.4 Cleaning and restoration of site. After the backfill is completed, the Contractor shall dispose of all surplus material, dirt, and rubbish from the site. Surplus dirt may be deposited in embankment, shoulders, or as approved by the RPR. The Contractor shall restore all disturbed areas to their original condition. The Contractor shall remove all tools and equipment, leaving the entire site free, clear, and in good condition.

METHOD OF MEASUREMENT

~~**752-4.1** The quantity of unclassified excavation for structures shall be the number of cubic yards measured in original position, of material excavated in accordance with the plans, or as approved by the RPR; but in no case shall any yardage be included in the measurement for payment which is outside of a volume bounded by vertical planes 18 inches outside of and parallel to the neat lines of the footings.~~

~~**752-4.2** Concrete shall be measured by the number of cubic yards of concrete, complete in place and accepted. In computing the yardage of concrete for payment, the dimensions used shall be those shown on the plans or approved by the RPR. No measurements or other allowances shall be made for forms, false work, cofferdams, pumping, bracing, expansion joints, or finishing of the concrete. No deductions in yardage shall be made for the volumes of reinforcing steel or embedded items.~~

~~**752-4.3** The quantity of reinforcing steel shall be the calculated theoretical number of pounds placed as shown on the plans, complete in place and accepted. The unit weight used for deformed bars shall be the weight of plain square or round bars, as the case may be, of equal nominal size.~~

752-4.1 *Concrete ~~culverts, headwalls, and miscellaneous drainage~~* ***safety end treatment*** *structures shall be measured by the unit, completed in place and accepted.*

~~***752-4.2** Reinforcing steel shall not be measured for separate payment but shall be considered subsidiary to the structure in which it is contained.*~~

BASIS OF PAYMENT

~~**752-5.1** Payment will be made at the contract unit price per cubic yard for unclassified excavation for structures.~~

~~**752-5.2** Payment will be made at the contract unit price per cubic yard for concrete for the structures.~~

~~**752-5.3** Payment will be made at the contract unit price per pound for reinforcing steel.~~

752-5.1 *Payment will be made at the contract unit price per each for concrete ~~culverts, headwalls, and miscellaneous drainage~~* ***safety end treatment*** *structures. These prices shall be full compensation for furnishing all materials and for all preparation, excavation, and placing the materials, furnishing and installation of such specials and connections to pipes and other structures as may be required to complete the item as shown on the plan; and for all labor, equipment, tools, and incidentals necessary to complete the structure.*

Payment will be made under:

Item D-752 5.1 Safety End Treatment (12" Dia, Type II, TxDOT SETP-PD) — 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.

ASTM International (ASTM)

ASTM D698	Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lb/ft^3 (600 kN-m/m^3))
ASTM D1556	Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method

END OF ITEM D-752

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ITEM D-701 PIPE FOR STORM DRAINS AND CULVERTS

DESCRIPTION

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

MATERIALS

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

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

ASTM F667 Standard Specification for 3 through 24 in Corrugated Polyethylene Pipe and Fittings

ASTM F714 Standard Specification for Polyethylene (PE) Plastic Pipe (DR-PR) Based on Outside Diameter

ASTM F2736 Standard Specification for 6 to 30 in. (152 to 762 mm) Polypropylene (PP) Corrugated Single Wall Pipe and Double Wall Pipe

701-2.3 Concrete. Not Used.

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

701-2.5 Joint mortar. Not used.

701-2.6 Joint fillers. Not used.

701-2.7 Plastic gaskets. Not used.

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

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

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

CONSTRUCTION METHODS

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

The Contractor shall comply with all current federal, state and local rules and regulations governing the safety of men and materials during the excavation, installation and backfilling operations. Specifically, the Contractor shall observe that all requirements of the Occupational Safety and Health Administration (OSHA) relating to excavations, trenching and shoring are strictly adhered to. The width of the trench shall be sufficient to permit satisfactorily jointing of the pipe and thorough compaction of the bedding material under

the pipe and backfill material around the pipe, but it shall not be greater than the widths shown on the plans trench detail.

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

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

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

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

a. Rigid pipe. ~~The pipe bedding shall be constructed uniformly for the full length of the pipe barrel, as required on the plans. The maximum aggregate size shall be 1 inch when the bedding thickness is less than 6 inches, and 1-1/2 inches when the bedding thickness is greater than 6 inches. Bedding shall be number 57 stone as defined in ASTM C 33 or approved equal. loosely placed uncompacted material under the middle third of the pipe prior to placement of the pipe.~~

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

~~Flexible Pipe Bedding~~

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

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

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

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

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

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

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

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

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

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

d. Fiberglass pipe. ~~Joints and fittings shall be as detailed on the plans and in accordance with the manufacturers recommendations. Joints shall meet the requirements of ASTM D4161 for flexible elastomeric seals.~~

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

701-3.5-1 Embedment Material Requirements

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

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

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

701-3.5-2 Placement of Embedment Material. ~~The embedment material shall be compacted in layers not exceeding 6 inches on each side of the pipe and shall be brought up one foot above the top of the pipe or to natural ground level, whichever is greater. Thoroughly compact the embedment material under the haunches of the pipe without displacing the pipe. Material shall be brought up evenly on each side of the pipe for the full length of the pipe.~~

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

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

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

701-3.6 Overfill. Pipes shall be inspected before any overfill is in place. Any pipes found to be out of alignment, unduly settled, or damaged shall be removed and relaid or replaced at the Contractor's expense. Evaluation of any damage to RCP shall be evaluated based on AASHTO R73.

Overfill material shall be place and compacted in layers as required to achieve compaction to at least 95 percent standard proctor per ASTM D698**.** The soil shall contain no debris, organic matter, frozen material, or stones with a diameter greater than one half the thickness of the compacted layers being placed.

701-3.7 Inspection Requirements

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

Determine whether the allowable deflection has been exceeded by use of a laser profiler for internal pipe diameters of 48 inches or less, or direct measurement for internal pipe diameters greater than 48 inches. Laser profile equipment shall utilize low barrel distortion video equipment. Deflection of installed pipe shall not exceed the limits provided in the table below, as a percentage of the average inside diameter of the pipe.

Maximum Allowable Pipe Deflection

Type of Pipe	Maximum Allowable Deflection (%)
~~Corrugated Metal Pipe~~	~~5~~
~~Concrete Lined CMP~~	~~3~~
Thermoplastic Pipe	5
~~Fiberglass~~	~~5~~

If deflection readings in excess of the allowable deflection are obtained, remove the pipe with excessive deflection and replace with new pipe. Isolated areas may exceed allowable by 2.5% with concurrence of RPR. Repair or replace any pipe with cracks exhibiting displacement across the crack, bulges, creases, tears, spalls, or delaminations. The report for flexible pipe shall include as a minimum, the deflection results and final post installation inspection report. The inspection report shall include: a copy of all video taken, pipe location identification, equipment used for inspection, inspector name, deviation from design line and grade, and inspector's notes.

METHOD OF MEASUREMENT

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

701-4.2 *The volume of CLSM bedding will be measured for separate payment under item P-153.*

BASIS OF PAYMENT

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

701-5.1 Payment will be made at the contract unit price per linear foot for 6" High Density Polyethylene (HDPE) Pipe.

701-5.2 Payment will be made at the contract unit price per linear foot for 12" Reinforced Concrete Pipe.

Payment will be made under:

Item D-701-5.1	6" High Density Polyethylene (HDPE) Pipe - per linear foot
Item D-701-5.2	***12" Reinforced Concrete Pipe – 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.

American Association of State Highway and Transportation Officials (AASHTO)

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

ASTM International (ASTM)

ASTM A760	Standard Specification for Corrugated Steel Pipe, Metallic Coated for Sewers and Drains
ASTM A761	Standard Specification for Corrugated Steel Structural Plate, Zinc Coated, for Field-Bolted Pipe, Pipe-Arches, and Arches
ASTM A762	Standard Specification for Corrugated Steel Pipe, Polymer Precoated for Sewers and Drains
ASTM A849	Standard Specification for Post-Applied Coatings, Pavings, and Linings for Corrugated Steel Sewer and Drainage Pipe
ASTM B745	Standard Specification for Corrugated Aluminum Pipe for Sewers and Drains

ASTM C14	Standard Specification for Nonreinforced Concrete Sewer, Storm Drain, and Culvert Pipe
ASTM C76	Standard Specification for Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe
ASTM C94	Standard Specification for Ready Mixed Concrete
ASTM C144	Standard Specification for Aggregate for Masonry Mortar
ASTM C150	Standard Specification for Portland Cement
ASTM C443	Standard Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets
ASTM C506	Standard Specification for Reinforced Concrete Arch Culvert, Storm Drain, and Sewer Pipe
ASTM C507	Standard Specification for Reinforced Concrete Elliptical Culvert, Storm Drain and Sewer Pipe
ASTM C655	Standard Specification for Reinforced Concrete D-Load Culvert, Storm Drain and Sewer Pipe
ASTM C990	Standard Specification for Joints for Concrete Pipe, Manholes, and Precast Box Sections Using Preformed Flexible Joint Sealants
ASTM C1433	Standard Specification for Precast Reinforced Concrete Monolithic Box Sections for Culverts, Storm Drains, and Sewers
ASTM D1056	Standard Specification for Flexible Cellular Materials Sponge or Expanded Rubber
ASTM D3034	Standard Specification for Type PSM Poly (Vinyl Chloride) (PVC) Sewer Pipe and Fittings
ASTM D3212	Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals
ASTM D3262	Standard Specification for "Fiberglass" (Glass-Fiber Reinforced Thermosetting Resin) Sewer Pipe
ASTM D3282	Standard Practice for Classification of Soils and Soil-Aggregate Mixtures for Highway Construction Purposes
ASTM D4161	Standard Specification for "Fiberglass" (Glass-Fiber Reinforced Thermosetting Resin) Pipe Joints Using Flexible Elastomeric Seals
ASTM D6690	Standard Specification for Joint and Crack Sealants, Hot Applied, for Concrete and Asphalt Pavements
ASTM F477	Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe
ASTM F667	Standard Specification for 3 through 24 in. Corrugated Polyethylene Pipe and Fittings
ASTM F714	Standard Specification for Polyethylene (PE) Plastic Pipe (DR PR) Based on Outside Diameter

ASTM F794	Standard Specification for Poly (Vinyl Chloride) (PVC) Profile Gravity Sewer Pipe & Fittings Based on Controlled Inside Diameter
ASTM F894	Standard Specification for Polyethylene (PE) Large Diameter Profile Wall Sewer and Drain Pipe
ASTM F949	Standard Specification for Poly (Vinyl Chloride) (PVC) Corrugated Sewer Pipe with a Smooth Interior and Fittings
ASTM F2435	Standard Specification for Steel Reinforced Polyethylene (PE) Corrugated Pipe
ASTM F2562	Specification for Steel Reinforced Thermoplastic Ribbed Pipe and Fittings for Non-Pressure Drainage and Sewerage
ASTM F2736	Standard Specification for 6 to 30 in. (152 to 762 mm) Polypropylene (PP) Corrugated Single Wall Pipe and Double Wall Pipe
ASTM F2764	Standard Specification for 30 to 60 in. (750 to 1500 mm) Polypropylene (PP) Triple Wall Pipe and Fittings for Non-Pressure Sanitary Sewer Applications
ASTM F2881	Standard Specification for 12 to 60 in. (300 to 1500 mm) Polypropylene (PP) Dual Wall Pipe and Fittings for Non-Pressure Storm Sewer Applications

National Fire Protection Association (NFPA)

NFPA 415	Standard on Airport Terminal Buildings, Fueling Ramp Drainage, and Loading Walkways

END ITEM D-701

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158	XS-216	TAXIWAY A CROSS SECTIONS 16
159	XS-217	TAXIWAY A CROSS SECTIONS 17
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161	XS-219	TAXIWAY A CROSS SECTIONS 19
162	XS-301	TAXIWAY G CROSS SECTIONS 1
163	XS-302	TAXIWAY G CROSS SECTIONS 2
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1

1

REV.	DATE	DESCRIPTION	BY
1	6/6/23	ADDENDUM NO. 2	AMJ

E11

ANDREWS COUNTY AIRPORT
ANDREWS, TEXAS

RUNWAY 16 AND TAXIWAY A RECONSTRUCTION

SHEET INDEX

JOB NO.: 22A11972
DATE: JAN 2023
DESIGNED BY: JAH
DRAWN BY: JAH

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

DRAWING NUMBER
GI-002

SHEET NUMBER **2**

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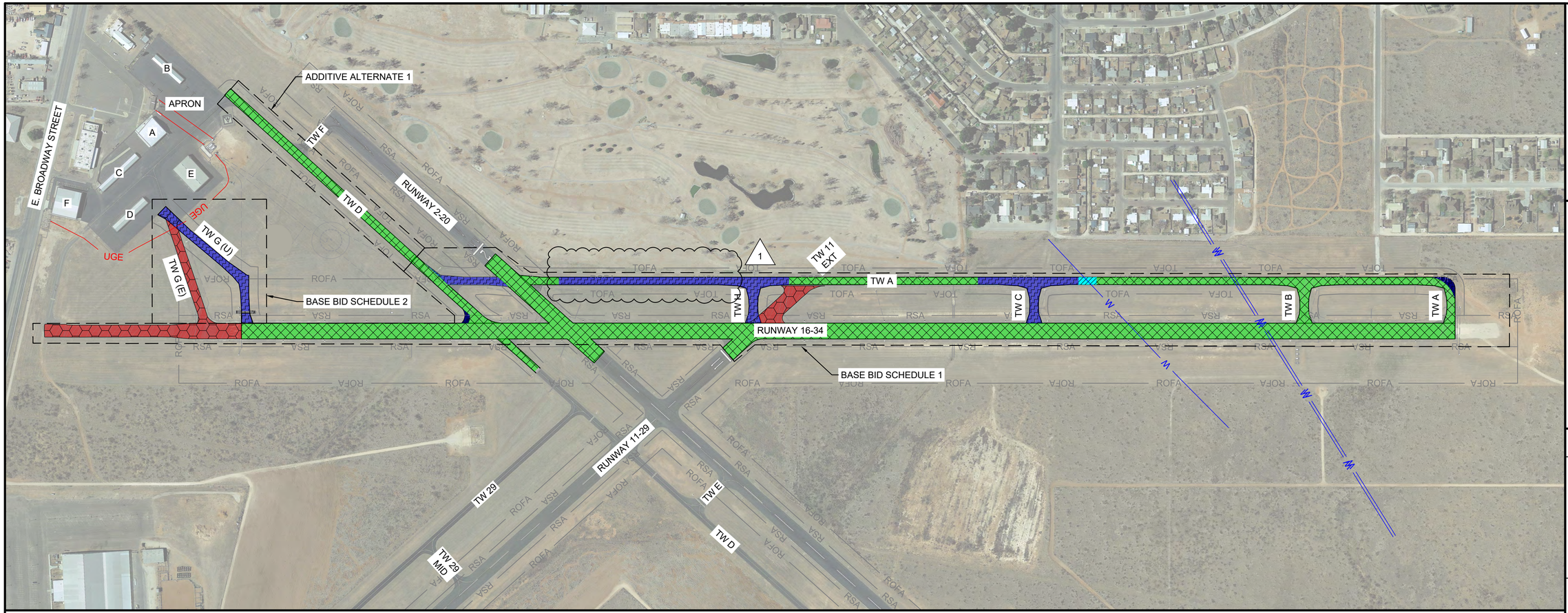
Last plotted by: Henderson, James, A Plot Style: AECmono.ctb Plot Scale: 1:1 Plot Date: 6/6/2023 1:41 PM Plotter used: AutoCAD PDF (General Documentation).pc3



0 125' 250' 500' 750'

(IN FEET)

LEGEND

- PAVEMENT REMOVAL
- PROPOSED FULL DEPTH RECLAMATION
- PROPOSED NEW CONSTRUCTION
- PROPOSED MILL AND OVERLAY
- RSA — RUNWAY SAFETY AREA
- ROFA — RUNWAY OBJECT FREE AREA
- TOFA — TAXIWAY OBJECT FREE AREA
- UGE — UNDERGROUND ELECTRICAL
- W — WATERLINE

ITEMS OF WORK

WORK ITEMS FOR CONSTRUCTION INCLUDE BUT NOT LIMITED TO THE FOLLOWING:

BASE BID SCHEDULE 1:

1. INSTALL BARRICADES, RUNWAY CLOSURE MARKINGS, AND EROSION CONTROL MEASURES.
2. REMOVE EXISTING ASPHALT PAVEMENT.
3. CONSTRUCT FULL DEPTH RECLAMATION PAVEMENT SECTION FOR RUNWAY 16-34, RUNWAY 2-20 INTERSECTION, AND TAXIWAY A.
4. CONSTRUCT NEW PAVEMENT SECTION FOR TAXIWAY H, TAXIWAY C, AND SECTIONS OF TAXIWAY A.
5. CONSTRUCT PROPOSED EDGE GRADING.
6. INSTALL PROPOSED RUNWAY THRESHOLD LIGHTS AND GUIDANCE SIGNS.
7. INSTALL PROPOSED PAVEMENT MARKINGS.

BASE BID SCHEDULE 2:

1. REMOVE EXISTING TAXIWAY G ASPHALT PAVEMENT.
4. CONSTRUCT NEW PAVEMENT SECTION FOR TAXIWAY G.
5. INSTALL PROPOSED DRAINAGE IMPROVEMENTS.
5. CONSTRUCT PROPOSED EDGE GRADING.
6. INSTALL PROPOSED GUIDANCE SIGNS.
7. INSTALL PROPOSED PAVEMENT MARKINGS.

ADDITIVE ALTERNATE 1:

1. CONSTRUCT FULL DEPTH RECLAMATION PAVEMENT SECTION FOR TAXIWAY D.
2. CONSTRUCT PROPOSED EDGE GRADING.
3. INSTALL PROPOSED PAVEMENT MARKINGS.

EARTHWORK

	BASE BID SCHED 1		BASE BID SCHED 2		ADD ALT 1	
DESCRIPTION	CUT (C.Y.)	FILL (C.Y.)	CUT (C.Y.)	FILL (C.Y.)	CUT (C.Y.)	FILL (C.Y.)
GRADING UNCLASSIFIED EXCAVATION	6,182	9,574	5,309	1,566	109	207

1

EARTHWORK QUANTITY NOTES:

1. SEE SPECIFICATION P-152 FOR MATERIAL, METHOD OF MEASUREMENT AND PAYMENT.
2. SEE SPECIFICATION P-101 FOR PAVEMENT REMOVAL.
3. UNSUITABLE EXCAVATION QUANTITY WAS ESTIMATED BASED ON BORING INFORMATION. CONTRACTOR WILL ONLY BE PAID FOR THIS QUANTITY IF UNSUITABLE MATERIAL IS ENCOUNTERED.

PRINTING NOTE: THIS SHEET SHOULD BE PRINTED IN COLOR

REV.	DATE	DESCRIPTION	BY
1	6/6/23	ADDENDUM NO. 2	AMJ

E11

ANDREWS COUNTY AIRPORT
ANDREWS, TEXAS

RUNWAY 16 AND TAXIWAY A RECONSTRUCTION

PROJECT LAYOUT PLAN

JOB NO.: 22A11972
DATE: JAN 2023
DESIGNED BY: JAH
DRAWN BY: JAH

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DRAWING NUMBER
GI-101

SHEET NUMBER **3**

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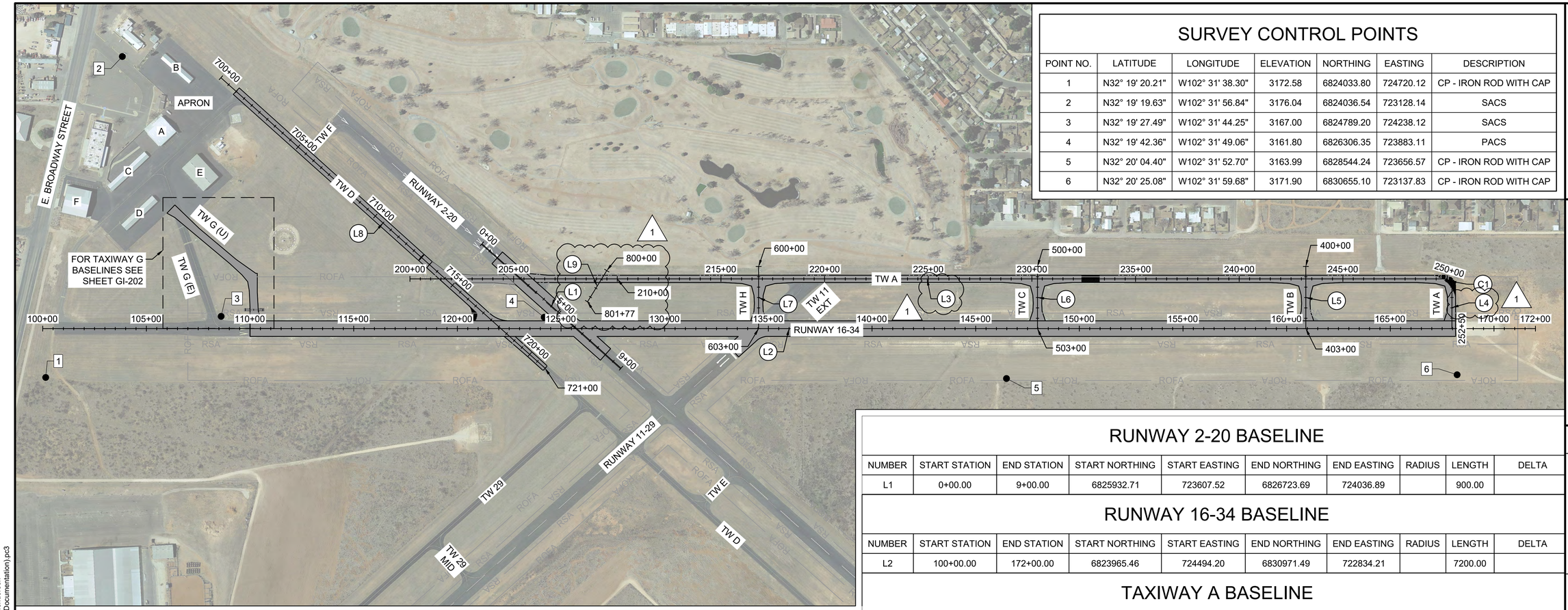
Last plotted by: Henderson, James, A Plot Style: AECmono.ctb Plot Scale: 1:1 Plot Date: 6/6/2023 2:26 PM Plotter used: DWG To PDF.pc3



0 125' 250' 500' 750'

(IN FEET)

LEGEND

- PROPOSED ASPHALT PAVEMENT
- SURVEY CONTROL POINT
- BASELINE POINT
- RSA — RUNWAY SAFETY AREA
- ROFA — RUNWAY OBJECT FREE AREA

NOTES:

1. CONTRACTOR SHALL PROTECT ALL CONTROL POINTS. ANY DAMAGE TO THESE CONTROL POINTS SHALL BE REPAIRED AT NO COST TO THE OWNER. REPAIRS SHALL BE COORDINATED WITH THE ENGINEER AND SHALL BE COMPLETED BY A LICENSED SURVEYOR. FINAL RESULTS OF THE RE-SET MONUMENT SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
2. CONTRACTOR SHALL VERIFY CONTROL POINTS AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO BEGINNING CONSTRUCTION.
3. BASIS FOR BEARINGS SHOWN HEREON IS THE STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM OF 1983 (NAD 83), STATE PLAN ZONE 2, ZONE NO. 5351. SURVEY CONDUCTED BY WHITE HAWK ENGINEERING ON 06/17/2022. ALL DISTANCES AND COORDINATES ARE SHOWN IN GRID.

SURVEY CONTROL POINTS

POINT NO.	LATITUDE	LONGITUDE	ELEVATION	NORTHING	EASTING	DESCRIPTION
1	N32° 19' 20.21"	W102° 31' 38.30"	3172.58	6824033.80	724720.12	CP - IRON ROD WITH CAP
2	N32° 19' 19.63"	W102° 31' 56.84"	3176.04	6824036.54	723128.14	SACS
3	N32° 19' 27.49"	W102° 31' 44.25"	3167.00	6824789.20	724238.12	SACS
4	N32° 19' 42.36"	W102° 31' 49.06"	3161.80	6826306.35	723883.11	PACS
5	N32° 20' 04.40"	W102° 31' 52.70"	3163.99	6828544.24	723656.57	CP - IRON ROD WITH CAP
6	N32° 20' 25.08"	W102° 31' 59.68"	3171.90	6830655.10	723137.83	CP - IRON ROD WITH CAP

RUNWAY 2-20 BASELINE

NUMBER	START STATION	END STATION	START NORTHING	START EASTING	END NORTHING	END EASTING	RADIUS	LENGTH	DELTA
L1	0+00.00	9+00.00	6825932.71	723607.52	6826723.69	724036.89		900.00	

RUNWAY 16-34 BASELINE

NUMBER	START STATION	END STATION	START NORTHING	START EASTING	END NORTHING	END EASTING	RADIUS	LENGTH	DELTA
L2	100+00.00	172+00.00	6823965.46	724494.20	6830971.49	722834.21		7200.00	

TAXIWAY A BASELINE

NUMBER	START STATION	END STATION	START NORTHING	START EASTING	END NORTHING	END EASTING	RADIUS	LENGTH	DELTA
L3	200+00.00	249+89.08	6825633.63	723852.30	6830488.30	722702.05		4989.08	
C1	249+89.08	250+47.20	6830488.30	722702.05	6830532.83	722729.53	37.000	58.12	090° 00' 00.00"
L4	250+47.20	252+50.20	6830532.83	722729.53	6830579.64	722927.06		203.00	

TAXIWAY B BASELINE

NUMBER	START STATION	END STATION	START NORTHING	START EASTING	END NORTHING	END EASTING	RADIUS	LENGTH	DELTA
L5	400+00.00	403+00.00	6829824.63	722797.64	6829893.80	723089.56		300.00	

TAXIWAY C BASELINE

NUMBER	START STATION	END STATION	START NORTHING	START EASTING	END NORTHING	END EASTING	RADIUS	LENGTH	DELTA
L6	500+00.00	503+00.00	6828565.16	723096.06	6828634.32	723387.97		300.00	

TAXIWAY H BASELINE

NUMBER	START STATION	END STATION	START NORTHING	START EASTING	END NORTHING	END EASTING	RADIUS	LENGTH	DELTA
L7	600+00.00	603+00.00	6827256.29	723406.17	6827325.45	723698.09		300.00	

TAXIWAY D BASELINE

NUMBER	START STATION	END STATION	START NORTHING	START EASTING	END NORTHING	END EASTING	RADIUS	LENGTH	DELTA
L8	700+00.00	721+00.00	6824522.76	723118.27	6826367.64	724121.47		2100.00	

STORMLINE A

NUMBER	START STATION	END STATION	START NORTHING	START EASTING	END NORTHING	END EASTING	RADIUS	LENGTH	DELTA
L9	800+00.00	801+76.88	6826548.29	723594.48	6826492.65	723762.38		176.88	

REV.	DATE	DESCRIPTION	BY
1	6/6/23	ADDENDUM NO. 2	AMJ

E11

ANDREWS COUNTY AIRPORT
ANDREWS, TEXAS

RUNWAY 16 AND TAXIWAY A RECONSTRUCTION

SURVEY CONTROL PLAN 1

JOB NO.: 22A11972
DATE: JAN 2023
DESIGNED BY: JAH
DRAWN BY: JAH

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DRAWING NUMBER
GI-201

SHEET NUMBER **4**

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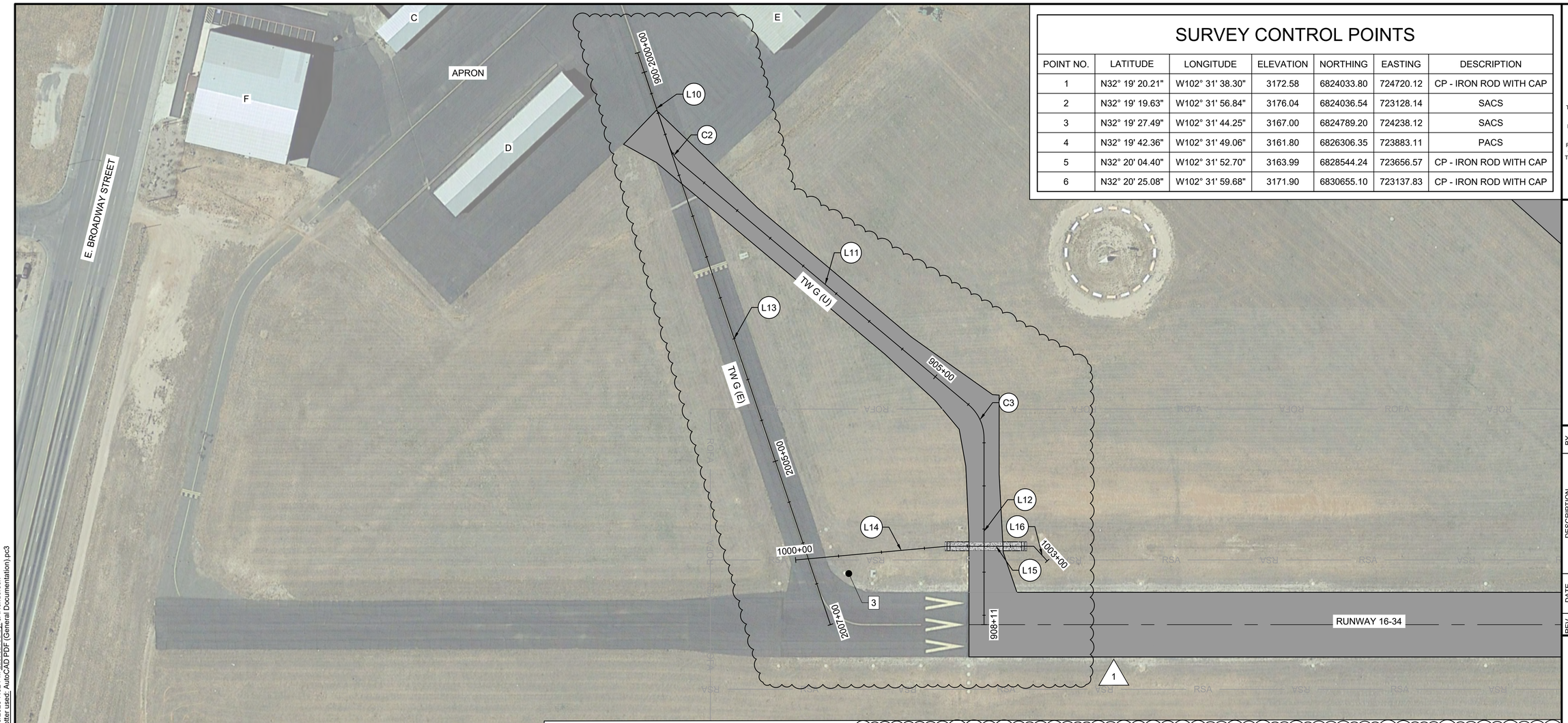
Last plotted by: Henderson, James. A Plot Style: AECmono.ctb Plot Scale: 1:1 Plot Date: 6/6/2023 1:42 PM Plotter used: AutoCAD PDF (General Documentation).pc3



SURVEY CONTROL POINTS

POINT NO.	LATITUDE	LONGITUDE	ELEVATION	NORTHING	EASTING	DESCRIPTION
1	N32° 19' 20.21"	W102° 31' 38.30"	3172.58	6824033.80	724720.12	CP - IRON ROD WITH CAP
2	N32° 19' 19.63"	W102° 31' 56.84"	3176.04	6824036.54	723128.14	SACS
3	N32° 19' 27.49"	W102° 31' 44.25"	3167.00	6824789.20	724238.12	SACS
4	N32° 19' 42.36"	W102° 31' 49.06"	3161.80	6826306.35	723883.11	PACS
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6	N32° 20' 25.08"	W102° 31' 59.68"	3171.90	6830655.10	723137.83	CP - IRON ROD WITH CAP

REV	DATE	DESCRIPTION	BY
1	6/6/23	ADDENDUM NO. 2	AMJ

0 30' 60' 120' 180'
(IN FEET)

LEGEND

- PROPOSED ASPHALT PAVEMENT
- PROPOSED CONCRETE DRAINAGE STRUCTURE
- # SURVEY CONTROL POINT
- # BASELINE POINT
- RSA — RUNWAY SAFETY AREA
- ROFA — RUNWAY OBJECT FREE AREA

NOTES:

1. CONTRACTOR SHALL PROTECT ALL CONTROL POINTS. ANY DAMAGE TO THESE CONTROL POINTS SHALL BE REPAIRED AT NO COST TO THE OWNER. REPAIRS SHALL BE COORDINATED WITH THE ENGINEER AND SHALL BE COMPLETED BY A LICENSED SURVEYOR. FINAL RESULTS OF THE RE-SET MONUMENT SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
2. CONTRACTOR SHALL VERIFY CONTROL POINTS AND NOTIFY ENGINEER OF ANY DISCREPANCIES PRIOR TO BEGINNING CONSTRUCTION.
3. BASIS FOR BEARINGS SHOWN HEREON IS THE STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM OF 1983 (NAD 83), STATE PLAN ZONE 2, ZONE NO. 5351. SURVEY CONDUCTED BY WHITE HAWK ENGINEERING ON 06/17/2022. ALL DISTANCES AND COORDINATES ARE SHOWN IN GRID.
4. SURVEY CONTROL POINTS 2, 4, 5, AND 6 ARE NOT SHOWN IN THE VIEW OF THIS SHEET AND ARE PROVIDED FOR REFERENCE IF SURVEY CONTROL POINTS PROVIDED ARE NOT SUFFICIENT TO ESTABLISH PROPER CONTROL.

TAXIWAY G BASELINE

NUMBER	START STATION	END STATION	START NORTHING	START EASTING	END NORTHING	END EASTING	RADIUS	LENGTH	DELTA
C2	900+88.74	901+16.27	6824471.23	723802.37	6824491.29	723820.71	50.000	27.53	031° 33' 02.87"
C3	905+50.55	905+94.19	6824879.38	724015.61	6824905.60	724048.76	50.000	43.64	050° 00' 16.56"
L10	900+00.00	900+88.74	6824424.32	723727.04	6824471.23	723802.37		88.74	
L11	901+16.27	905+50.55	6824491.29	723820.71	6824879.38	724015.61		434.28	
L12	905+94.19	908+10.87	6824905.60	724048.76	6824955.55	724259.61		216.68	

TAXIWAY G DEMOLITION BASELINE

NUMBER	START STATION	END STATION	START NORTHING	START EASTING	END NORTHING	END EASTING	RADIUS	LENGTH	DELTA
L13	2000+00.00	2007+00.00	6824411.61	723706.81	6824782.16	724300.69		700.00	

TW G Drainage Structure

NUMBER	START STATION	END STATION	START NORTHING	START EASTING	END NORTHING	END EASTING	RADIUS	LENGTH	DELTA
L14	1000+00.00	1001+75.79	6824725.58	724237.02	6824892.27	724181.22		175.79	
L15	1001+75.79	1002+77.00	6824892.27	724181.22	6824990.75	724157.88		101.21	
L16	1002+77.00	1003+00.00	6824990.75	724157.88	6825009.78	724170.80		23.00	

E11

ANDREWS COUNTY
AIRPORT
ANDREWS, TEXAS

RUNWAY 16 AND TAXIWAY A RECONSTRUCTION

SURVEY CONTROL PLAN 2

JOB NO.: 22A11972
DATE: JAN 2023
DESIGNED BY: JAH
DRAWN BY: JAH

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DRAWING NUMBER
GI-202

SHEET NUMBER 5

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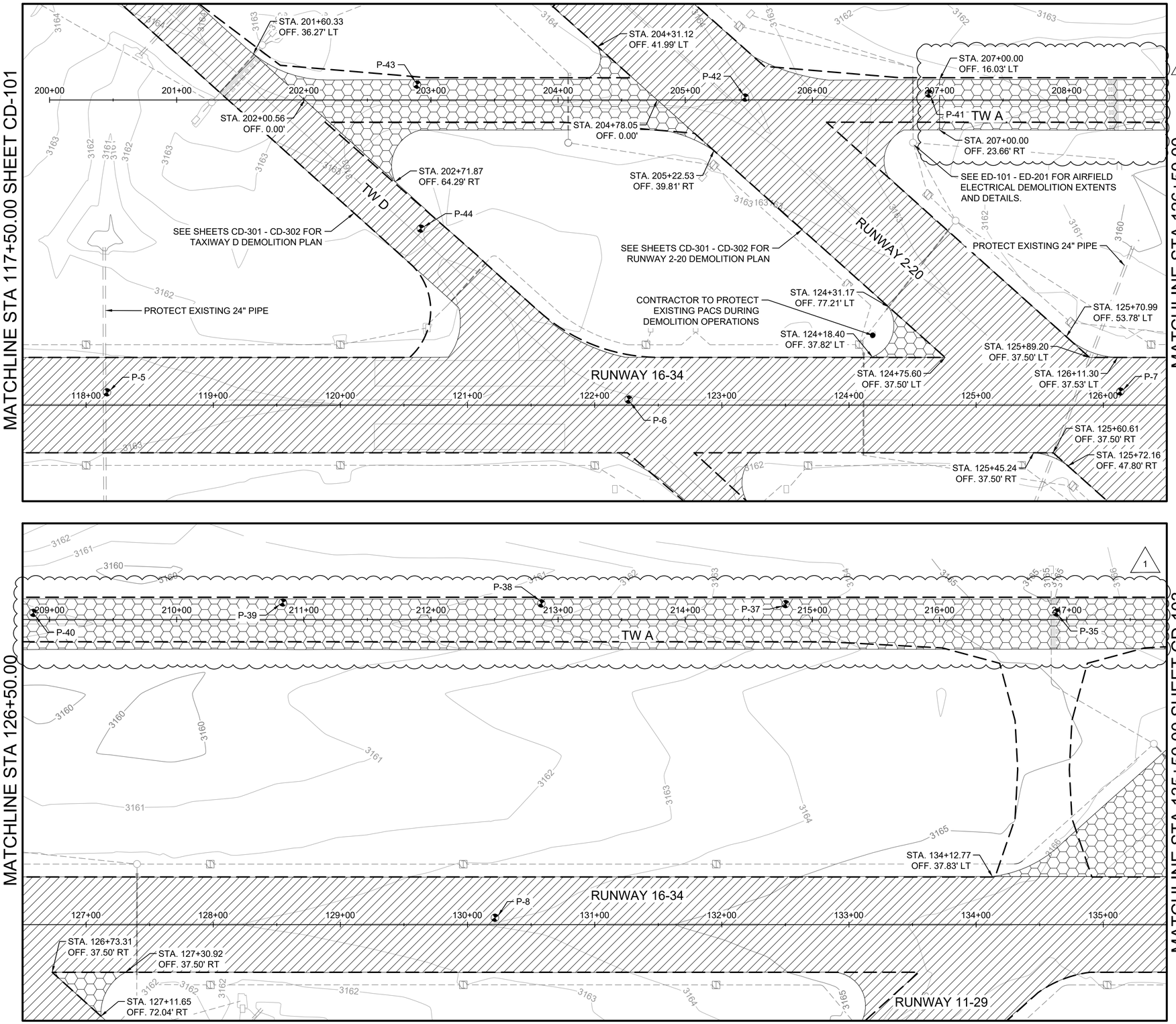
Last plotted by: Henderson, James, A Plot Style: AECmono.ctb Plot Scale: 1:1 Plot Date: 6/6/2023 1:43 PM Plotter used: AutoCAD PDF (General Documentation).pc3



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

LEGEND

- EXISTING ASPHALT PAVEMENT TO REMAIN
- XXX EXISTING CONTOUR
- ASPHALT PAVEMENT FULL DEPTH RECLAMATION
- ASPHALT PAVEMENT REMOVAL (1 / CP-005)
- EXISTING STORM DRAIN PIPE
- EXISTING RUNWAY LIGHT
- GEOTECHNICAL BORING LOCATION
- PROPOSED PAVEMENT LIMITS

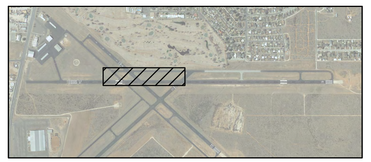
NOTES:

1. CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES, HAND HOLES, AIRFIELD EQUIPMENT, DRAINAGE STRUCTURES, AND BUILDINGS NOT SHOWN FOR DEMOLITION. ANY DAMAGE AS A RESULT OF CONSTRUCTION ACTIVITIES SHALL BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE OWNER.
2. SEE ED-101 - ED-201 FOR AIRFIELD ELECTRICAL DEMOLITION EXTENTS AND DETAILS.
3. THE CONTRACTOR SHALL SAWCUT AT THE PROPOSED EDGE OF CONSTRUCTION, AND 6" INSIDE THE PROPOSED EDGE OF CONSTRUCTION TO PROVIDE A CLEAN VERTICAL EDGE OF EXISTING PAVEMENT. THE CONTRACTOR SHALL NOT REMOVE THE REMAINING 6" PORTION OF PAVEMENT UNTIL NECESSARY FOR CONSTRUCTION OF THE PROPOSED PAVEMENT SECTION.
4. CONTRACTOR WILL BE PAID FOR THE SQUARE YARD OF ASPHALT PAVEMENT REMOVED UNDER P-101 TO THE TOP OF PROPOSED SUBGRADE.
5. BORING LOG INFORMATION IS BASED ON THE GEOTECHNICAL REPORT PREPARED BY ARIAS IN OCTOBER 2022 . SEE GEOTECHNICAL REPORT FOR DETAILS ON EXISTING SECTIONS.
6. REFER TO SHEET CD-101 FOR TEXAS 811 UTILITY PROCEDURES PRIOR TO DEMOLITION WORK.

BORING LOG

BORING	ASPHALT THICKNESS	BASE COURSE THICKNESS
P-5	4.50"	6.00"
P-6	4.00"	6.00"
P-7	4.50"	6.00"
P-8	4.50"	6.50"
P-35	2.00"	8.00"
P-37	2.00"	8.00"
P-38	2.00"	9.00"
P-39	2.00"	8.00"
P-40	3.00"	7.00"
P-41	2.50"	6.50"
P-42	3.00"	7.00"
P-43	2.50"	7.50"

KEYMAP



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REV	DATE	DESCRIPTION	BY
1	6/6/23	ADDENDUM NO. 2	AMJ

E11

ANDREWS COUNTY AIRPORT
ANDREWS, TEXAS

RUNWAY 16 AND TAXIWAY A RECONSTRUCTION

RUNWAY 16-34 AND TAXIWAY A DEMOLITION PLAN 2

JOB NO.: 22A11972
DATE: JAN 2023
DESIGNED BY: JAH
DRAWN BY: JAH

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CD-102

SHEET NUMBER **18**

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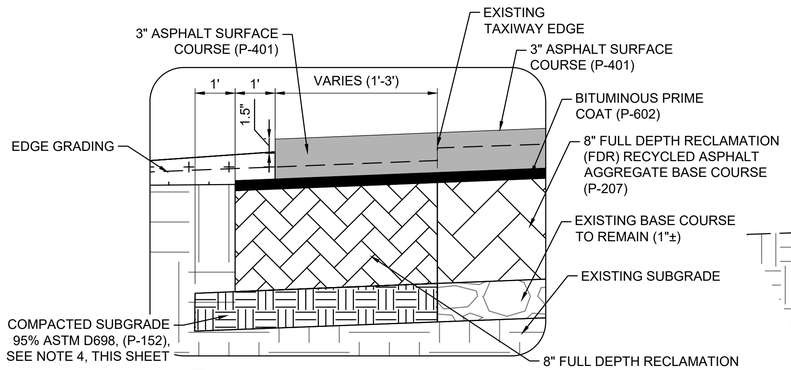
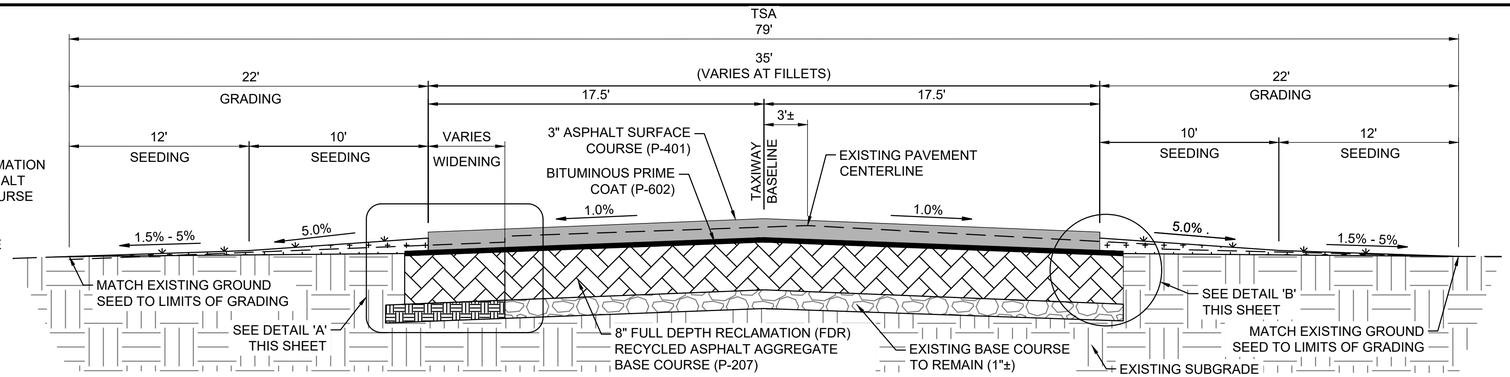


A CP-002 **DETAIL 'A'**
SCALE: NONE

NOTES:

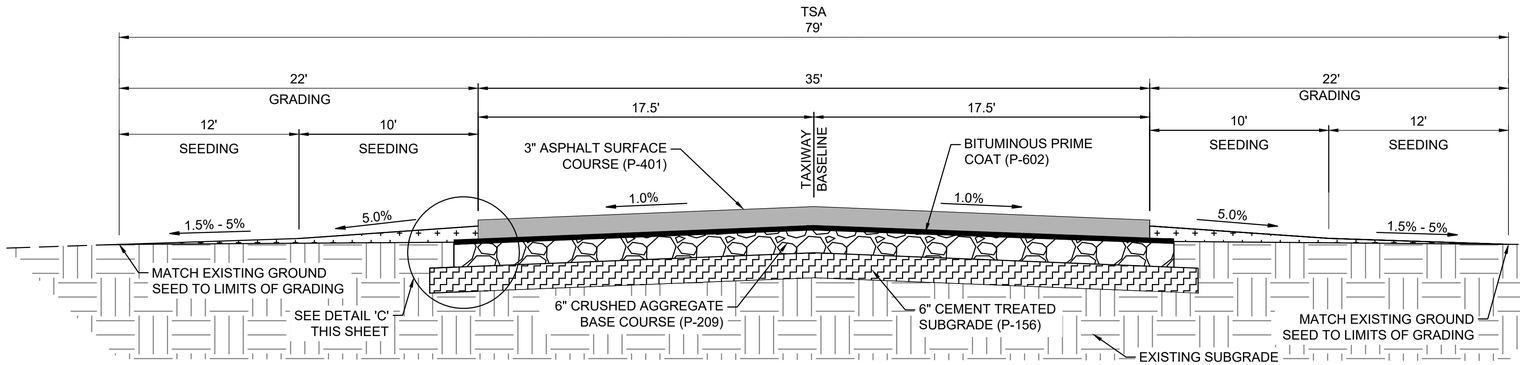
1. ALL EXCAVATION, SUBGRADE PREPARATION, UNDERCUT (IF NECESSARY) AND UNDERCUT BACKFILL (IF NECESSARY) SHALL BE COMPLETED IN WIDENED AREAS PRIOR TO START OF FULL DEPTH RECLAMATION.
2. THE FDR LAYER IN WIDENED AREAS SHALL BE COMPRISED OF APPROXIMATELY 25% MILLED RAP AND 75% AGGREGATE BASE COURSE. THE RAP/AGGREGATE BLEND SHALL BE OBTAINED BY PROCESSING ON-SITE PAVEMENTS SCHEDULED FOR REMOVAL IN THE PLANS.
3. THE CONTRACTOR MAY ELECT TO PLACE UNTREATED RAP/AGGREGATE BLEND IN WIDENED AREAS PRIOR TO BEGINNING OF FDR OPERATIONS. ALTERNATIVELY, THE FDR CONTRACTOR MAY GENERATE EXCESS FDR MATERIAL TO BE TRANSPORTED TO THE WIDENED AREAS DURING CONSTRUCTION.
4. PAVEMENT SUBGRADE IN WIDENED AREAS SHALL BE EVALUATED BY THE RPR DURING CONSTRUCTION. SUBGRADE PREPARATION, INCLUDING UNDERCUT AND BACKFILL, SHALL BE COMPLETED IN ACCORDANCE WITH P-152.

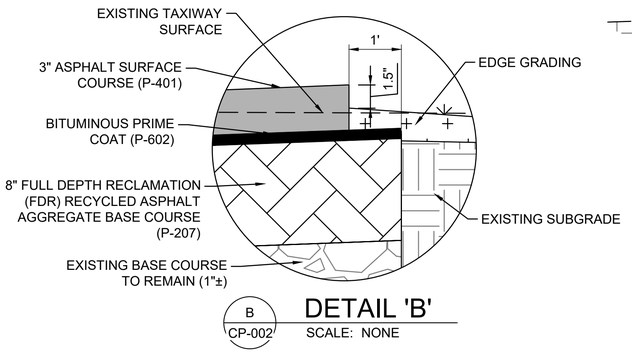


TAXIWAY A (CROWNED) FULL DEPTH RECLAMATION - TYPICAL SECTION 3

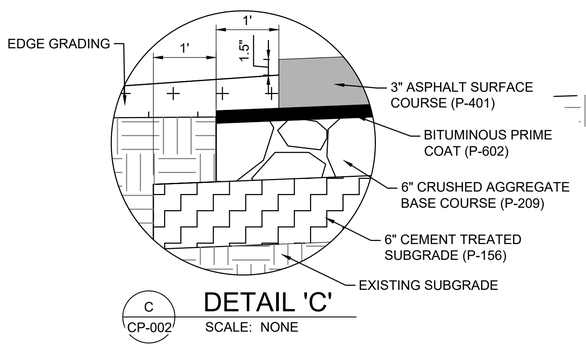
STA 206+68.90 - STA 215+11.00
STA 218+52.00 - STA 227+57.00
STA 231+97.13 - STA 232+40.00
STA 233+26.00 - STA 251+66.70

3 CP-002 SCALE: NONE





B CP-002 **DETAIL 'B'**
SCALE: NONE

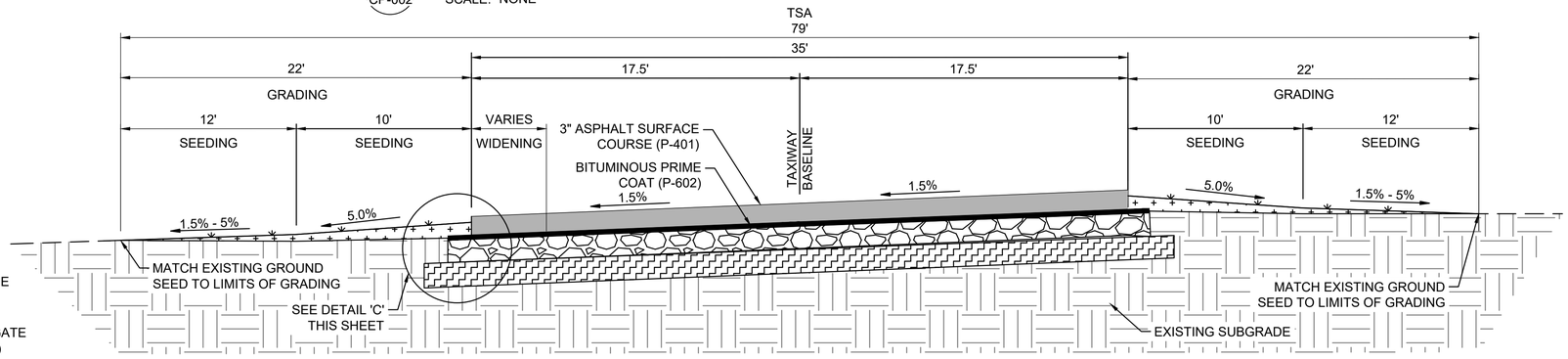


C CP-002 **DETAIL 'C'**
SCALE: NONE

TAXIWAY A (CROWNED) NEW CONSTRUCTION - TYPICAL SECTION 4

STA 202+97.44 - STA 204+04.25
STA 207+00.00 - STA 218+52.00 (1)

4 CP-002 SCALE: NONE



TAXIWAY A (SUPER ELEVATED) NEW CONSTRUCTION - TYPICAL SECTION 5

STA 228+56.59 - STA 231+06.41

5 CP-002 SCALE: NONE

REV.	DATE	DESCRIPTION	BY
1	6/6/23	ADDENDUM NO. 2	AMJ

E11

ANDREWS COUNTY AIRPORT
ANDREWS, TEXAS

RUNWAY 16 AND TAXIWAY A RECONSTRUCTION

TYPICAL SECTIONS 2

JOB NO.: 22A11972
DATE: JAN 2023
DESIGNED BY: JAH
DRAWN BY: JAH

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DRAWING NUMBER
CP-002

SHEET NUMBER **25**

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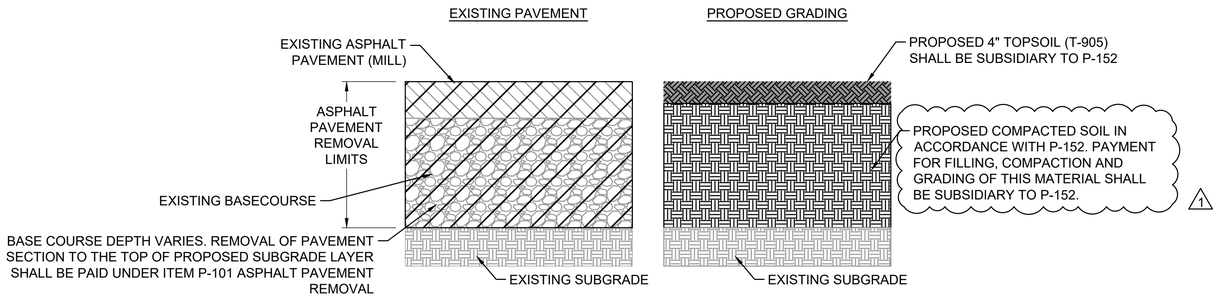
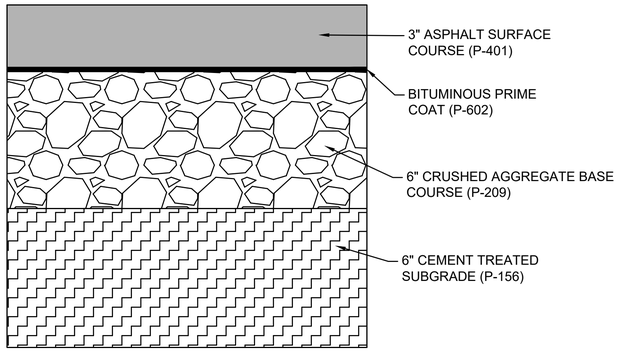


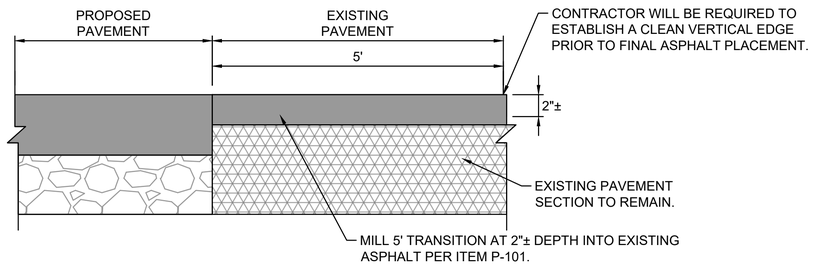
1 CP-005 **ASPHALT PAVEMENT REMOVAL DETAIL**

SCALE: NONE



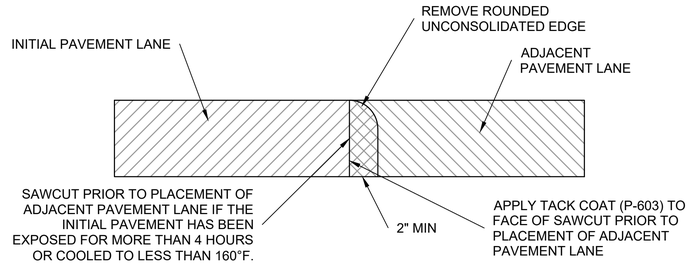
WIDENING BEYOND FDR LIMITS PAVEMENT SECTION

2 CP-005 SCALE: NONE



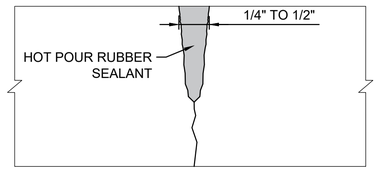
4 CP-005 **PROPOSED PAVEMENT TIE-IN DETAIL**

SCALE: NONE



3 CP-005 **ASPHALT LONGITUDINAL CONSTRUCTION JOINT DETAIL**

SCALE: NONE



5 CP-005 **LOW SEVERITY CRACK REPAIR DETAIL (1/4" TO 1/2")**

SCALE: NONE

NOTES:

1. THOROUGHLY CLEAN AND BLOW OUT CRACK TO SOUND MATERIAL.
2. HOT LANCE CRACK.
3. FILL WITH HOT POUR RUBBER SEALANT.
5. OVERBAND IS NOT ALLOWED.
6. SPILLAGE OR OVER FILLING CRACKS AND JOINTS SHALL BE IMMEDIATELY CLEANED/REMOVED TO THE SATISFACTION OF THE ENGINEER OR THE CRACK OR JOINT SEAL SHALL BE REMOVED AND REDONE.

REV.	DATE	DESCRIPTION	BY
1	6/6/23	ADDENDUM NO. 2	AMJ

E11

ANDREWS COUNTY AIRPORT
ANDREWS, TEXAS

RUNWAY 16 AND TAXIWAY A RECONSTRUCTION

MISCELLANEOUS DETAILS

JOB NO.: 22A11972
DATE: JAN 2023
DESIGNED BY: JAH
DRAWN BY: JAH

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

DRAWING NUMBER
CP-005

SHEET NUMBER **28**

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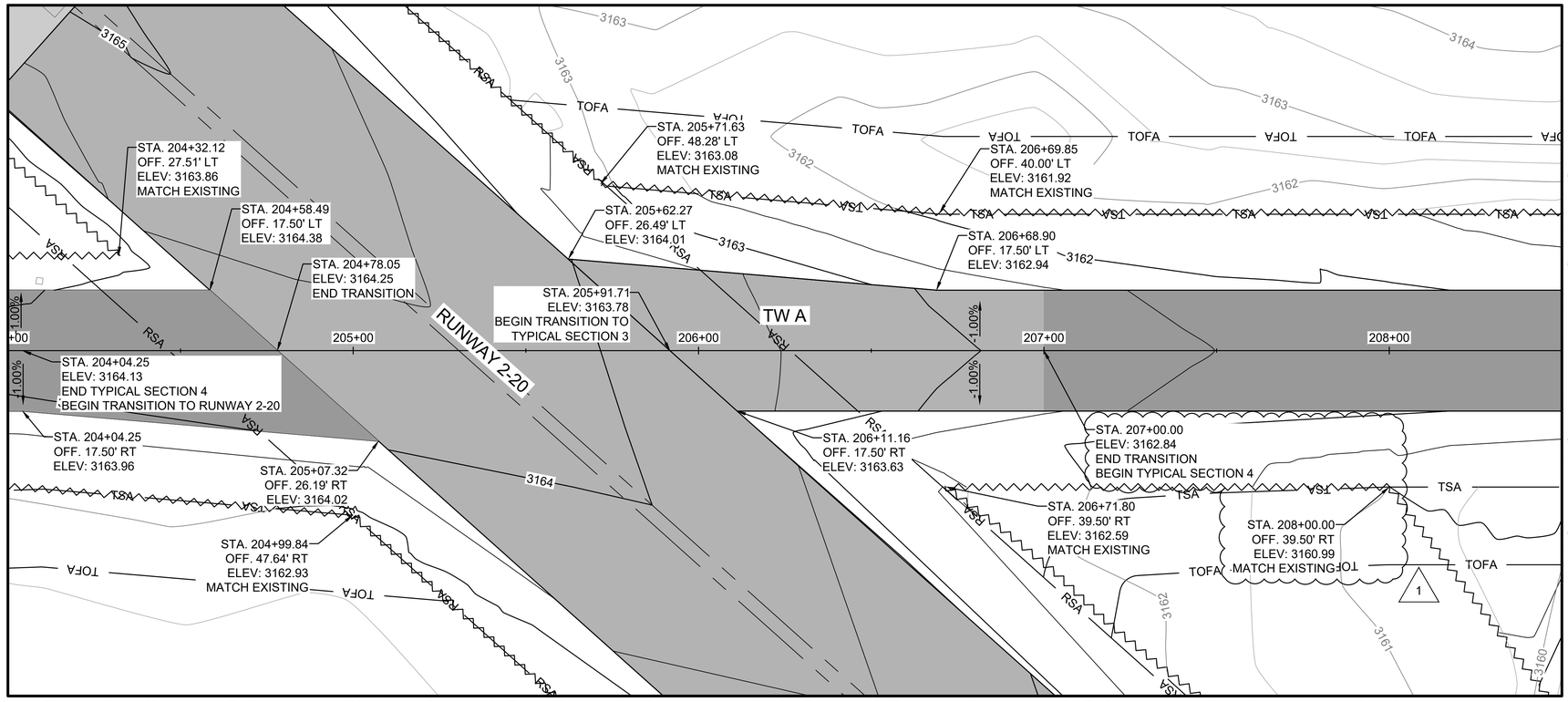
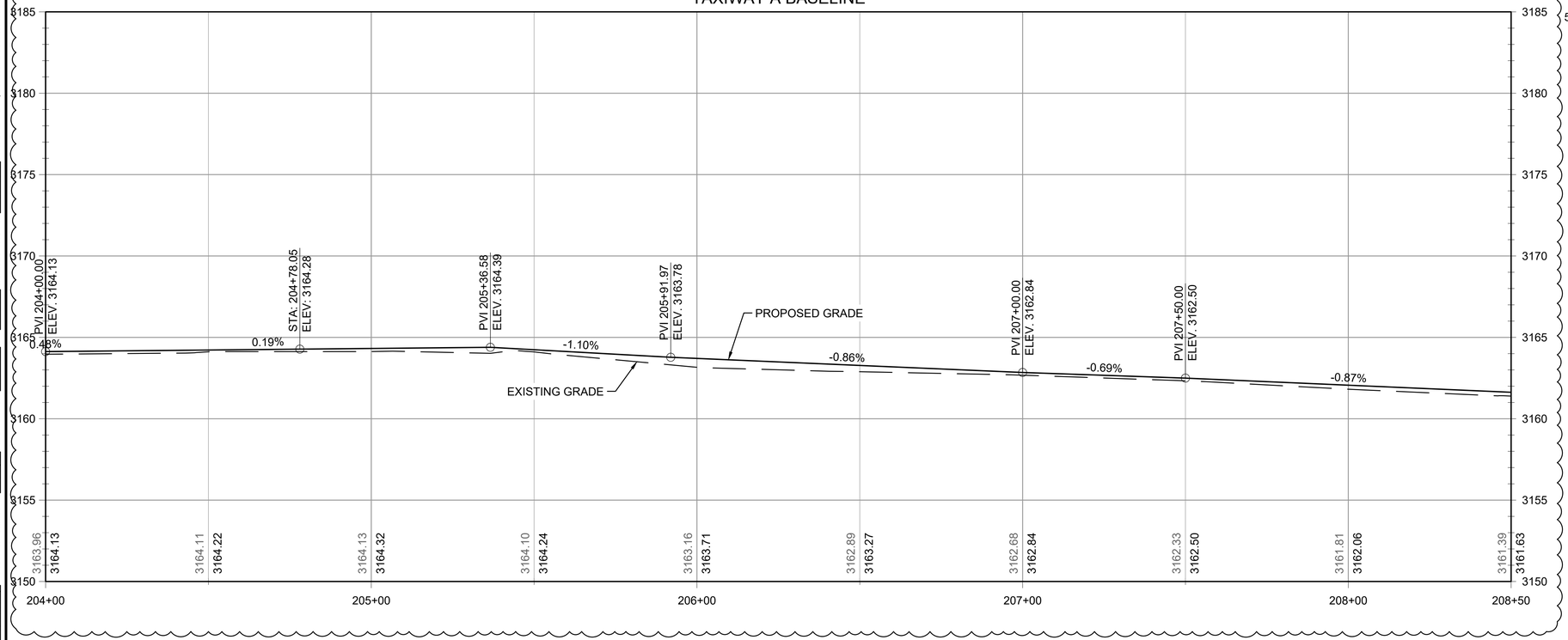
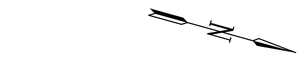
Last plotted by: Henderson, James, A Plot Style: AECmono.ctb Plot Scale: 1:1 Plot Date: 6/6/2023 1:43 PM Plotter used: AutoCAD PDF (General Documentation).pc3







LEGEND

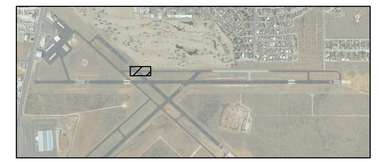
- EXISTING ASPHALT PAVEMENT
- PROPOSED FULL DEPTH RECONSTRUCTION ASPHALT PAVEMENT
- PROPOSED NEW CONSTRUCTION ASPHALT PAVEMENT
- PROPOSED GRADING LIMITS
- RSA — RUNWAY SAFETY AREA
- TSA — TAXIWAY SAFETY AREA
- TOFA — TAXIWAY OBJECT FREE AREA
- XXXX — EXISTING CONTOUR
- XXXX — PROPOSED CONTOUR

NOTES:

1. PROFILE VERTICAL EXAGGERATION = 5.
2. SEE SHEETS CP-001 - CP-004 FOR TYPICAL SECTIONS.
3. SEE SHEETS XS-101 - XS-901 FOR CROSS SECTIONS
4. CONTRACTOR SHALL SAWCUT A CLEAN VERTICAL EDGE AT ALL PAVEMENT TIE-INS.
5. CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES, HAND HOLES, AIRFIELD EQUIPMENT, DRAINAGE STRUCTURES, AND BUILDINGS NOT SHOWN FOR DEMOLITION. ANY DAMAGE AS A RESULT OF CONSTRUCTION ACTIVITIES SHALL BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE OWNER.

1

KEYMAP



GARVER

REV.	DATE	DESCRIPTION	BY
1	6/6/23	ADDENDUM NO. 2	AMJ

E11

ANDREWS COUNTY AIRPORT
ANDREWS, TEXAS

RUNWAY 16 AND TAXIWAY A RECONSTRUCTION

TAXIWAY A PLAN AND PROFILE 2

JOB NO.: 22A11972
DATE: JAN 2023
DESIGNED BY: JAH
DRAWN BY: JAH

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

DRAWING NUMBER
CP-202

SHEET NUMBER **46**

File: L:\2022\22A11972 - E11 RW 16-34 and TW A Recon\Drawings\E11_RW_RHB-CP-201.dwg Last Save: 6/6/2023 9:40 AM Last saved by: JA-Henderson
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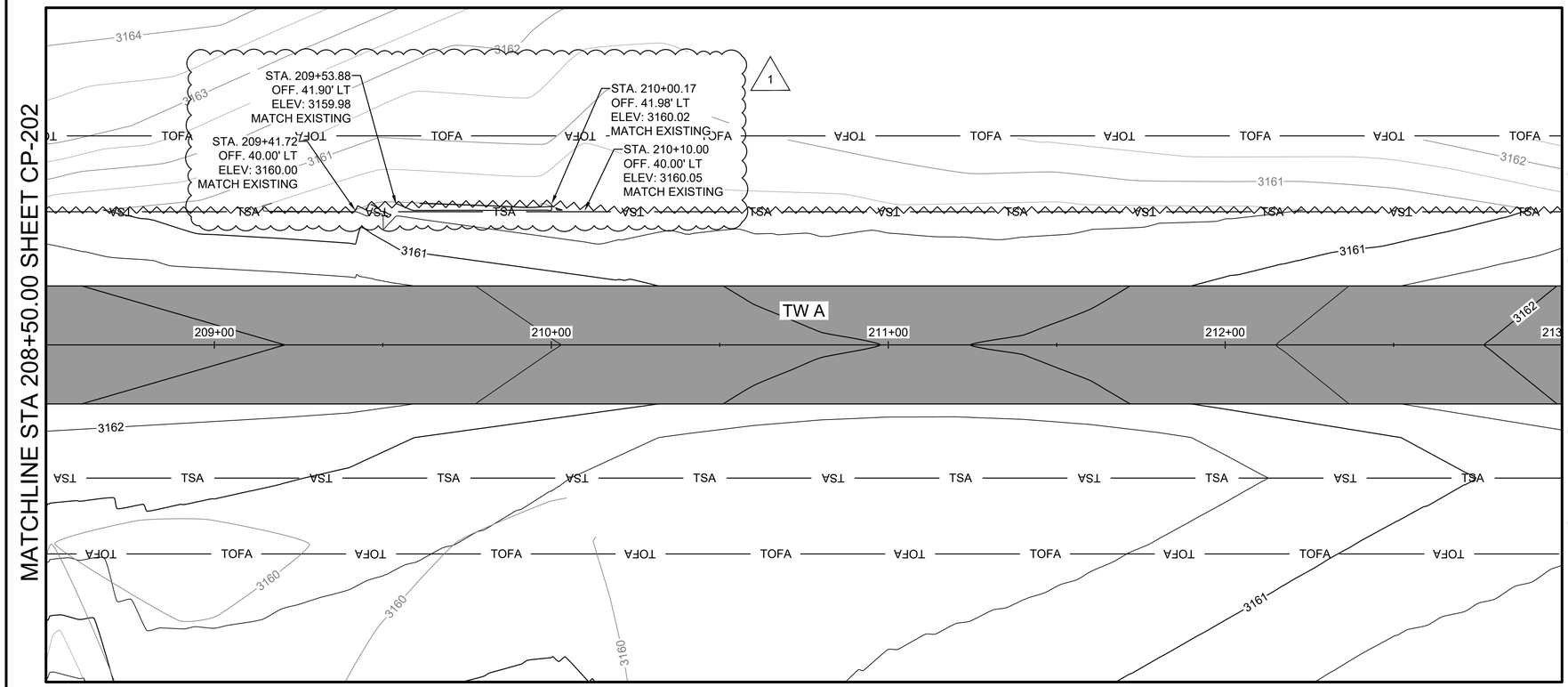

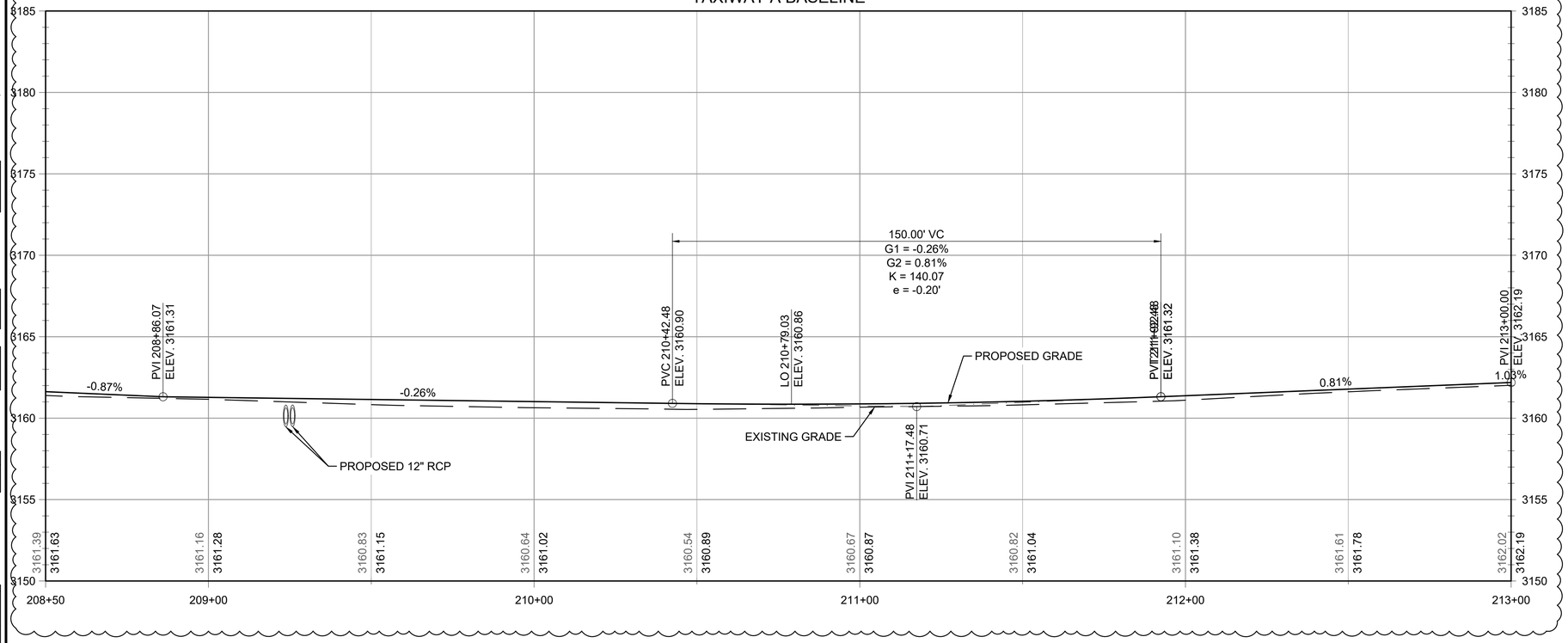

LEGEND

- PROPOSED FULL DEPTH RECONSTRUCTION ASPHALT PAVEMENT
- PROPOSED GRADING LIMITS
- TSA — TAXIWAY SAFETY AREA
- TOFA — TAXIWAY OBJECT FREE AREA
- XXXX — EXISTING CONTOUR
- XXXX — PROPOSED CONTOUR

NOTES:

1. PROFILE VERTICAL EXAGGERATION = 5.
2. SEE SHEETS CP-001 - CP-004 FOR TYPICAL SECTIONS.
3. SEE SHEETS XS-101 - XS-901 FOR CROSS SECTIONS
4. CONTRACTOR SHALL SAWCUT A CLEAN VERTICAL EDGE AT ALL PAVEMENT TIE-INS.
5. CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES, HAND HOLES, AIRFIELD EQUIPMENT, DRAINAGE STRUCTURES, AND BUILDINGS NOT SHOWN FOR DEMOLITION. ANY DAMAGE AS A RESULT OF CONSTRUCTION ACTIVITIES SHALL BE REPAIRED BY THE CONTRACTOR AT NO COST TO THE OWNER.

1

KEYMAP

GARVER

REV.	DATE	DESCRIPTION	BY
1	6/6/23	ADDENDUM NO. 2	AMJ

E11

ANDREWS COUNTY AIRPORT
ANDREWS, TEXAS

RUNWAY 16 AND TAXIWAY A RECONSTRUCTION

TAXIWAY A PLAN AND PROFILE 3

JOB NO.: 22A11972
DATE: JAN 2023
DESIGNED BY: JAH
DRAWN BY: JAH

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

DRAWING NUMBER
CP-203

SHEET NUMBER **47**

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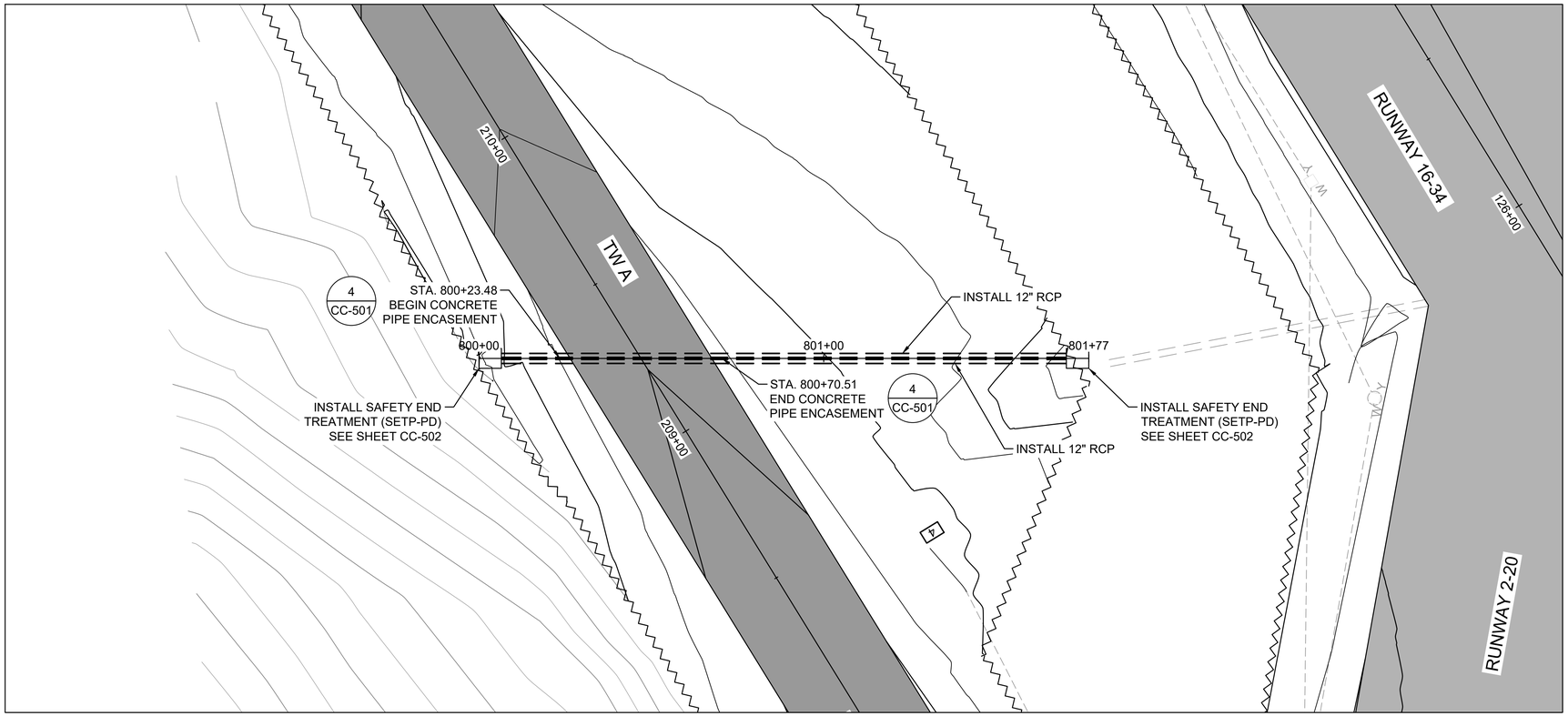
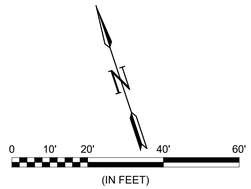
Last plotted by: Henderson, James, A Plot Style: AECmono.ctb Plot Scale: 1:1 Plot Date: 6/6/2023 1:43 PM Plotter used: AutoCAD PDF (General Documentation).pc3





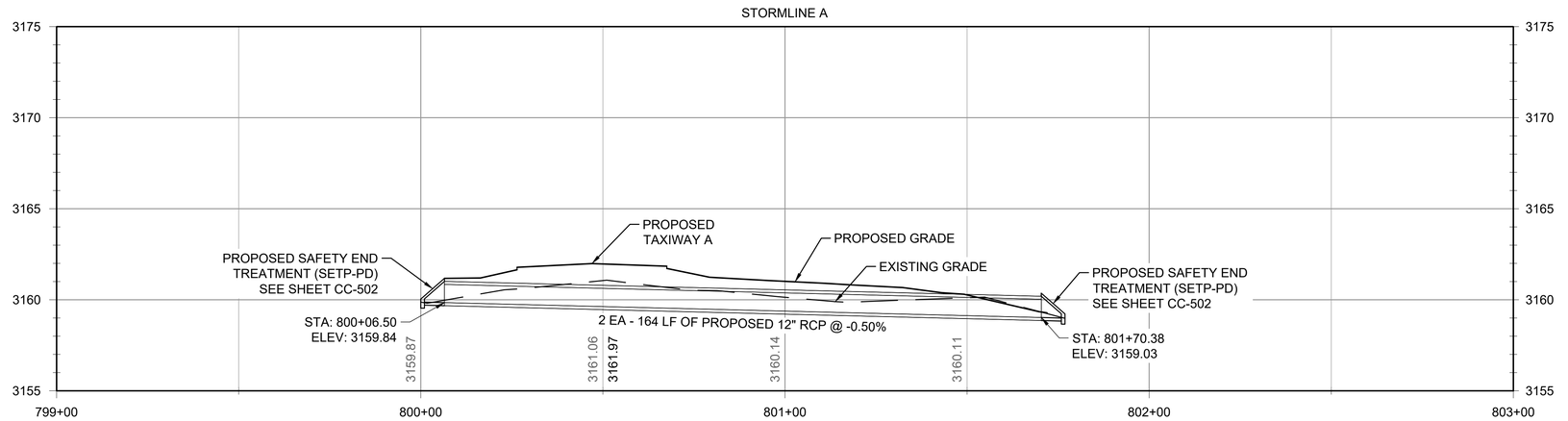
1

LEGEND

- PROPOSED FULL DEPTH RECONSTRUCTION ASPHALT PAVEMENT
- PROPOSED NEW CONSTRUCTION ASPHALT PAVEMENT
- PROPOSED STORM DRAIN PIPE
- EXISTING STORM DRAIN PIPE
- XXX — PROPOSED CONTOUR
- XXX — EXISTING CONTOUR
- PROPOSED GRADING LIMITS
- PROPOSED RUNWAY LIGHT
- EXISTING RUNWAY LIGHT
- PROPOSED DUCT
- EXISTING DUCT
- # — PROPOSED SIGN
- STA: / OFF: / ELEV: — GRADING PVI

NOTES:

1. PROFILE VERTICAL EXAGGERATION = 5
2. SEE SHEET CC-501 FOR DRAINAGE DETAILS



KEYMAP

REV.	DATE	DESCRIPTION	BY
1	6/6/23	ADDENDUM NO. 2	AMJ

ANDREWS COUNTY AIRPORT
ANDREWS, TEXAS

RUNWAY 16 AND TAXIWAY A RECONSTRUCTION

STORM DRAIN PLAN & PROFILE 2

JOB NO.: 22A11972
DATE: JAN 2023
DESIGNED BY: JAH
DRAWN BY: JAH

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

DRAWING NUMBER
CC-102

SHEET NUMBER **72**

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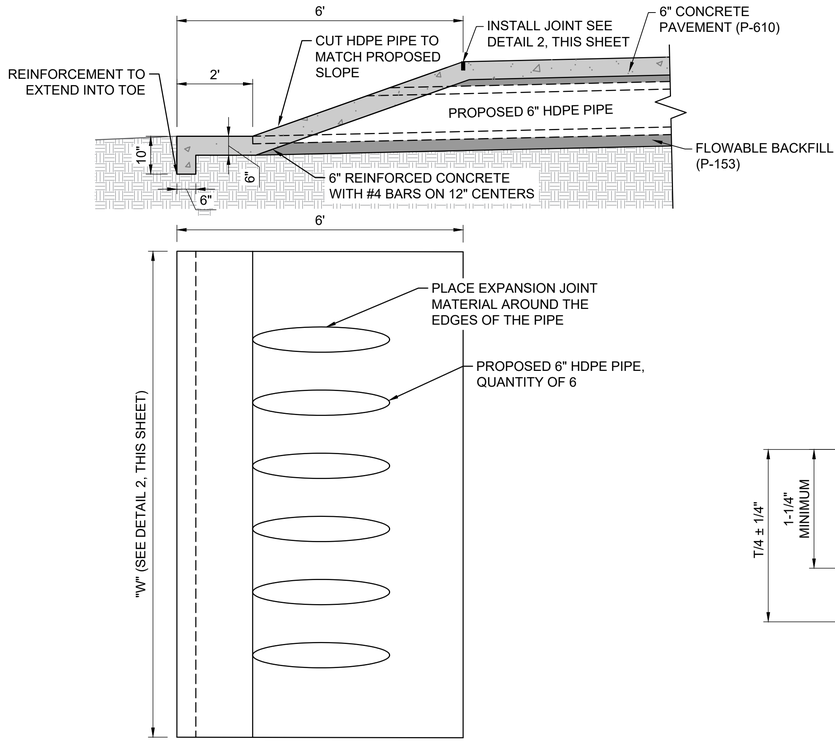
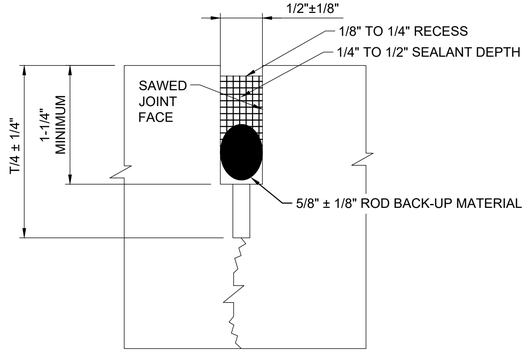


1 CC-501

CONCRETE SLOPE PROTECTION

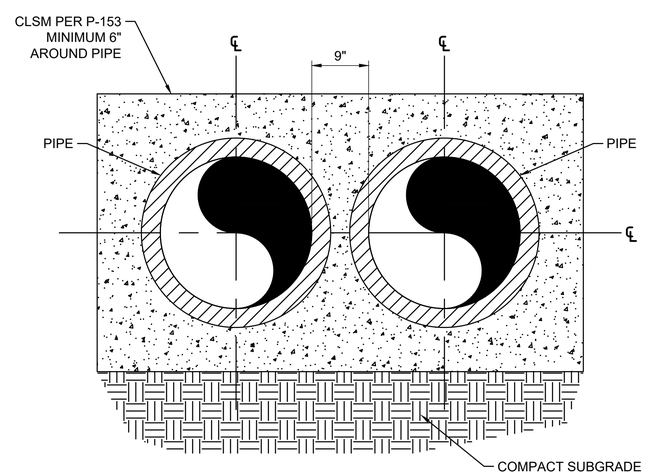
SCALE: NONE



2 CC-501

CONTRACTION JOINTS

SCALE: NONE



4 CC-501

CONCRETE PIPE ENCASEMENT

SCALE: NONE

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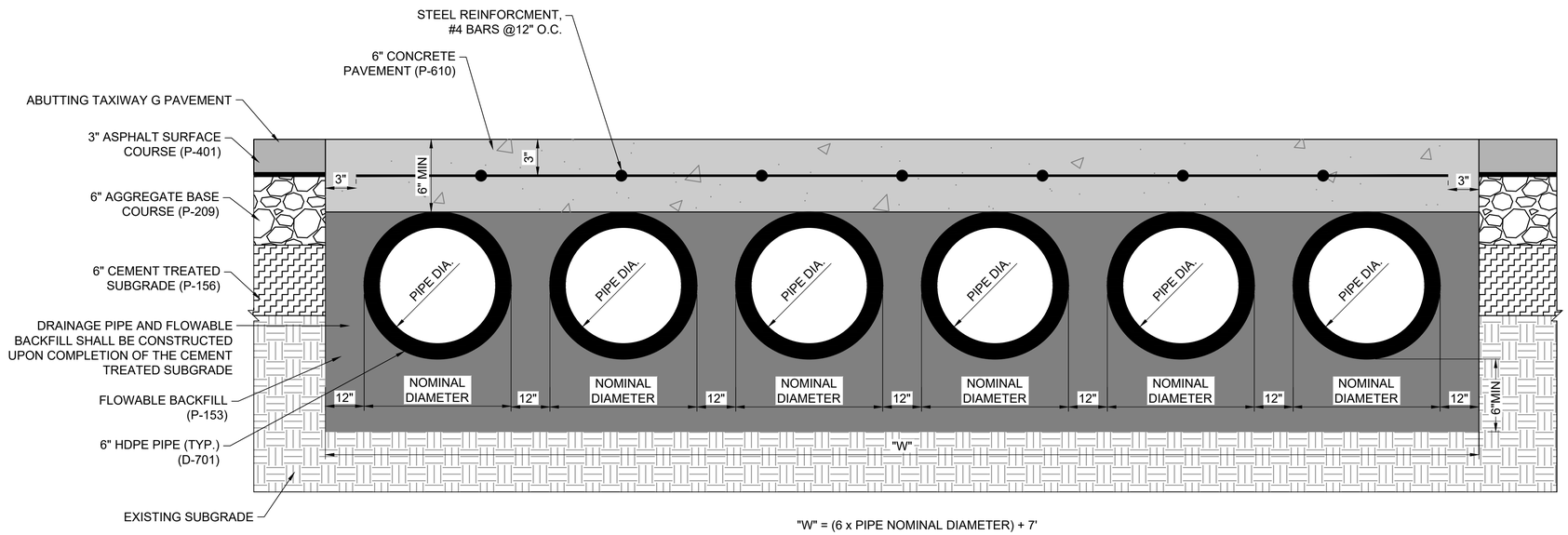


3 CC-501

HDPE PIPE IN-PAVEMENT ENCASEMENT

SCALE: NONE

REV.	DATE	DESCRIPTION	BY
1	6/6/23	ADDENDUM NO. 2	AMJ

ANDREWS COUNTY AIRPORT
ANDREWS, TEXAS

RUNWAY 16 AND TAXIWAY A RECONSTRUCTION

STORM DETAILS 1

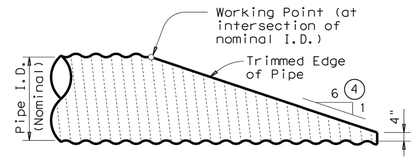
JOB NO.: 22A11972
DATE: JAN 2023
DESIGNED BY: JAH
DRAWN BY: JAH

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

DRAWING NUMBER
CC-501

SHEET NUMBER **73**

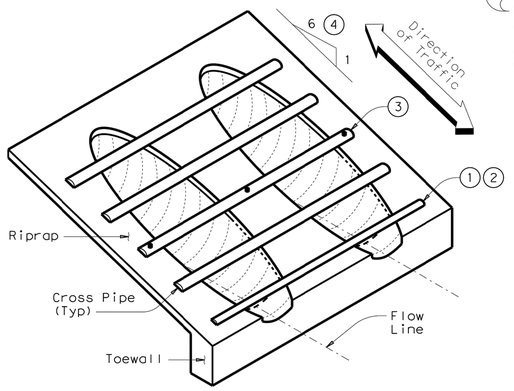
File: L:\2022\22A11972 - E11 RW 16-34 and TW A Recon\Drawings\E11_RW_RHB-CG-201.dwg Last Save: 6/6/2023 8:34 AM Last saved by: JAHenderson
Last plotted by: Henderson, James, A Plot Style: AECmono.ctb Plot Scale: 1:1 Plot Date: 6/6/2023 1:44 PM Plotter used: AutoCAD PDF (General Documentation).pc3



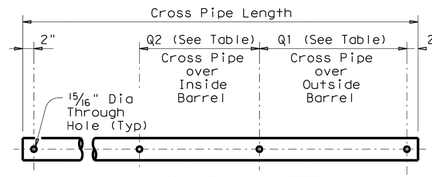
NOTE: All Cross Pipes, calculations, and dimensions are based on the pipe culverts mitered as shown in this detail. Alternate styles of mitered ends will require that appropriate adjustments be made to the values presented on this standard.

SIDE ELEVATION OF TYPICAL PIPE CULVERT MITER

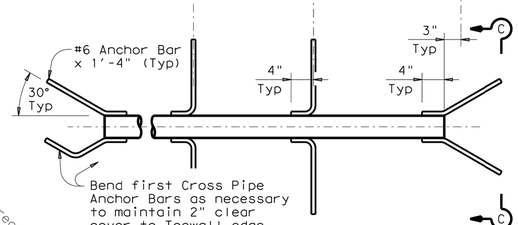
(Showing Corrugated Metal Pipe Culvert.)
(Details at Concrete Pipe Culvert are similar.)



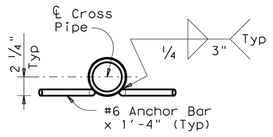
ISOMETRIC VIEW OF TYPICAL INSTALLATION



PIPE W/ BOLTED ANCHOR

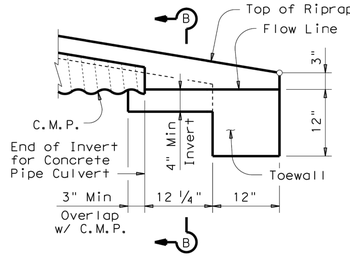


PIPE W/ ANCHOR BARS



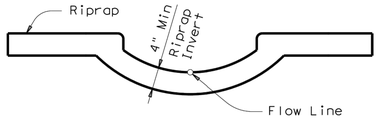
SECTION C-C

CROSS PIPE DETAILS



DETAIL "A"

(Showing Invert with Corrugated Metal Pipe Culvert. Concrete Pipe Culvert details are similar. Cross Pipes not shown for clarity.)



SECTION B-B

(Cross Pipes not shown for clarity.)

CROSS PIPE LENGTHS, REQUIRED PIPE SIZES, & RIPRAP QUANTITIES (2)

Nominal Culvert I.D.	Conc Riprap (CY) (6)	Pipe Culvert Spa ~ G	Single Barrel ~ Q1	Multi-Barrel ~ Q1	Q2	Conditions for use of Cross Pipes	Cross Pipe Size
12"	0.6	9"	N/A	2'- 1"	1'- 9"	3 or more Pipe Culverts	3" Std (3.500" O.D.)
15"	0.7	11"	N/A	2'- 5"	2'- 2"		
18"	0.8	1'- 2"	N/A	2'-10"	2'- 8"		
21"	0.9	1'- 4"	N/A	3'- 2"	3'- 1"		
24"	0.9	1'- 7"	N/A	3'- 6"	3'- 7"		
27"	1.0	1'- 8"	N/A	3'-10"	3'-11"	3 or more Pipe Culverts	3 1/2" Std (4.000" O.D.)
30"	1.1	1'-10"	N/A	4'- 2"	4'- 4"	2 or more Pipe Culverts	
33"	1.2	1'-11"	4'- 2"	4'- 5"	4'- 8"	All Pipe Culverts	
36"	1.3	2'- 1"	4'- 5"	4'- 9"	5'- 1"	All Pipe Culverts	4" Std (4.500" O.D.)
42"	1.5	2'- 4"	4'-11"	5'- 5"	5'-10"		
48"	1.7	2'- 7"	5'- 5"	6'- 0"	6'- 7"	All Pipe Culverts	5" Std (5.563" O.D.)
54"	2.0	3'- 0"	5'-11"	6'- 9"	7'- 6"		
60"	2.2	3'- 3"	6'- 5"	7'- 4"	8'- 3"		
66"	2.4	3'- 3"	6'-11"	7'-10"	8'- 9"		
72"	2.7	3'- 4"	7'- 5"	8'- 5"	9'- 4"		

(1) The proper installation of the first Cross Pipe is critical for vehicle safety. The top of the first Cross Pipe must be placed at no more than 6" above the flow line.

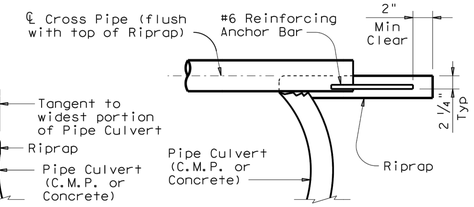
(2) Size of Cross Pipes, except the first bottom pipe, shall be as shown in the PIPE SIZE table. The first bottom pipe shall be 3 1/2" Standard Pipe (4" O.D.).

(3) The third Cross Pipe from the bottom of the Culvert shall always be installed using a bolted connection. Care shall be taken to ensure that Riprap concrete does not flow into the Cross Pipe so as to permit disassembly of the bolted connection to allow cleanout access. At the Contractor's option, all other Cross Pipes may also be installed using the bolted connection details.

(4) Match Cross Slope as shown elsewhere in the plans. Cross Slope of 6:1 or flatter is required for vehicle safety.

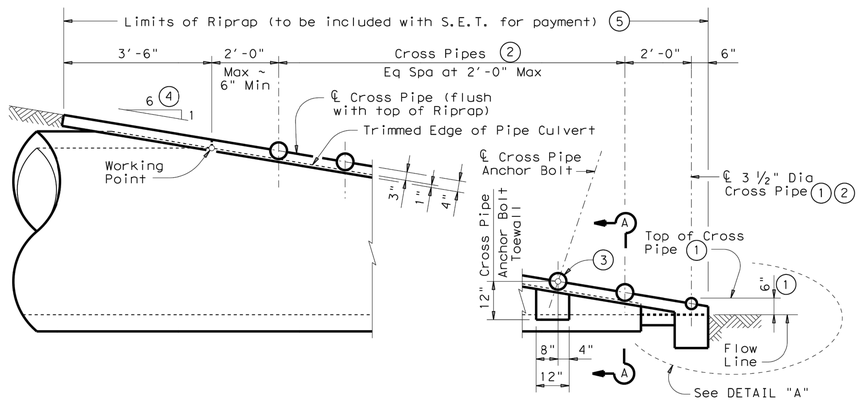
(5) Riprap placed beyond the limits shown will be paid as Concrete Riprap in accordance with Item 432, "Riprap".

(6) Quantities shown are for one end of one reinforced Concrete Pipe Culvert. For multiple pipe culverts or for Corrugated Metal Pipe Culverts, quantities will need to be adjusted. Riprap quantities are for Contractor's information only.



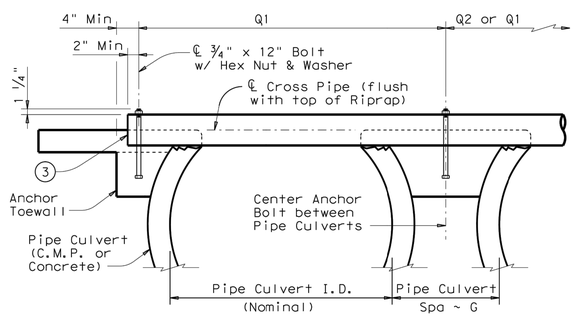
SHOWING TYPICAL PIPE CULVERT & RIPRAP

SHOWING CROSS PIPE WITH ANCHOR BAR



SIDE ELEVATION OF CAST-IN-PLACE CONCRETE

(Showing Concrete Pipe Culvert.)
(Details at Corrugated Metal Pipe Culvert are similar.)



SHOWING CROSS PIPE WITH BOLTED ANCHOR

SECTION A-A

GENERAL NOTES:

Cross Pipes are designed for a traversing load of 10,000 pounds at yield as recommended by Research Report 280-2F, "Safety Treatment of Roadside Parallel-Drainage Structures", Texas Transportation Institute, March 1981.

Safety End Treatments shown herein are intended for use in those installations where out of control vehicles are likely to traverse the openings approximately perpendicular to the Cross Pipes.

Riprap and all necessary inverts shall be Concrete Riprap conforming to the requirements of Item 432, "Riprap".

Synthetic fibers listed on the "Fibers for Concrete" Material Producer List (MPL) may be used in lieu of steel reinforcing in riprap concrete unless noted otherwise.

Payment for riprap and toewall is included in the Price Bid for each Safety End Treatment.

Cross Pipes shall conform to the requirements of ASTM A53 (Type E or S, Grade B), ASTM A500 (Grade B), or API 5LX52.

Bolts and nuts shall conform to ASTM A307.

All steel components, except concrete reinforcing, shall be galvanized after fabrication. Galvanizing damaged during transport or construction shall be repaired in accordance with the specifications.

Texas Department of Transportation — Bridge Division Standard

SAFETY END TREATMENT

FOR 12" DIA TO 72" DIA PIPE CULVERTS
TYPE II ~ PARALLEL DRAINAGE

SETP-PD

FILE: setppdse.dgn	DN: GAF	CK: CAT	DW: JRP	CK: GAF
©TxDOT February 2010	CONT	SECT	JOB	HIGHWAY
REVISIONS				
11-10: Add note for synthetic fibers.	DIST	COUNTY		SHEET NO.

DATE:
FILE:

File: L:\2022\22A11972 - E11 RW 16-34 and TW A Recon\Drawings\E11_RW_RHB-CG-201.dwg Last Save: 6/6/2023 8:34 AM Last saved by: JAHenderson
Last plotted by: Henderson, James, A Plot Style: AECmono.ctb Plot Scale: 1:1 Plot Date: 6/6/2023 1:44 PM Plotter used: AutoCAD PDF (General Documentation).pc3

REV	DATE	DESCRIPTION	BY
1	6/6/23	ADDENDUM NO. 2	AMJ

E11

ANDREWS COUNTY AIRPORT
ANDREWS, TEXAS

RUNWAY 16 AND TAXIWAY A RECONSTRUCTION

STORM DETAILS 2

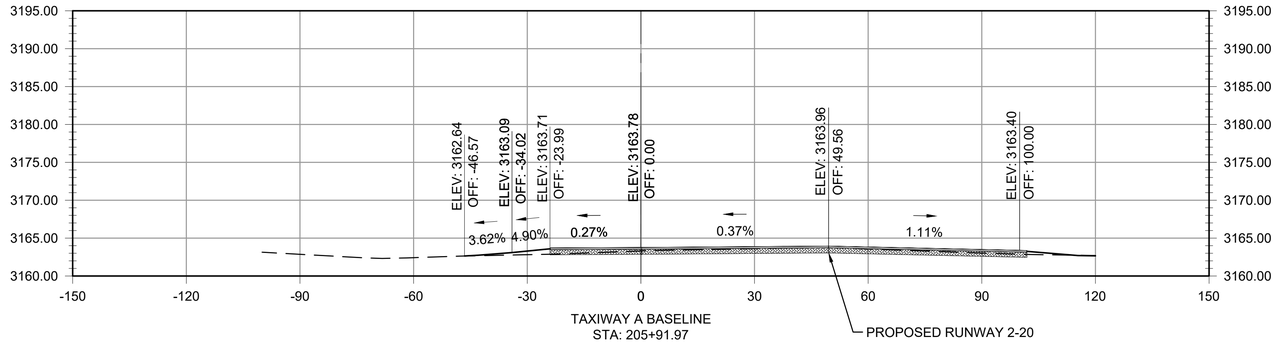
JOB NO.: 22A11972
DATE: JAN 2023
DESIGNED BY: JAH
DRAWN BY: JAH

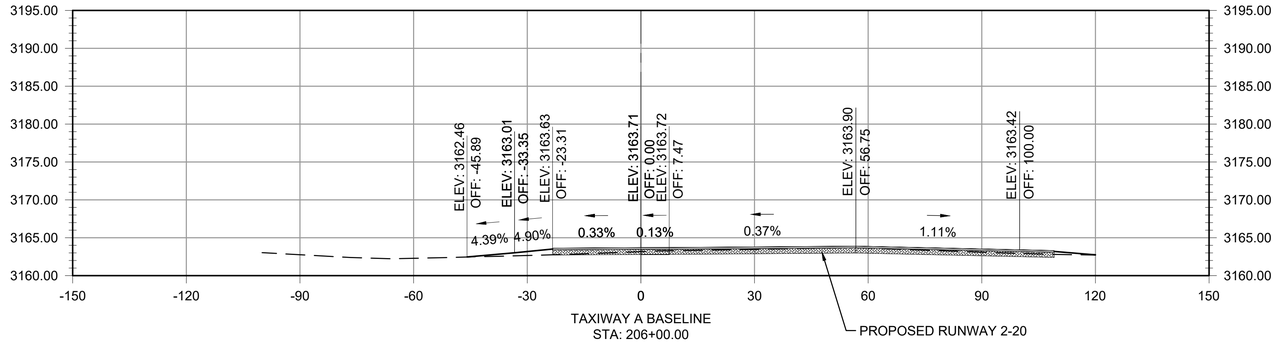
BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
IF NOT ONE INCH ON THIS SHEET, ADJUST SCALES ACCORDINGLY.

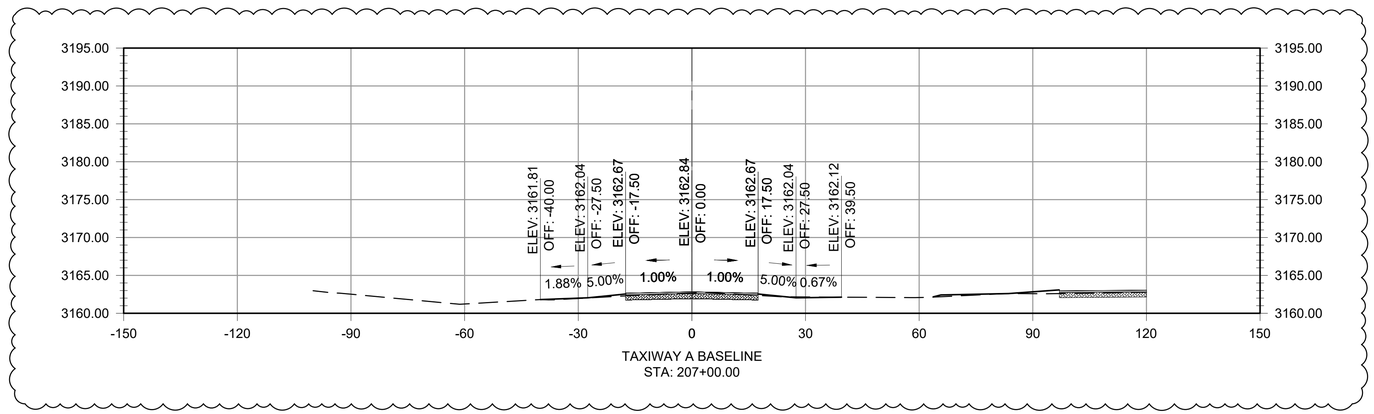
DRAWING NUMBER
CC-502

SHEET NUMBER 74

1







1

0 10' 20' 40' 60'

(IN FEET)

VERTICAL EXAGGERATION = 2

REV	DATE	DESCRIPTION	BY
1	6/6/23	ADDENDUM NO. 2	AMJ

ANDREWS COUNTY AIRPORT
ANDREWS, TEXAS

RUNWAY 16 AND TAXIWAY A RECONSTRUCTION

TAXIWAY A CROSS SECTIONS 2

JOB NO.: 22A11972
DATE: JAN 2023
DESIGNED BY: JAH
DRAWN BY: JAH

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

DRAWING NUMBER
XS-202

SHEET NUMBER **144**

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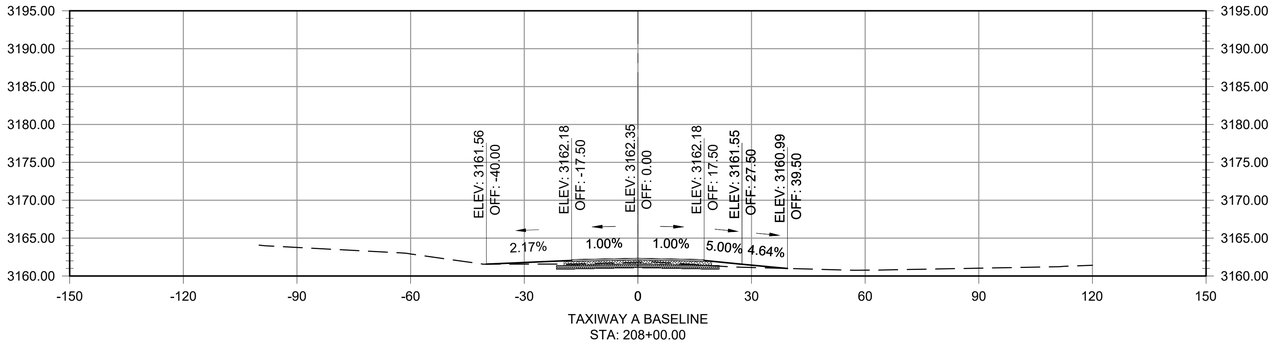
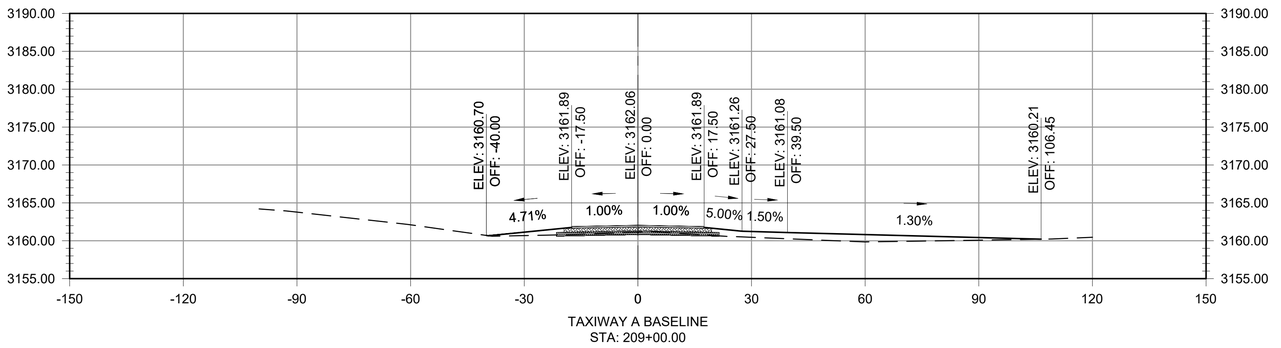
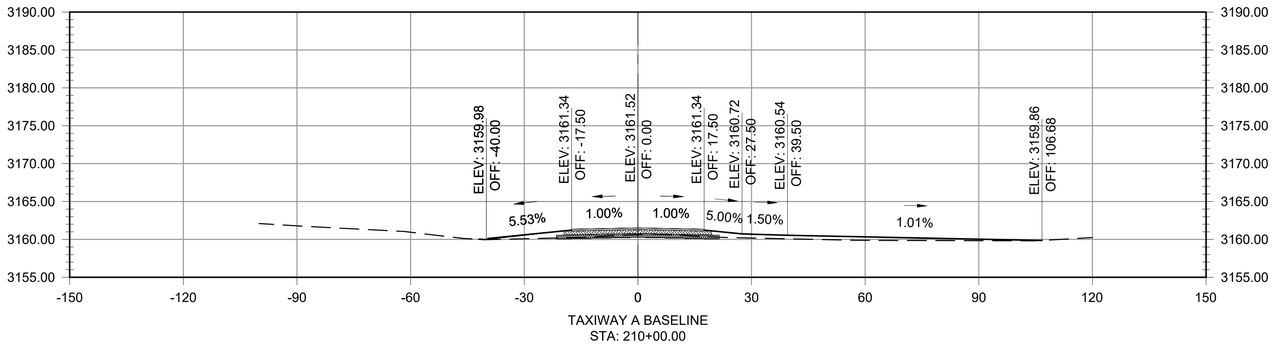
Last plotted by: Henderson, James, A Plot Style: AECmono.ctb Plot Scale: 1:1 Plot Date: 6/6/2023 1:44 PM Plotter used: AutoCAD PDF (General Documentation).pc3







1

0 10' 20' 40' 60'
(IN FEET)

VERTICAL EXAGGERATION = 2

REV	DATE	DESCRIPTION	BY
1	6/6/23	ADDENDUM NO. 2	AMJ

ANDREWS COUNTY AIRPORT
ANDREWS, TEXAS

E11

RUNWAY 16 AND TAXIWAY A RECONSTRUCTION

TAXIWAY A CROSS SECTIONS 3

JOB NO.: 22A11972
DATE: JAN 2023
DESIGNED BY: JAH
DRAWN BY: JAH

BAR IS ONE INCH ON ORIGINAL DRAWING
0 1"
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DRAWING NUMBER
XS-203

SHEET NUMBER **145**

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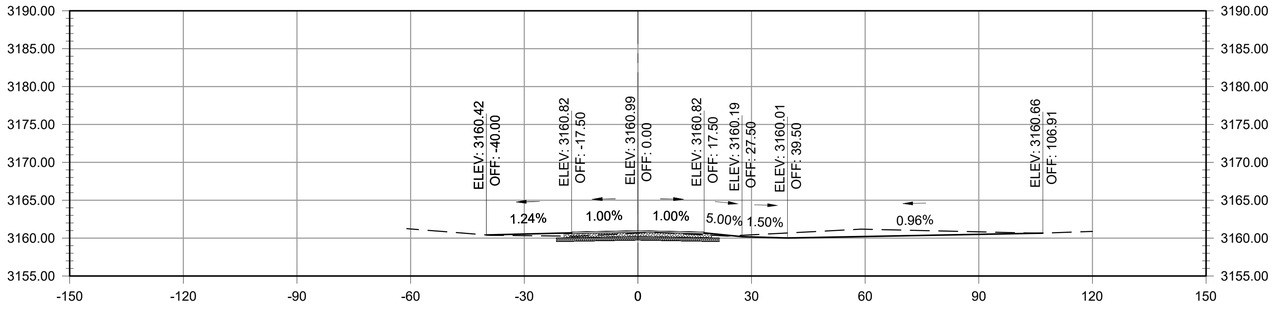
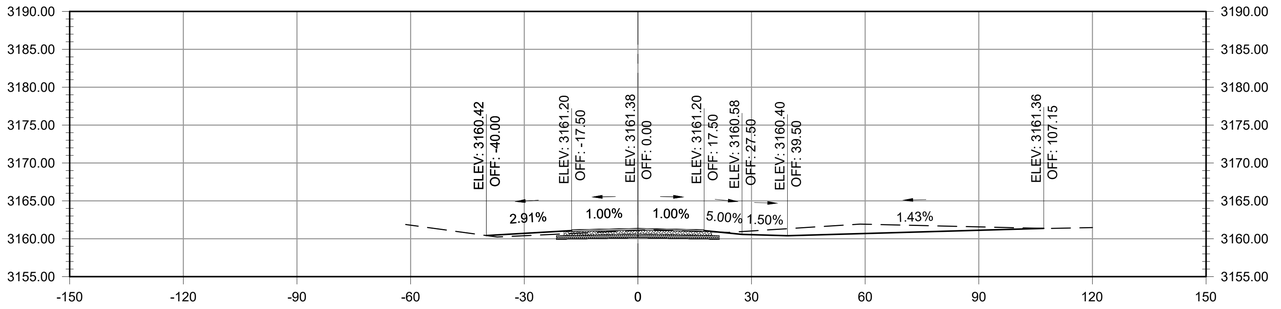
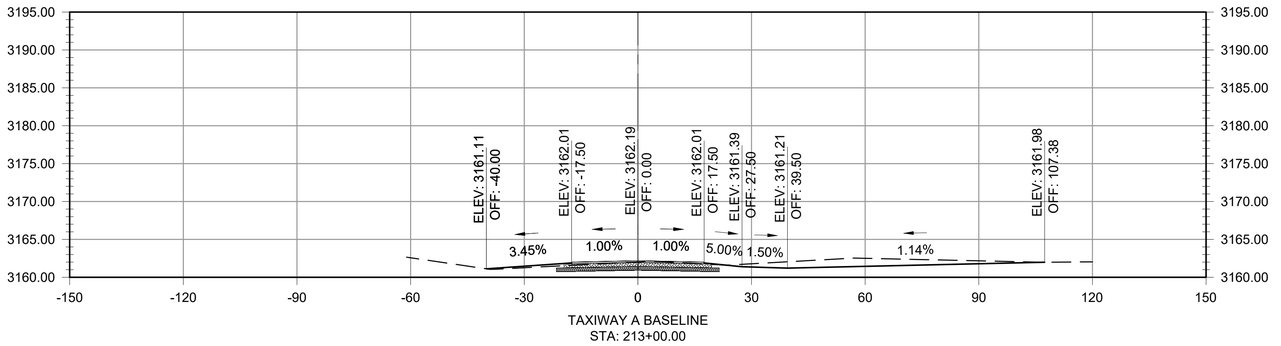
Last plotted by: Henderson, James, A Plot Style: AECmono.ctb Plot Scale: 1:1 Plot Date: 6/6/2023 1:44 PM Plotter used: AutoCAD PDF (General Documentation).pc3



TAXIWAY A BASELINE
STA: 211+00.00



TAXIWAY A BASELINE
STA: 212+00.00



TAXIWAY A BASELINE
STA: 213+00.00

1

0 10' 20' 40' 60'
(IN FEET)

VERTICAL EXAGGERATION = 2

REV	DATE	DESCRIPTION	BY
1	6/6/23	ADDENDUM NO. 2	AMJ

ANDREWS COUNTY AIRPORT
ANDREWS, TEXAS

RUNWAY 16 AND TAXIWAY A RECONSTRUCTION

TAXIWAY A CROSS SECTIONS 4

JOB NO.: 22A11972
DATE: JAN 2023
DESIGNED BY: JAH
DRAWN BY: JAH

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

DRAWING NUMBER
XS-204

SHEET NUMBER **146**

File: L:\2022\22A11972 - E11 RW 16-34 and TW A Recon\Drawings\RE\E11_RW16-CAF-XSEC-TWA-20SCALE.dwg Last Save: 6/6/2023 9:49 AM Last saved by: JAHenderson
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