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June 20, 2024

Annabelle Eckert
U.S. Army Corps of Engineers – Regulatory Division
819 Taylor Street, Room 3A37
P.O. Box 17300
Fort Worth, Texas 76102-0300
Submitted via email: Annabelle.N.Eckert@usace.army.mil

Subject: Nationwide Permit 14 Pre-Construction Notification Package
County Road 255 Improvements (SWF-2023-00430), Williamson County, Texas

Annabelle,

Williamson County is proposing the County Road 255 Improvements Project (project) in western Williamson County, Texas. The project consists of widening and straightening the existing two-lane roadway into a four-lane roadway over approximately 2.9 miles, including culvert and drainage improvements.

HNTB corporation, on behalf of Williamson County, contracted SWCA Environmental Consultants (SWCA) to perform a delineation of aquatic resources, threatened and endangered species habitat assessment, and determine if cultural resources that are listed in, or eligible for listing in the National Register of Historic Places occur within the project area. SWCA respectfully submits the enclosed Nationwide Permit 14 (Linear Transportation Projects) pre-construction notification on behalf of Williamson County.

SWCA has determined, subject to review by the U.S Army Corps of Engineers, that the project: 1) will not affect federally listed threatened or endangered species; 2) is not likely to jeopardize the tricolored bat (*Perimyotis subflavus*), which is proposed for federal listing; and 3) will not impact previously unknown or recorded cultural resources sites that are listed in, or eligible for listing in, the National Register of Historic Places.

Williamson County plans to begin the construction phase of the project in late summer 2024 and understands that the tricolored bat may become listed under the Endangered Species Act prior to or during construction. Williamson County proposes to adhere to seasonal tree clearing restrictions (December 15–February 15 and May 1–July 15) that the U.S. Fish and Wildlife Service has expressed is adequate to minimize impacts to the species, as described to SWCA in a separate and unrelated Section 7 consultation for a roadway project within Williamson County. Should you need additional information or have any questions, please feel free to contact me at 737-220-3313 or at SVanKampenLewis@swca.com.

Sincerely,

Stephen Van Kampen-Lewis
Lead Project Manager

cc: Ade Ashaye, HNTB Corporation

Enclosure:
U.S. Army Corps of Engineers Fort Worth District, Nationwide Permit 14 Pre-Construction Notification Form

Enclosure

U.S. Army Corps of Engineers Fort Worth District
Nationwide Permit 14 Pre-Construction Notification Form

U.S. Army Corps of Engineers (USACE)

Fort Worth District

Nationwide Permit (NWP) Pre-Construction Notification (PCN) Form

This form integrates requirements of the Nationwide Permit Program within the Fort Worth District, including General and Regional Conditions. Please consult instructions included at the end prior to completing this form.

Contents

DESCRIPTION OF NWP 14 – LINEAR TRANSPORTATION PROJECTS

Activities required for the construction, expansion, modification, or improvement of linear transportation projects (e.g., roads, highways, railways, trails, airport runways, and taxiways) in waters of the United States (U.S.). For linear transportation projects in non-tidal waters, the discharge cannot cause the loss of greater than 1/2-acre of waters of the U.S. For linear transportation projects in tidal waters, the discharge cannot cause the loss of greater than 1/3-acre of waters of the U.S. Any stream channel modification, including bank stabilization, is limited to the minimum necessary to construct or protect the linear transportation project; such modifications must be in the immediate vicinity of the project.

This NWP also authorizes temporary structures, fills, and work, including the use of temporary mats, necessary to construct the linear transportation project. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

This NWP cannot be used to authorize non-linear features commonly associated with transportation projects, such as vehicle maintenance or storage buildings, parking lots, train stations, or aircraft hangars.

Part I: NWP Conditions and Requirements Checklist

To ensure compliance with the General Conditions (GC), in order for an authorization by a NWP to be valid, please answer the following questions:

1. Navigation (Applies to Section 10 waters [i.e. navigable waters of the U.S.], see instruction 4 for link to list):
   a. Does the project cause more than a minimal adverse effect on navigation?
   ☐ Yes ☐ No ☒ N/A

b. Does the project require the installation and maintenance of any safety lights and signals prescribed by the U.S. Coast Guard on authorized facilities in navigable waters of the U.S.? ☐ Yes ☐ No ☒ N/A

c. Does the Applicant understand and agree that if future operations by the U.S. require the removal, relocation, or other alteration of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the Applicant will be required, upon due notice from the USACE, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the U.S.; and no claim shall be made against the U.S. on account of any such removal or alteration?
☐ Yes ☐ No ☒ N/A

If you answered yes to question a. or b. above, or if you answered no to question c. above, please explain how the project would be in compliance with this GC or be aware that the project would require an individual permit application: N/A

2. Aquatic Life Movements:

a. Does the project substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area? ☐ Yes ☒ No

b. Is the project's primary purpose to impound water? ☐ Yes ☒ No

c. Will culverts placed in streams be installed to maintain low flow conditions to sustain the movement of those aquatic species? ☐ Yes ☐ No ☒ N/A

If you answered yes to question a. or b. above, or if you answered no to question c. above, please explain how the project would be in compliance with this GC or be aware that the project would require an individual permit application: N/A

3. Spawning Areas:

a. Does the project avoid spawning areas during the spawning season to the maximum extent practicable? ☐ Yes ☐ No ☒ N/A

b. Does the project result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area?
☐ Yes ☐ No ☒ N/A

If you answered no to question a. above, or if you answered yes to question b. above, please explain how the project would be in compliance with this GC or be aware that the project would require an individual permit application: N/A

4. Migratory Bird Breeding Areas:

a. Does the project avoid waters of the U.S. that serve as breeding areas for migratory birds to the maximum extent practicable? ☐ Yes ☐ No ☒ N/A

If you answered no to question a. above, please explain how the project would be in compliance with this GC or be aware that the project would require an individual permit application:
N/A

5. Shellfish Beds:

a. Does the project occur in areas of concentrated shellfish populations? ☐ Yes ☒ No

If you answered yes to question a. above, please explain how the project would be in compliance with this GC or be aware that the project would require an individual permit application:
N/A

6. Suitable Material:
   a. Does the project use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.)? ☐ Yes ☒ No
   b. Is the material used for construction or discharged in a water of the U.S. free from toxic pollutants in toxic amounts (see Section 307 of the Clean Water Act)? ☒ Yes ☐ No

   If you answered yes to question a. above, or if you answered no to question b. above, please explain how the project would be in compliance with this GC or be aware that the project would require an individual permit application: N/A

7. Water Supply Intakes:
   a. Does the project occur in the proximity of a public water supply intake? ☐ Yes ☒ No

   If you answered yes to question a. above, please explain how the project would be in compliance with this GC or be aware that the project would require an individual permit application:
   N/A

8. Adverse Effects From Impoundments:
   a. Does the project create an impoundment of water? ☐ Yes ☒ No
   b. If you answered yes to question a. above, are the adverse effects (to the aquatic system due to accelerating the passage of water, and/or restricting its flow) minimized to the maximum extent practicable? ☐ Yes ☐ No ☒ N/A

   If you answered no to question b. above, please explain how the project would be in compliance with this GC or be aware that the project would require an individual permit application:
   N/A

9. Management of Water Flows:
   a. Does the project maintain the pre-construction course, condition, capacity, and location of open waters to the maximum extent practicable, for each activity, including stream channelization and storm water management activities? ☒ Yes ☐ No
   b. Will the project be constructed to withstand expected high flows? ☒ Yes ☐ No
   c. Will the project restrict or impede the passage of normal or high flows? ☐ Yes ☒ No

   If you answered no to question a. or b. above, or if you answered yes to question c. above, please explain how the project would be in compliance with this GC or be aware that the project would require an individual permit application:
   N/A

10. Fills Within 100-Year Floodplains:
   a. Does the project comply with applicable FEMA-approved state or local floodplain management requirements? ☒ Yes ☐ No ☐ N/A

   If you answered no to question a. above, please explain how the project would be in compliance with this GC or be aware that the project would require an individual permit application:
   N/A

11. Equipment:
   a. Will heavy equipment working in wetlands or mudflats be placed on mats, or other measures be taken to minimize soil disturbance? ☒ Yes ☐ No ☐ N/A

   If you answered no to question a. above, please explain how the project would be in compliance with this GC or be aware that the project would require an individual permit application:
   N/A

12. Soil Erosion and Sediment Controls:
    a. Will the project use appropriate soil erosion and sediment controls and maintain them in effective operating condition throughout construction? ☒ Yes ☐ No
    b. Will all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, be permanently stabilized at the earliest practicable date? ☒ Yes ☐ No
    c. Be aware that if work will be conducted within waters of the U.S., Applicants are encouraged to perform that work during periods of low-flow or no-flow.

    If you answered no to question a. or b. above, please explain how the project would be in compliance with this GC or be aware that the project would require an individual permit application:
    N/A

13. Removal of Temporary Fills:
    a. Will temporary fills be removed in their entirety and the affected areas returned to pre-construction elevations? ☒ Yes ☐ No ☐ N/A
    b. Will the affected areas be revegetated, as appropriate? ☒ Yes ☐ No ☐ N/A

    If you answered no to question a. or b. above, please explain how the project would be in compliance with this GC or be aware that the project would require an individual permit application:
    N/A

14. Proper Maintenance:
    a. Will any authorized structure or fill be properly maintained, including maintenance to ensure public safety? ☒ Yes ☐ No

    If you answered no to question a. above, please explain how the project would be in compliance with this GC or be aware that the project would require an individual permit application:
    N/A

15. Single and Complete Project:
    a. Does the Applicant certify that the project is a "single and complete project" as defined below?
    ☒ Yes ☐ No

    Single and complete project:
    Single and complete linear project: A linear project is a project constructed for the purpose of getting people, goods, or services from a point of origin to a terminal point, which often involves multiple crossings of one or more waterbodies at separate and distant locations. The term "single and complete project" is defined as that portion of the total linear project proposed or accomplished by one owner/developer or partnership or other association of owners/developers that includes all crossings of a single water of the United States (i.e., a single waterbody) at a specific location. For linear projects crossing a single or multiple waterbodies several times at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

    Single and complete non-linear project: For non-linear projects, the term "single and complete project" is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete non-linear project must have independent utility (see definition of "independent utility"). Single and complete non-linear projects may not be "piecemealed" to avoid the limits in an NWP authorization.

    Independent utility: Defined as a test to determine what constitutes a single and complete non-linear project in the Corps regulatory program. A project is considered to have independent utility

if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

16. Wild and Scenic River:
There are no Wild and Scenic Rivers within the geographic boundaries of the Fort Worth District. Therefore, this GC does not apply.

17. Tribal Rights:
a. Will the project or its operation impair reserved tribal rights, including, but not limited to, reserved water rights and treaty fishing and hunting rights? ☐ Yes ☐ No ☒ N/A

If you answered yes to question a. above, please explain how the project would be in compliance with this GC or be aware that the project would require an individual permit application:
N/A

18. Endangered Species (see also Box 8 in Part III):
a. Is the project likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or will the project directly or indirectly destroy or adversely modify the critical habitat of such species? ☐ Yes ☒ No
b. Might the project affect any listed species or designated critical habitat? ☐ Yes ☒ No
c. Is any listed species or designated critical habitat in the vicinity of the project?
☐ Yes ☒ No
d. If the project "may affect" a listed species or critical habitat, has Section 7 consultation addressing the effects of the proposed activity been completed? ☐ Yes ☐ No ☒ N/A

If you answered yes to question a. or b. or c. above, or if you answered no to question d. above, please explain how the project would be in compliance with this GC or be aware that the project would require an individual permit application:
N/A

19. Migratory Birds and Bald and Golden Eagles:
a. Does the project have the potential to impact nests, nesting sites, or rookeries of migratory birds, bald or golden eagles? ☒ Yes ☐ No ☐ N/A

If you answered yes to question a. above, you are responsible for contacting the appropriate local office of the U.S. Fish and Wildlife Service to obtain any "take" permits required under the U.S. Fish and Wildlife Service's regulations governing compliance with the Migratory Bird Treaty Act or the Bald and Golden Eagle Protection Act.

20. Historic Properties (see also Box 9 in Part III):
a. Does the project have the potential to cause effects to any historic properties listed, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties?
☐ Yes ☒ No ☐ N/A

If you answered yes to question a. above, please explain how the project would be in compliance with this GC or be aware that the project would require an individual permit application:
N/A

21. Discovery of Previously Unknown Remains and Artifacts:
If you discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by this permit, *you must immediately notify the*

district engineer of what you have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

22. Designated Critical Resource Waters:
    a. Will the project impact critical resource waters, which include NOAA-designated marine sanctuaries, National Estuarine Research Reserves, state natural heritage sites, and outstanding national resource waters or other waters officially designated by a state as having particular environmental or ecological significance and identified by the district engineer after notice and opportunity for public comment? ☐ Yes ☒ No

    If you answered yes to question a. above, be aware that discharges of dredged or fill material into waters of the U.S. are not authorized by NWP 14 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

23. Mitigation (see also Box 10 in Part III):
    a. Will the project include appropriate and practicable mitigation necessary to ensure that adverse effects on the aquatic environment are minimal? ☐ Yes ☒ No

    If you answered no to question a. above, please include an explanation in Box 10 of why no mitigation would be necessary in order to be in compliance with this GC or be aware that the project would require an individual permit application.

24. Safety of Impoundment Structures:
    a. Has the impoundment structure been safely designed to comply with established state dam safety criteria or has it been designed by qualified persons?? ☐ Yes ☐ No ☒ N/A

    If you answered yes to question a. above, non-federal applicants may be required to provide documentation that the design has been independently reviewed by similarly qualified persons with appropriate modifications to ensure safety. If you answered no, please include an explanation in Box 10 of why the structure is exempt from state dam safety criteria or be aware that the project may require an individual permit application.

25. Water Quality (see also Box 11 in Part III):
    a. If in Texas, does the project comply with the conditions of the TCEQ water quality certification for NWP 14? ☐ Yes ☐ No ☒ N/A
    b. If in "Indian Country," does the project comply with the conditions of the EPA water quality certification for NWPs? ☐ Yes ☐ No ☒ N/A
    c. If in Louisiana, does the project comply with the conditions of the LADEQ water quality certification for NWP 14? ☐ Yes ☐ No ☒ N/A

    If you answered no to question a. or b. above, please be aware that the project would require an individual permit application.

26. Coastal Zone Management:
    The Fort Worth District does not cover any Coastal Zone; therefore, this GC does not apply.

27. Regional and Case-By-Case Conditions:
    See the attached Regional Conditions checklist to ensure compliance with this GC.

28. Use of Multiple Nationwide Permits:
    a. Does the project use more than one NWP for a single and complete project? ☐ Yes ☒ No
    b. If you answered yes to question a. above, be aware that unless the project's acreage loss of waters of the U.S. authorized by the NWPs is below the acreage limit of the NWP with the highest specified acreage limit, no NWP can be issued and the project would require an individual permit application.

    If you answered yes to question a. above, please explain how the project would be in compliance with this GC and what additional NWP number you intend to use:
    N/A

29. Transfer of Nationwide Permit Verifications:
    a. Does the Applicant agree that if he or she sells the property associated with the nationwide permit verification, the Applicant may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate USACE district office to validate the transfer?
    ☒ Yes ☐ No

30. Compliance Certification:
    a. Does the Applicant agree that if he or she receives the NWP verification from the USACE, they must submit a signed certification regarding the completed work and any required mitigation (the certification form will be sent by the USACE with the NWP verification letter)?
    ☒ Yes ☐ No

31. Activities Affecting Structure or Works Built by the United States
    a. Does the project temporarily or permanently alter and/or occupy a USACE federally authorized Civil Works project? ☐ Yes ☒ No

    If you answered yes to question a. above, notification is required in accordance with general condition 32, for any activity that requires permission from the Corps. The district engineer may authorize activities under these NWPs only after a statement confirming that the project proponent has submitted a written request for section 408 permission from the Corps office having jurisdiction over that USACE project.

32. Notification:
    a. Reason for notification:
    ☒ the loss of waters of the United States exceeds 1/10 acre; or
    ☒ involves discharges into special aquatic sites; or
    ☐ Regional Conditions
    b. Does the Applicant agree that he or she will not begin the project until either:
    1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or
    2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed species or critical habitat might be affected or in the vicinity of the project, or to notify the Corps pursuant to general condition 20 that the activity may have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is "no effect" on listed species or "no potential to cause effects" on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or Section 106 of the National Historic Preservation (see 33 CFR 330.4(g)) has been completed. ☒ Yes ☐ No

c. Does the Applicant agree that if the district or division engineer notifies the Applicant in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the Applicant cannot begin the activity until an individual permit has been obtained?
☒ Yes ☐ No

NWP 14-specific requirements checklist:

1. Does the project involve the construction, expansion, modification, or improvement of a linear transportation project? ☒ Yes ☐ No

   If you answered no to question 1. above, be aware that the project would not be authorized by a NWP 14 and may require an individual permit application.

2. Does the project cause the loss of greater than 1/2-acre non-tidal waters of the U.S. at any crossing considered a single and complete project? ☐ Yes ☒ No

   If you answered yes to question 2. above, be aware that the project would not be authorized by a NWP 14 and would require an individual permit application.

3. If the project involves any stream channel modification, including bank stabilization, is it limited to the minimum necessary to construct or protect the linear transportation project, and are such modifications in the immediate vicinity of the project? ☒ Yes ☐ No ☐ N/A

   If you answered no to question 3. above, be aware that the project would not be authorized by a NWP 14 and may require an individual permit application.

4. If the project involves non-linear features commonly associated with transportation projects, such as vehicle maintenance or storage buildings, parking lots, train stations, or aircraft hangars, would it use this NWP to authorize these features? ☐ Yes ☒ No

   If you answered yes to question 4. above, be aware that the non-linear features of the project would not be authorized by a NWP 14 and may require an individual permit application.

5. Does each activity/crossing considered a single and complete project have independent utility? ☐ Yes ☐ No ☒ N/A

   If you answered no to question 5. above, be aware that the project may require an individual permit application.

6. a. Will any temporary structures, fills, and work necessary to construct the project meet the criteria for maintaining flows, minimizing flooding, and withstanding high flows?
   ☒ Yes ☐ No ☐ N/A
   b. Will temporary structures and fills be removed in their entirety, and the affected areas be returned to pre-construction elevations and revegetated, as appropriate?
   ☒ Yes ☐ No ☐ N/A

   If you answered no to question 6a. or 6b. above, be aware that the project would not be authorized by a NWP 14 and may require an individual permit application.

REGIONAL CONDITIONS CHECKLIST

To ensure compliance with the Regional Conditions within the Fort Worth District, in the State of Texas, in order for an authorization by a NWP to be valid, please answer the following questions (for projects in Texas only):

1. Does the project involve a discharge into any of the following habitat types?:

   ☐ Pitcher plant bogs ((*Sarracenia* spp.) and/or sundews (*Drosera* spp.) and/or Bald Cypress/Tupelo swamps ((*Taxodium distichum*) and/or water tupelo (*Nyssa aquatica*))?
   ☐ Karst Zones 1 and 2 located in Bexar, Travis and Williamson Counties (see https://www.fws.gov/southwest/es/AustinTexas/Maps_Data.html).
   ☐ Caddo Lake and associated areas that are designated as "Wetland of International Importance" under the Ramsar Convention (see http://caddolakedata.us/media/145/1996caddolakeramsar.pdf or http://caddolakedata.us/media/144/1996caddolakeramsar.jpg).
   ☐ Reaches of rivers (and their adjacent wetlands) that are included in the Nationwide Rivers Inventory (see https://www.nps.gov/subjects/rivers/nationwide-rivers-inventory.htm)/

   If you answered yes to any of the above choices, notification of the District Engineer is required in accordance with NWP GC 32, and the USACE will coordinate with other resource agencies as specified in NWP GC 32(d).

2. Is the activity located at a site approved as a compensatory mitigation site (either permittee-responsible, mitigation bank and/or in lieu fee) under Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act of 1899?

   ☐ Yes ☒ No

   If you answered yes to question 2. above, notification of the District Engineer is required in accordance with NWP GC 32.

To ensure compliance with the Regional Conditions within the Fort Worth District, in the State of Louisiana, in order for an authorization by a NWP to be valid, please answer the following questions (for projects in Louisiana only):

1. Does the activity cause the permanent loss of greater than 1/2 acre of seasonally inundated cypress swamp and/or cypress-tupelo swamp? ☐ Yes ☐ No

   If you answered yes to question 1. above, be aware that the project would not be authorized by a NWP 14 and would require an individual permit application.

2. Does the activity cause the permanent loss of greater than 1/2 acre of pine savanna and/or pitcher plant bogs? ☐ Yes ☐ No

   If you answered yes to question 2. above, be aware that the project would not be authorized by a NWP 14 and would require an individual permit application.

3. Has the activity been determined to have an adverse impact upon a federal or state designated rookery and/or bird sanctuary? ☐ Yes ☐ No

   If you answered yes to question 3. above, be aware that the project would not be authorized by a NWP 14 and would require an individual permit application.

4. To the best of the applicant's knowledge, is any excavated and/or fill material to be placed within wetlands free of contaminants? ☐ Yes ☐ No ☐ N/A

   If you answered no to question 4. above, be aware that the project would not be authorized by a NWP 14 and would require an individual permit application.

5. *Regional Condition 5 applies to work within the Louisiana Coastal Zone and/or the Outer Continental Shelf off Louisiana, and therefore does not apply in the USACE Fort Worth District. Work in these areas may require coordination with the USACE Galveston or New Orleans districts.*

6. Does the activity adversely affect greater than 1/10 acre of wetlands, and/or adversely impact a designated Natural and Scenic River, a state or federal wildlife management area, and/or refuge? ☐ Yes ☐ No

   If you answered yes to question 6. above, notification of the District Engineer is required in accordance with NWP GC 32.

7. For activities involving the installation of a culvert, will the culvert be sufficiently sized to maintain expected high water flows, and installed at a sufficient depth to maintain low flows to sustain the movement of aquatic species? ☒ Yes ☐ No

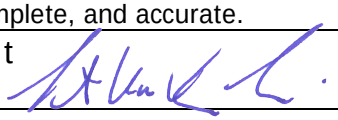
   If you answered no to question 7. above, be aware that the project would not be authorized by a NWP 14 and would require an individual permit application.

Additional Discussion:

N/A

Part II: Project Information

Box 1 Project Name: County Road 255 Improvements		Applicant Name	
Applicant Title		Applicant Company, Agency, etc. Williamson County	
Mailing Address 3151 S.E. Inner Loop, Suite B, Georgetown, TX 78626		Applicant's internal tracking number (if any) N/A	
Work Phone with area code	Home Phone with area code N/A	Fax # N/A	E-mail Address
Relationship of applicant to property: ☐ Owner ☐ Purchaser ☐ Lessee ☐ Other:			
Application is hereby made for verification that subject regulated activities associated with subject project qualify for authorization under a USACE nationwide permit or permits as described herein. I certify that I am familiar with the information contained in this application, and that to the best of my knowledge and belief, such information is true, complete, and accurate. I further certify that I possess the authority to undertake the proposed activities. I hereby grant to the agency to which this application is made the right to enter the above-described location to inspect the proposed, in-progress, or completed work. I agree to start work only after all necessary permits have been received.			
Signature of applicant			Date (mm/dd/yyyy)

Box 2 Authorized Agent/Operator Name and Signature: *(If an agent is acting for the applicant during the permit process)* Stephen Van Kampen-Lewis			
Agent/Operator Title Lead Project Manager		Agent/Operator Company, Agency, etc. SWCA Environmental Consultants	
Mailing Address 4949 N Loop 1604 Building 2, Suite 235, San Antonio, Texas 78249			
E-mail Address svankampenlewis@SWCA.com			
Work Phone with area code 737-220-3313	Home Phone with area code N/A	Fax # N/A	Cell Phone # N/A
I hereby authorize the above-named agent to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application. I understand that I am bound by the actions of my agent, and I understand that if a federal or state permit is issued, I, or my agent, must sign the permit.			
Signature of applicant			Date (mm/dd/yyyy)
I certify that I am familiar with the information contained in this application, and that to the best of my knowledge and belief, such information is true, complete, and accurate.			
Signature of authorized agent 			Date (mm/dd/yyyy) 06/20/2024

Box 3 Name of property owner, if other than applicant: ☒ Multiple Current Owners *(If multiple current property owners, check here and include a list as an attachment)*	
Owner Title N/A	Owner Company, Agency, etc. N/A

Mailing Address N/A	
Work Phone with area code N/A	Home Phone with area code N/A

Box 4 Project location, including street address, city, county, state, and zip code where proposed activity will occur:
Northern Extent:
The intersection of CR 245 and CR 255, Georgetown, Williamson County, Texas 78633

Southern Extent:
Extending south from the Northern Extent to Ronald Raegan BLVD, Georgetown, Williamson County, Texas 78633

Nature of Activity (Description of project; include all features; see instructions):
The project consists of widening the existing two-lane roadway to a four-lane roadway including drainage and culvert improvements. CR 255 is proposed to be widened over approximately 2.9 miles beginning at CR 254 and extending south to Ronald Reagan Boulevard in Georgetown, Williamson County. The project would occur within a 136-foot-wide right-of-way that totals approximately 55.5 acres (project area).

Project Purpose (Description of the reason or purpose of the project; see instructions):
Improvement of the existing two-lane CR 255 into a four-lane roadway.

Are there any other Federal Permits or Federal Agencies associated with this project?
☐ Yes If yes, list the agency(ies)
☒ No

Has a lead Federal Agency been identified?
☐ Yes If yes, provide the agency name, agency POC, address, phone number, and email address.
☒ No

Has a delineation of waters of the U.S., including wetlands, been completed? (see instructions)
☒ Yes, Attached ☐ No
If a delineation has been completed, has it been verified in writing by the USACE?
☐ Yes, Date of approved or preliminary jurisdictional determination (mm/dd/yyyy): USACE Project: SWF-2023-00430
☒ No

Are color photographs of the existing conditions available? ☒ Yes, Attached ☐ No
Are aerial photographs available? ☒ Yes, Attached ☐ No

☒ Multiple Single and Complete Crossings *(If multiple single and complete crossings, check here and complete the table in Attachment D)*

Waterbody(ies) (if known; otherwise enter "an unnamed tributary to"): Three unnamed tributaries

Tributary(ies) to what known, downstream waterbody(ies): North Fork San Gabriel River

Latitude & longitude (Decimal Degrees):
Northern Extent: 30.760391, -97.856688
Southern Extent: 30.721126, -97.841088

USGS Quad map name(s):
Leander NE, TX (2022); Florence, TX (2022)

Watershed(s) and other location descriptions, if known:
North Fork San Gabriel River Watershed

Directions to the project location:
From the intersection of U.S. 183 and CR 254, travel east for 1.26 miles to the northern extent of CR 255 (30.760391, -97.856688). The project starts at that point.

Part III: Project Impacts and Mitigation

Box 5 Reason(s) for Discharge into waters of the U.S.:
The CR 255 improvement and widening project would require grading of and the installaiton of culvert(s) into waters of the U.S. for construction.

Type(s) of material being discharged and the amount of each type in cubic yards:
0.03 acre of wetland would be covered with a culvert and the remaining 0.07 acre graded to facilitate drainage. Streams will be impacted by placement of culverts and/or stormwater ponds. The upland constructed pond will be drained by culvert.

Total surface area (in acres) of wetlands or other waters of the U.S. to be filled:
0.51 acres

Indicate the proposed impacts to waters of the U.S. in ACRES (for wetlands and impoundments) and LINEAR FEET (for rivers and streams), and identify the impact(s) as permanent and/or temporary for each waterbody type listed below. For projects with multiple single and complete crossings, the table below should indicate the cumulative totals of those single and complete crossings that require notification as outlined in Part I, GC question 32, and would not determine the threshold for whether a project qualifies for a NWP. The table below is intended as a tool to summarize impacts by resource type for planning compensatory mitigation and does not replace the summary table of single and complete crossings in Attachment D for those projects with multiple single and complete crossings.

	Permanent		Temporary	
Waterbody Type	Acres	Linear feet	Acres	Linear feet
Non-forested wetland				
Forested wetland	0.10			
Perennial stream				
Intermittent stream	0.03	415.0		
Ephemeral stream	0.05	637.5		
Impoundment				
Other: Upland Constructed Pond	0.33			
Total:	0.51	1,052.5		

Potential indirect and/or cumulative impacts of proposed discharge (if any):
N/A

Required drawings (see instructions):
Vicinity map: ☒ Attached
To-scale plan view drawing(s): ☒ Attached
To-scale elevation and/or cross section drawing(s): ☒ Attached

Is any portion of the work already complete? ☐ Yes ☒ No
If yes, describe the work:

Box 6 Authority: (see instructions)
Is Section 10 of the Rivers and Harbors Act for projects affecting navigable waters applicable?
☐ Yes ☒ No *(see Fort Worth District Navigable Waters list)*

Is Section 404 of the Clean Water Act applicable? ☒ Yes ☐ No

Box 7 Larger Plan of Development:
Is the discharge of fill or dredged material for which Section 10/404 authorization is sought intended for a linear transportation project which is part of a larger plan of development?
☒ Yes ☐ No *(If yes, please provide the information in the remainder of Box 7)*

Does the linear transportation project have independent utility in addition to the larger plan of development (e.g., major arterial, through connection, etc.)? ☒ Yes ☐ No
If yes, explain:
The project will provide traffic relief in the area, with an enhanced through connection from Ronald Reagan Blvd to CR 254. This project is built in phases, with additional road expansions planed in the distant future. The details (e.g., design, timeline) of additional project phases are not currently available

If discharge of fill or dredged material is part of development, name and proposed schedule for that larger development (start-up, duration, and completion dates):
N/A

Location of larger development (If discharge of fill or dredged material is part of a plan of development, a map of suitable quality and detail for the entire project site should be included):
N/A

Total area in acres of entire project area (including larger plan of development, where applicable):
55.5

Box 8 Federally Threatened or Endangered Species (see instructions)
Please list any federally-listed (or proposed) threatened or endangered species or critical habitat potentially affected by the project (use scientific names (i.e., genus species), if known):
Perimyotis subflavus

Have surveys, using U.S. Fish and Wildlife Service (USFWS) protocols, been conducted?
☐ Yes, Report attached ☒ No (explain): SWCA performed a threatened and endangered species habitat assessment to identify habitats or features that could potentially serve as habitat for federally threatened and/or endangered species or those species proposed for federal listing.

If a federally-listed species would potentially be affected, please provide a description and a biological evaluation.
☒ Yes, Report attached ☐ Not attached

Has Section 7 consultation been initiated by another federal agency?
☐ Yes, Initiation letter attached ☒ No

Has Section 10 consultation been initiated for the proposed project?
☐ Yes, Initiation letter attached ☒ No

Has the USFWS issued a Biological Opinion?
☐ Yes, Report attached ☒ No
If yes, list date Opinion was issued (mm/dd/yyyy):

Box 9 Historic properties and cultural resources

Please list any historic properties listed (or eligible to be listed) on the National Register of Historic Places which the project has the potential to affect:

N/A

Has an archaeological records search been conducted?

☒ Yes, Report attached ☐ No (explain):

Are any cultural resources of any type known to exist on-site?

☐ Yes ☒ No

Has an archaeological pedestrian survey been conducted for the site?

☒ Yes, Report attached ☐ No (explain):

Has Section 106 or SHPO consultation been initiated by another federal or state agency?

☐ Yes, Initiation letter attached ☒ No

Has a Section 106 MOA been signed by another federal agency and the SHPO?

☐ Yes, Attached ☒ No

If yes, list date MOA was signed (mm/dd/yyyy):

Box 10 Proposed Conceptual Mitigation Plan Summary (see instructions)

Measures taken to avoid and minimize impacts to waters of the U.S. (if any):

The Applicant has selected a project alignment that avoids aquatic resources to the maximum extent practicable.

Applicant proposes combination of one or more of the following mitigation types:

☐ Mitigation Bank ☐ On-site ☐ Off-site (Number of sites:) ☒ None

Applicant proposes to purchase mitigation bank credits: ☐ Yes ☒ No

Mitigation Bank Name: N/A

Number of Credits: N/A

Indicate in ACRES (for wetlands and impoundments) and LINEAR FEET (for rivers and streams) the total quantity of waters of the U.S. proposed to be created, restored, enhanced, and/or preserved for purposes of providing compensatory mitigation. Indicate mitigation site type (on- or off-site) and number. Indicate waterbody type (non-forested wetland, forested wetland, perennial stream, intermittent stream, ephemeral stream, impoundment, other) or non-jurisdictional (uplands[1]).

Mitigation Site Type and Number	Waterbody Type	Created	Restored	Enhanced	Preserved
e.g., On-site 1	*Non-forested wetland*	*0.5 acre*			
e.g., Off-site 1	*Intermittent stream*		*500 LF*	*1000 LF*	
	Totals:				

[1] For uplands, please indicate if designed as an upland buffer.

Summary of Mitigation Work Plan (Describe the mitigation activities listed in the table above):

N/A

If no mitigation is proposed, provide a detailed explanation of why no mitigation would be necessary to ensure that adverse effects on the aquatic environment are minimal:
The Applicant has designed the project to avoid and minimize adverse effects to aquatic resources to the maximum extent practicable and believes the project would result in minimal adverse environmental effects. The applicant has also discussed the proposed minimization measures and mitigation with the USACE. No mitigation was requested.

Has a conceptual mitigation plan been prepared in accordance with the USACE regulations and guidelines?
☐ Yes, Attached ☒ No (explain): N/A

Mitigation site(s) latitude & longitude (Decimal Degrees): N/A	USGS Quad map name(s): N/A

Other location descriptions, if known:
N/A

Directions to the mitigation location(s):
N/A

Box 11 Water Quality Certification (see instructions):

For Texas:

Does the project meet the conditions of the Texas Commission on Environmental Quality (TCEQ) Clean Water Act Section 401 certification for NWP 14? ☒ Yes ☐ No

Does the project include soil erosion control and sediment control Best Management Practices (BMPs)? ☒ Yes ☐ No

Does the project include BMPs for post-construction total suspended solids control?
☒ Yes ☐ No

For Louisiana:

LDEQ has issued water quality certification for NWP 14 without conditions.

For Tribal Lands ("Indian Country"):

Does the project meet the conditions of the EPA water quality certification for NWPs?
☐ Yes ☐ No

Box 12 List of other certifications or approvals/denials received from other federal, state, or local agencies for work described in this application:

Agency	Approval Type[2]	Identification No.	Date Applied	Date Approved	Date Denied

[2] Would include but is not restricted to zoning, building, and floodplain permits

Part IV: Attachments

	Included
A. List of Property Owners	☒
B. Delineation of Waters of the U.S., Including Wetlands	☒
C. Color Photographs	☒
D. Summary Table of Single and Complete Crossings	☒
E. Required Drawings/Figures	☒
F. Threatened or Endangered Species Reports and/or Letters	☒
G. Historic Properties and Cultural Resources Reports and/or Letters	☒
H. Conceptual Mitigation Plan	☐
I. Other:	☐

End of Form

Landowner Name	ROW Acreage
Kerry L & Cassandra G Wiggins	0.742
Terry & Laura Dooley	0.365
Fred and Alice Kaufman	3.397
Kenneth and Carrie Bell	0.063
Sasha M. Tingle	0.056
Michael Tomjack	1.202
Sunny Spring Ranch LLC	1.06
Stephen and Jill Kaufman	0.112
Steven & Margaret Walker	0.1
Willis Daulton Halliburton	0.098
Kathy Boyer	1.237
William and Susan Long	0.007
Carmelo and Carole Tassone	1.038
COUNTY ROAD 255 A SERIES OF LANE COMMERCIAL ENTERPRISES LLC	0.723
Patricia Anderson	1.908
Piotr and Lauren Wieckowski	0.046
Edward and Deborah Miller	0.068
Patricia M. Anderson	0.121
Vale Building Group, LLC	2.737
Christopher Anderson	0.063

Landowner Name	ROW Acreage
Kevin Krienke, formerly Blanco	1.014
Kevin Krienke, formerly Blanco	0.0471
Big Oaks Village LLC	1.146
Northvista Ranch LLC	0.137
Northvista Ranch LLC	0.105
James Daniels	0.135
Nancy Luong	0.281
Yogesh & Pragati Bansal	0.22
Benjamin and Nicole Perry	0.594
North Vista Ranch 1	0.136
Krishna Kumari & Ranganath Vedala	0.126
Ramakrishna S. Madabhushi & Neeaja Madabhushi,	0.127
Terry Williams	0.122
Chester & Duane Cotter	0.154
Traci Nguyen	0.19
Christopher Reeves	0.719
Kyle and Melony Schaefer	0.149
Josh Koenig	0.408
Larry Lane Roberts	0.437

Landowner Name	ROW Acreage
Sebastian Hwang	0.437
Morris and Ida Bonnet	0.383
Randall O'Neill & Melanie Townsend O'Neill	0.156
Justin and Keisha Akre	0.262
Janet Jennings	0.76
Brandy Powell	0.727
Anderson, Patricia M J	0.07
Aguilar, Maria S	0.03
Tomlinson, Steven A, Jr	0.03
Onx-Rocking Wilco LLC	1.025
Daniel Anderson	0.177
Daniel Anderson Laura Anderson	0.545
Daniel Anderson Laura Anderson	0.455
Hunter Anderson	0.598
Onx-Rocking Wilco LLC	0.929
Hugh Bierbower & Marie Hamilton	0.279
Claude Vickers	1.509
GB Farms LLC	1.234
Toni Lynn Lawrence/Beall	1.015
Larry Kemp	3.081

Landowner Name	ROW Acreage
Elvin R. Hall and Donna K. Hall	0.789
Marcelo Vera	1.891

*Duplicate names represent different land parcels under the same ownership.

Aquatic Resources Delineation Report for the County Road 255 Road Improvements Project, Williamson County, Texas

MARCH 2024

PREPARED FOR

HNTB Corporation

PREPARED BY

SWCA Environmental Consultants

AQUATIC RESOURCES DELINEATION REPORT FOR THE COUNTY ROAD 255 ROAD IMPROVEMENTS PROJECT, WILLIAMSON COUNTY, TEXAS

Prepared for

HNTB Corporation
101 East Old Settlers Boulevard, Suite 100
Round Rock, Texas 78664

Prepared by

SWCA Environmental Consultants
4407 Monterey Oaks Boulevard
Building 1, Suite 110
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(512) 476-0891
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SWCA Project No. 61059-002

March 2024

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1 INTRODUCTION AND PURPOSE

SWCA Environmental Consultants (SWCA) was retained by Williamson County (WilCo) to complete an aquatic resources delineation and report for the proposed County Road (CR) 255 Improvements Project (project). The project consists of widening the existing two-lane roadway into a four-lane roadway (two in each direction). CR 255 is proposed to be widened over approximately 2.9 miles beginning at CR 254 and extending south to Ronald Reagan Boulevard in Georgetown, Williamson County, Texas. The project would occur within a 136-foot-wide right-of-way (ROW) that totals approximately 55.5 acres (project area) (Figure 1).

The purpose of the aquatic resources delineation was to identify potential aquatic resources within the project area, determine whether the aquatic resources would be considered potential waters of the U.S. (WOTUS) by the U.S. Army Corps of Engineers (USACE), and assist Williamson County in complying with Section 404 of the Clean Water Act (CWA) for project-related impacts to potential WOTUS. This aquatic resources delineation report describes the methods used to conduct the aquatic resources delineation and WOTUS evaluation, summarizes results of the delineation, and provides a summary conclusion regarding the potential jurisdictional status of aquatic resources identified during the delineation. The results and conclusions provided in this report represent SWCA's professional opinion based on our knowledge and experience with the USACE, including related regulatory guidance, documents, and manuals.

2 METHODS

SWCA received project data from Williamson County in December 2023. These data were used to conduct a background review and an aquatic resources delineation within the project area.

2.1 Aquatic Resources Delineation

Prior to and in support of conducting the aquatic resources delineation within the project area, SWCA reviewed background information using publicly available information from the following sources:

- U.S. Geological Survey (USGS): 7.5-minute quadrangle map (Leander NE, Texas, Florence, Texas) (USGS 2024a) and National Hydrography Dataset viewer (USGS 2024b)
- USACE: Antecedent Precipitation Tool (APT) (USACE 2023;2024)
- Natural Resources Conservation Service (NRCS): Web Soil Survey (NRCS 2019)
- Esri: ArcGIS Map Services (Esri 2024)
- Federal Emergency Management Agency (FEMA): National Flood Insurance Program data for Williamson County (FEMA 2024a) and Estimated Baseline Flood Elevation Viewer (FEMA 2024b)
- U.S. Fish and Wildlife Service (USFWS): National Wetlands Inventory (USFWS 2024)

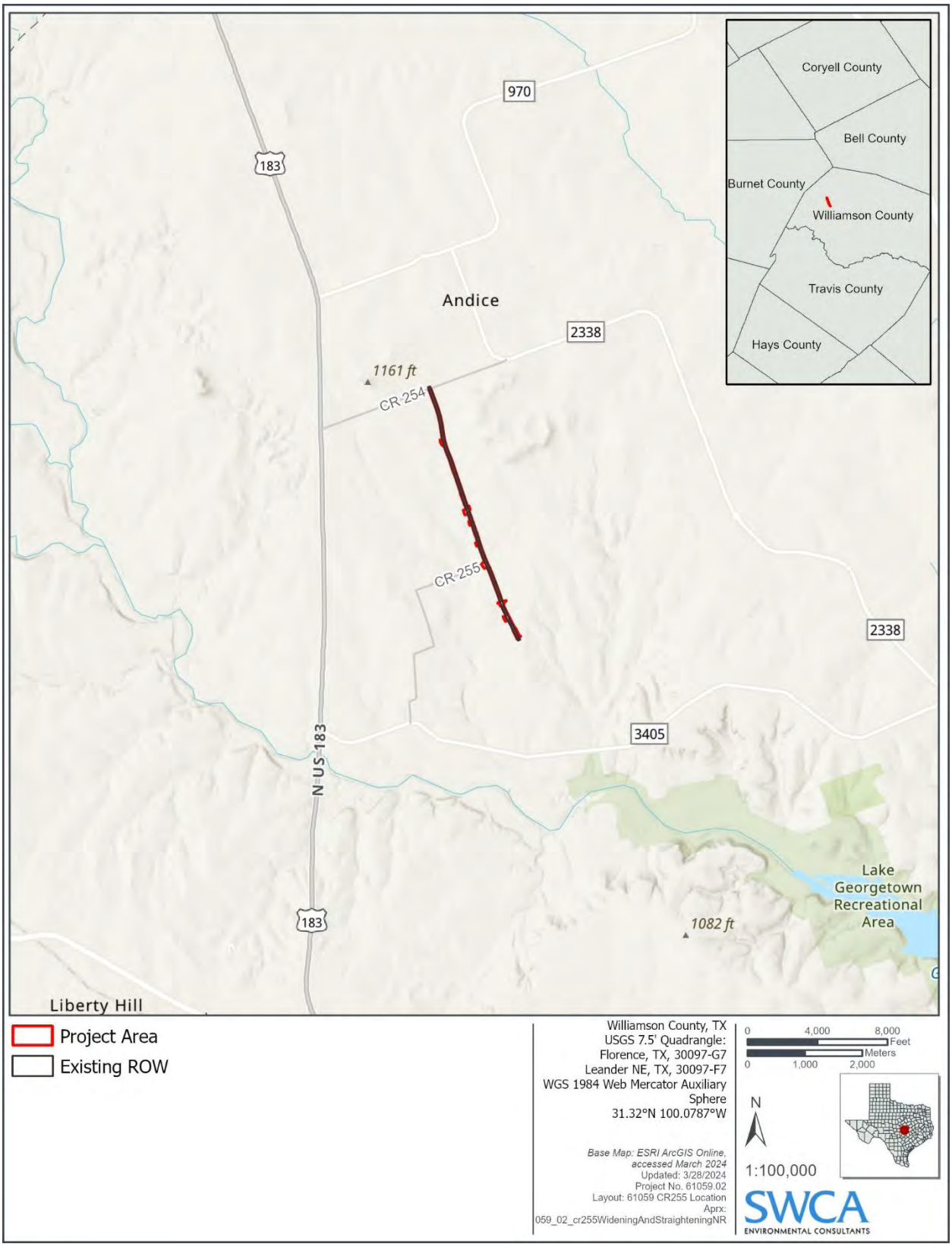

Figure 1. Project area location map.

SWCA conducted the aquatic resources delineation within the project area on January 25 and May 5, 2023; and March 22, 2024. The delineation was conducted in accordance with, and with respect to, guidance and information available from the following sources:

- USACE:
  - The National Wetland Plant List, 2020 Wetland Ratings (USACE 2020)
  - Regional Guidance Letter 05-05 (USACE 2005), which presents guidance on ordinary high-water mark identification
  - *Corps of Engineers Wetlands Delineation Manual* (1987 Manual) (Environmental Laboratory 1987)
  - *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0)* (GP Supplement Manual) (USACE 2010)[1]
  - Nationwide Permit Program (33 U.S. Code [USC] 401 et seq.; 33 USC 1344; 33 USC 1413 [33 Code of Federal Regulations 330, *Federal Register* 72:11092, *Federal Register* 72:26082, *Federal Register* 86:2744–2877]) (USACE 2021, 2022)
- NRCS:
  - *Field Indicators of Hydric Soils in the United States: A Guide for Identifying and Delineating Hydric Soils* (Version 8.2) (NRCS 2018)
  - PLANTS Database (NRCS 2021)
- USFWS:
  - Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979)

During the aquatic resources delineation, SWCA recorded data points to document the presence, or lack thereof, of the following three required indicators of a wetland, as defined in the 1987 Manual and GP Supplement Manual and identified below (Environmental Laboratory 1987; USACE 2010):

- **Hydrophytic vegetation:** Determined by identification of dominant species and their USFWS-designated wetland indicator status.
- **Wetland hydrology:** Determined by visual inspection with consideration from APT results and excavation of soil pits.
- **Hydric soils:** Determined by characterizing soil features (i.e., color and texture) from soil pits.

SWCA used a Samsung Active Tab 2 with Juniper Geode (for the surveys in 2023) and an Apple iPad with Juniper Geode real-time (for the surveys in 2024), differentially corrected GPS unit with sub-meter accuracy to geographically reference features, such as data points, wetland boundaries, and ordinary high-water marks. Areas that were designated to be possible aquatic resources from National Hydrography Dataset and National Wetlands Inventory data, but lacked the criteria or have changed, were documented with data points and/or photograph points. SWCA used geographic information system (GIS) software to analyze collected features, calculate areas, and generate figures. All point, line, and polygon data collected using the GPS unit and displayed in figures are for review purposes only and do not represent a professional civil survey.

[1] The GP Supplement Manual presents wetland indicators, delineation guidance, and other information specific to the Great Plains Region and takes precedence over the 1987 Manual for applications in this region where differences in the two manuals occur.

2.2 Potential Waters of the U.S. Determination

On January 18, 2023, the U.S. Environmental Protection Agency (EPA) and USACE ("the agencies") issued the final "Revised Definition of Waters of the United States" (2023 Rule). Prior to the effective date of the 2023 Rule, a district court judge for the southern District of Texas issued an order preliminarily enjoining the 2023 Rule (EPA 2024a). Due to the preliminary injunction, the agencies interpreted WOTUS consistent with the pre-2015 regulatory regime within the state of Texas. Interpretation of WOTUS under the pre-2015 regulatory regime followed the U.S. Supreme Court's Decision in Rapanos *v.* United States and Carabell *v.* United States and resulted in the joint agency memorandum titled "*Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in Rapanos v. United States & Carabell v. United States*" (2008 Guidance) (EPA 2008).

On August 29, 2023, the agencies issued a final rule amending the 2023 Rule to conform the definition of WOTUS to be consistent with the U.S. Supreme Court's decision in Sackett *v.* EPA (Sackett Decision). Due to ongoing litigation of the 2023 Rule, the agencies are interpreting WOTUS consistent with the pre-2015 regulatory regime and the Sackett Decision until further notice (EPA 2024a).

The Sackett Decision removes the significant nexus test from consideration when determining the jurisdictional status of aquatic resources. It also revises the term "adjacent" as it pertains to the jurisdictional status of wetlands.

SWCA evaluated the potential jurisdictional status of waterways and waterbodies within the project area using the 2008 Guidance, minus the significant nexus test. The potential jurisdictional status for wetlands within the project area was evaluated with consideration to the Sackett Decision.

2.3 Project Area Description

The project area is located within the Balcones Canyonlands (ecoregion 33c) subdivision of the Edwards Plateau Level III ecoregion (Griffith et al. 2007). The ecoregion is largely defined by the extent of the escarpment; the intervening canyons and surrounding stairstep topography are evident on topographic maps of the region (Griffith et al. 2007). Ground elevation within the project area ranges from ±284 to ±321 feet above mean sea level. Current land use within and adjacent to the project area is primarily low-density residential development, rangeland, pasture, and forest with little impervious groundcover.

The project area is located within the North Fork San Gabriel River watershed of the Brazos River Basin (Texas Parks and Wildlife Department 2024). The primary source of surface water within the project area generally flows southwest into an unnamed tributary that converges with the North Fork San Gabriel River approximately 1.9 miles south of the project area. The FEMA Flood Insurance Rate Map panels (48491C0275E and 48491C0100E) for this region indicate that the project area is located solely within Zone X unshaded, outside of the 500-year floodplain (FEMA 2024a). Base Flood Elevation data is not available at this time (FEMA 2024b)

2.4 Vegetation

SWCA identified four vegetation communities within the project area during the aquatic resources delineation: scrub/shrub upland, herbaceous upland, palustrine emergent (PEM) wetland, and palustrine forested (PFO) wetland. Appendix A contains a photographic log of representative vegetation, and Appendix B contains GP Supplement Manual data forms of data point locations for the vegetation communities observed in the project area. The following dominant plant species were observed in each vegetation community:

- **Scrub/Shrub Upland:** Scrub/shrub upland vegetation is primarily located along drainages within the project area. The shrub stratum consists of Ashe juniper (*Juniperus ashei*), cedar elm (*Ulmus crassifolia*), and upland grasses, as described below, within the herbaceous stratum.
- **Herbaceous Upland:** The dominant vegetation within the herbaceous stratum consists of Bermuda grass (*Cynodon dactylon*), Texas wintergrass (*Nassella leucotricha*), annual ragweed (*Ambrosia artemisiifolia*), giant ragweed (*Ambrosia trifida*), johnsongrass (*Sorghum halepense*), Carolina geranium (*Geranium carolinianum*), silver bluestem (*Bothriochloa saccharoides*), crow poison (*Nothoscordum* bivalve), tall oatgrass (*Arrhenatherum elatius*), and white tridens (*Tridens albescens*). Scattered shrubs and trees are also located within the herbaceous upland, such as Ashe juniper, cedar elm, and plateau live oak (*Quercus fusiformis*).
- **PEM Wetland:** This vegetation community is primarily composed of button bush (*Cephalanthus occidentalis*) and cocklebur (*Xanthium strumarium*).
- **PFO Wetland:** This vegetation community is primarily composed of green ash (*Fraxinus pennsylvanica*), spike rush (*Eleocharis palustris*), and cocklebur.

2.5 Soils

According to the NRCS (2019), the project area contains five soil map units. The majority of the mapped soil units within the project area consist of clay, cobbly clay, and silty clay soils. None of the five soil map units are classified as hydric by the NRCS (2019). Table 1 summarizes the mapped soil units within the project area.

Table 1. Soil Map Units within the Project Area

Soil Map Unit Name	Soil Description	Hydric Soil	Acres within Project Area	Percentage of Project Area
Fairlie clay, 1 to 2 percent slopes	Residuum weathered from Austin chalk formation occurs on ridges.	No	19.1	34.4%
Doss silty clay, moist, 1 to 5 percent slopes	Residuum weathered from limestone occurs on hillslopes.	No	13.2	23.8%
Eckrant cobbly clay, 1 to 8 percent slopes	Residuum weathered from limestone occurs on ridges.	No	12.0	21.6%
Denton silty clay, 1 to 3 percent slopes	Silty and clayey slope alluvium over residuum weathered from limestone occurs on hillslopes.	No	8.5	15.2%
Brackett association, 1 to 8 percent slopes	Residuum weathered from limestone occurs on ridges.	No	2.7	5.0%
Total			**55.5**	**100.0%**

Source: NRCS (2019).

3 AQUATIC RESOURCES

During the January and May 2023; and March 2024 aquatic resources delineations, SWCA identified four waterways, one impoundment, and two wetlands within the project area. The aquatic resources are discussed further in Sections 4.1 through 4.3. Representative photographs of identified aquatic resources are provided in Appendix A, and GP Supplement Manual data forms are provided in Appendix B.

According to the APT, the aquatic resources delineation performed in January 2023 was performed during the wet season, and the project area corresponding climatological division was experiencing severe drought conditions. At the project area scale, the rainfall condition at the time of the aquatic resources delineation was calculated to be drier than normal (USACE 2024). The aquatic resources delineation performed in May 2023 was during the dry season, and the project area's corresponding climatological division was experiencing moderate drought conditions. At the project area scale, the rainfall condition at the time of the aquatic resources delineation was calculated to be normal (USACE 2024). The aquatic resources delineation performed in March 2024 was during the wet season, and the project area's corresponding climatological division was experiencing mild drought conditions. At the project area scale, the rainfall condition at the time of the aquatic resources delineation was calculated to be normal (USACE 2024). The APT analysis output is provided in Appendix C.

Figure 2 displays an overview of the aquatic resources mapped during the delineation.

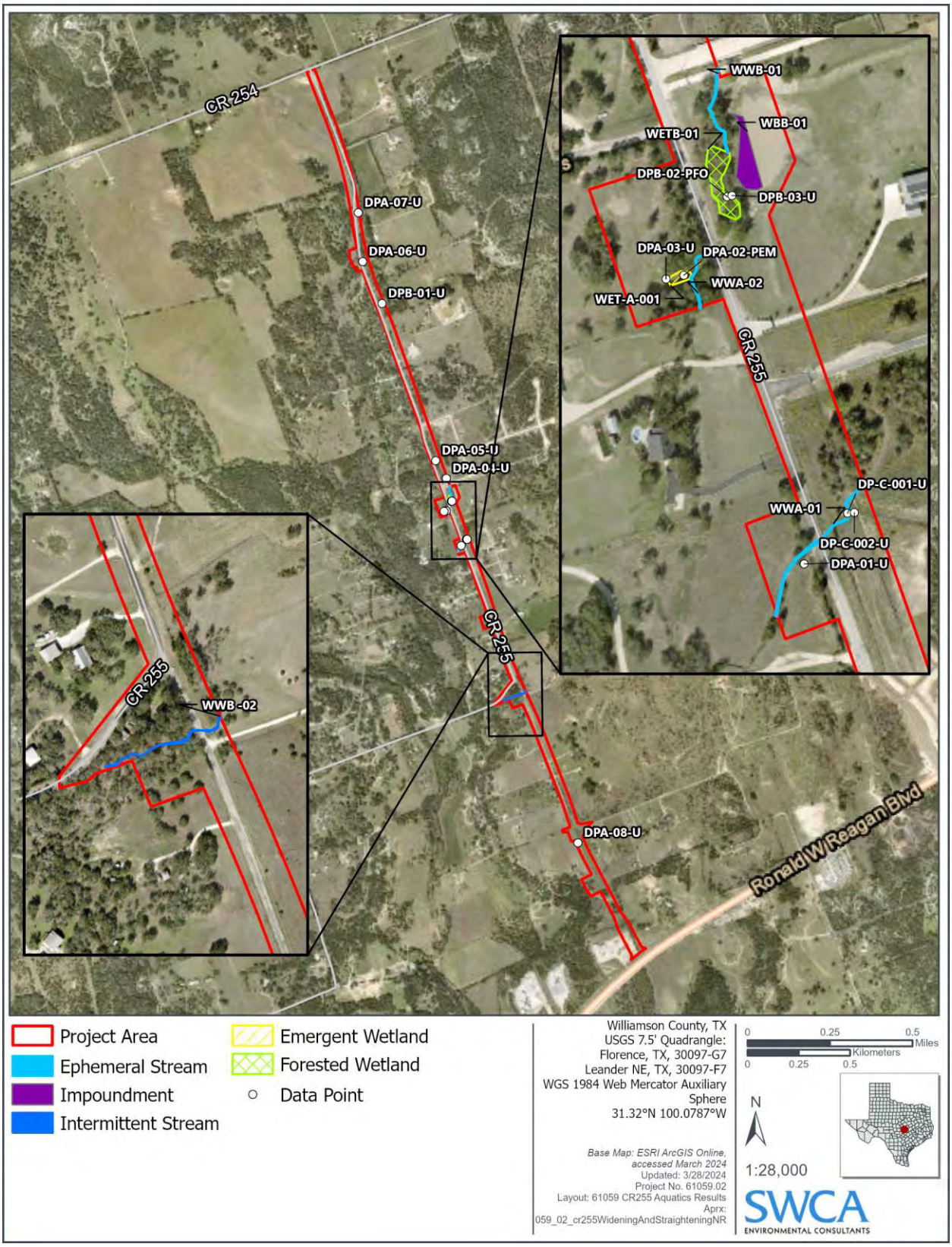

Figure 2. Aquatic resources delineation results overview map.

3.1 Waterways

SWCA identified one intermittent waterway and three ephemeral waterways within the project area (Table 2; Figure 2). Intermittent waterways are defined as waterways in which surface water flows continuously during certain times of the year and is not limited to a direct response to precipitation. The ephemeral waterways were classified as ephemeral because they appear to only convey water in direct response to precipitation events. Table 2 provides a summary of the waterways within the project area, including resource identification, classification, and potential WOTUS status.

Table 2. Summary of Waterways within the Project Area

Resource ID	Classification	Area (acres)	Mapped Length (feet)	Potential WOTUS Under 2008 Guidance minus the significant nexus test
WWA-01	Ephemeral	0.03	340.7	No
WWA-02	Ephemeral	>0.01	118.1	No
WWB-01	Ephemeral	0.01	178.7	No
WWB-02	Intermittent	0.03	415.0	Yes

3.2 Waterbodies

SWCA identified one waterbody, an impoundment, within the project area. Table 3 provides a summary of the waterbody within the project area, including resource identification, classification, and potential WOTUS status.

Table 3. Summary of Waterbodies within the Project Area

Resource ID	Classification	Area (acres)	Potential WOTUS Under 2008 Guidance
WBB-01	Impoundment	0.09	No

3.3 Wetlands

SWCA delineated two wetlands during the aquatic resources delineation, one being categorized as a PEM and the other being a PFO. WET-A-001 is adjacent to stream WWA-02 and WETB-01 is adjacent to stream WWB-01 and waterbody WBB-01. Table 4 provides a summary of the wetlands within the project area, including resource identification, classification, and potential WOTUS status.

Table 4. Summary of Wetlands within the Project Area

Resource ID	Classification*	Area (acres)	Potential WOTUS Under 2008 Guidance
WET-A-001	PEM	0.02	No
WETB-01	PFO	0.10	No

* Classification: PEM = Palustrine Emergent Wetland, PFO = Palustrine Forested Wetland

3.4 Jurisdictional Considerations

The opinions regarding jurisdiction provided in this report are based on SWCA experience working with USACE Fort Worth District and interpretation of USACE policy for WOTUS determinations. Only the agencies can make official determinations regarding the jurisdictional status or limits under Section 404 of the CWA for the aquatic resources identified during the aquatic resources delineations.

3.4.1 Features Likely to be WOTUS

The one intermittent stream within the Project Area appears to be consistent with features described in 2008 as seasonal relatively permanent waters (RPW). As outlined in the 2008 Guidance, the agencies would likely assert jurisdiction over features that are considered RPW when they have a connection to a TNW. As described in Section 3, the project area is within the North Fork San Gabriel River watershed that flows directly into the San Gabriel River located 2.5 miles south of the project area. The San Gabriel River flows directly into the Brazos River. This portion of the Brazos River is listed as a Section 10 Water, which is a TNW (EPA 2008, USACE 2011). Therefore, this feature has a connection to a TNW and is likely to be WOTUS.

3.4.2 Features Unlikely to be WOTUS

The three ephemeral streams within the project area appear to be consistent with features described in 2008 as a non-navigable, not-relatively permanent water (non-RPW). As outlined in the 2008 Guidance, the agencies would likely only assert jurisdiction over non-RPWs when such features have a significant nexus to a TNW. However, based on the Sackett Decision, agencies no longer rely on the significant nexus test to assert jurisdiction (Sackett *v*. Environmental Protection Agency 2023). Therefore, these features are unlikely to be WOTUS.

WBB-01 does not meet the definition of a WOTUS defined at 33 Code of Federal Regulations (CFR) 328.3. The upland constructed pond is not located on a tributary, nor does it meet the definition of a WOTUS defined at 33 CFR 328.3. This upland constructed pond is consistent with features described in the preamble to 33 CFR 328.3, which identifies what waters the USACE do not consider to be WOTUS, including “ponds created by excavating and/or diking dry land to collect and retain water.”

WET-A-001 is adjacent to stream WWA-02 and WETB-01 is adjacent to stream WWB-01. These wetlands identified during the aquatic resources delineation (see Table 4), are not consistent with features described in 33 Code of Federal Regulations 328.3 (a)(4-5), which identifies what wetlands the USACE considers to be WOTUS. Because the identified wetlands are not adjacent (i.e., lacking a continuous surface connection) to other waters identified as WOTUS, it is unlikely that the USACE would consider them to be jurisdictional under the Sackett Decision.

4 CONCLUSIONS

SWCA identified a total of seven aquatic resources within the project area during the January and May 2023; and March 2024 aquatic resources delineations. Of these seven aquatic resources within the project area, the intermittent stream (see Table 2) would likely be considered WOTUS under Section 404 of the CWA and would be regulated by the USACE Fort Worth District. However, only the USACE and EPA can make official determinations regarding the jurisdictional status or limits under Section 404 of the CWA for the aquatic resources identified during the aquatic resources delineation.

Certain activities (i.e., discharge of dredge or fill materials) within WOTUS require authorization from the USACE. Regulated activities within WOTUS could be authorized under the general terms and conditions of Nationwide Permit(s). However, depending on project design and the activities proposed within WOTUS, a pre-construction notification to the USACE Fort Worth District could be required. Once the project design is known, SWCA can calculate impacts, analyze proposed activities as they pertain to the general terms and conditions of the Nationwide Permit(s), and assist Williamson County in determining if a pre-construction notification to the USACE would be required.

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APPENDIX A

Photographic Log

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Photograph 1. Representative photograph of scrub/shrub upland at DP-A-01-U, view facing north.

Photograph 2. Representative photograph of herbaceous upland at DPA-06-U, view facing east.

Photograph 3. Representative photograph of the palustrine emergent (PEM) wetland vegetation community at DPA-02-PEM.

Photograph 4. Photograph of the palustrine forested (PFO) wetland vegetation community at DPB-02-PFO within wetland WETB-01.

Photograph 5. Photograph of an intermittent waterway (WWB-02) within the project area, view facing downstream.

Photograph 6. Photograph of an ephemeral stream (WW 05) in the project area, view facing downstream.

Photograph 7. Photograph of the impoundment (WBB-01) within the project area.

Photograph 8. Photograph of the impoundment (WBB-01) within the project area.

APPENDIX B

U.S. Army Corps of Engineers
Wetland Determination Data Forms
Great Plains Region

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WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: CR 255 County: Williamson Sampling Date: January 25, 2023
Applicant/Owner: Williamson County State: Texas Sampling Point: DPA-01-U
Investigator(s): Marcus H. and Pam B. Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 0-5%
Subregion (LRR): Southwest Plateaus and Plains Range and Cotton Region Lat: 30.739301 Long: -97.849574 Datum: North American Datum 1983
Soil Map Unit Name: Fairlie clay, 1 to 2 percent slopes NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes No **X**
Hydric Soil Present? Yes No **X**
Wetland Hydrology Present? Yes No **X**

Is the Sampled Area within a Wetland? **Yes** **No X**

Remarks:
This point was determined not to be within a wetland due to the lack of all three wetland criteria.

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Ulmus crassifolia*	15	Yes	FAC
2. *Juniperus ashei*	15	Yes	UPL
3.			
4.			
5.			
	30 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Tridens albescens*	30	Yes	FAC
2. *Bromus japonicus*	20	No	#N/A
3. *Bothriochloa laguroides*	30	Yes	UPL
4. *Schizachyrium scoparium*	5	No	FACU
5. *Geranium carolinianum*	10	No	UPL
6. *Eragrostis curtipedicellata*	15	No	UPL
7.			
8.			
9.			
10.			
	110 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **2** (A)

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **50%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**N/A**	x 1 =	**N/A**
FACW species	**N/A**	x 2 =	**N/A**
FAC species	**N/A**	x 3 =	**N/A**
FACU species	**N/A**	x 4 =	**N/A**
UPL species	**N/A**	x 5 =	**N/A**
Column Totals:	**N/A** (A)		**N/A** (B)

Prevalence Index = B/A = **N/A**

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptations[1] (Explain)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No X**

Remarks:
No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FACU or drier).

SOIL

Sampling Point: **DPA-01-U**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-12	10YR 3/1	100	None	—	—	—	Silty clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Compaction

Depth (inches): 12+

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

No positive indication of hydric soils was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No **X** Depth (inches): **N/A**

Water Table Present? Yes ___ No **X** Depth (inches): **>12**

Saturation Present? (includes capillary fringe) Yes ___ No **X** Depth (inches): **>12**

Wetland Hydrology Present? **Yes** ___ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: CR 255 County: Williamson Sampling Date: January 25, 2023
Applicant/Owner: Williamson County State: Texas Sampling Point: DPA-02-PEM
Investigator(s): Marcus H. and Pam B. Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-5%
Subregion (LRR): Southwest Plateaus and Plains Range and Cotton Region Lat: 30.740845 Long: -97.850298 Datum: North American Datum 1983
Soil Map Unit Name: Fairlie clay, 1 to 2 percent slopes NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No ____
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ____ No **X**
Hydric Soil Present? Yes **X** No ____
Wetland Hydrology Present? Yes **X** No ____

Is the Sampled Area within a Wetland? **Yes** ____ **No** **X**

Remarks:
This point was determined not to be within a wetland due to the lack of hydrophytic vegetation.

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Purshia tridentata*	15	Yes	UPL
2.			
3.			
4.			
5.			
	15 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Xanthium strumarium*	15	Yes	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	15 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 85

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)

Total Number of Dominant Species Across All Strata: **2** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **50%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**15**	x 3 =	**45**
FACU species	**0**	x 4 =	**0**
UPL species	**15**	x 5 =	**75**
Column Totals:	**30** (A)		**120** (B)

Prevalence Index = B/A = **4.00**

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test is >50%
____ 3 - Prevalence Index is ≤ 3.0[1]
____ 4 - Morphological Adaptations[1] (Explain)
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No** **X**

Remarks:
No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FACU or drier).

SOIL

Sampling Point: **DPA-02-PEM**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-18	10YR 5/1	100	None	—	—	—	Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- **X** Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Compaction

Depth (inches): 18+

Hydric Soil Present? **Yes** **X** **No** ___

Remarks:

A positive indication of hydric soil was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- **X** Sparsely Vegetated Concave Surface (B8)
- **X** Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- **X** Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No **X** Depth (inches): **N/A**

Water Table Present? Yes ___ No **X** Depth (inches): **>18**

Saturation Present? (includes capillary fringe) Yes ___ No **X** Depth (inches): **>18**

Wetland Hydrology Present? **Yes** **X** **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least two secondary indicators).

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: CR 255 County: Williamson Sampling Date: January 25, 2023
Applicant/Owner: Williamson County State: Texas Sampling Point: DPA-03-U
Investigator(s): Marcus H. and Pam B. Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Rangeland Local relief (concave, convex, none): None Slope (%): 0-5%
Subregion (LRR): Southwest Plateaus and Plains Range and Cotton Region Lat: 30.740826 Long: -97.850408 Datum: North American Datum 1983
Soil Map Unit Name: Fairlie clay, 1 to 2 percent slopes NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No ____
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes ____ No **X**
Hydric Soil Present? Yes ____ No **X**
Wetland Hydrology Present? Yes ____ No **X**

Is the Sampled Area within a Wetland? **Yes** ____ **No** **X**

Remarks:
This point was determined not to be within a wetland due to the lack of all three wetland criteria.

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Juniperus ashei*	30	Yes	UPL
2.			
3.			
4.			
5.			
	30 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Cynodon dactylon*	60	Yes	FACU
2. *Allium drummondii*	35	Yes	UPL
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	95 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 5

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **0** (A)

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**N/A**	x 1 =	**N/A**
FACW species	**N/A**	x 2 =	**N/A**
FAC species	**N/A**	x 3 =	**N/A**
FACU species	**N/A**	x 4 =	**N/A**
UPL species	**N/A**	x 5 =	**N/A**
Column Totals:	**N/A** (A)		**N/A** (B)

Prevalence Index = B/A = **N/A**

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
____ 2 - Dominance Test is >50%
____ 3 - Prevalence Index is ≤ 3.0[1]
____ 4 - Morphological Adaptations[1] (Explain)
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** ____ **No** **X**

Remarks:
No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FACU or drier).

SOIL

Sampling Point: **DPA-03-U**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-8	10YR 3/1	100	None	—	—	—	Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Compaction

Depth (inches): 8+

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

No positive indication of hydric soils was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No **X** Depth (inches): **N/A**

Water Table Present? Yes ___ No **X** Depth (inches): **>8**

Saturation Present? (includes capillary fringe) Yes ___ No **X** Depth (inches): **>8**

Wetland Hydrology Present? **Yes** ___ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: CR 255 County: Williamson Sampling Date: January 25, 2023
Applicant/Owner: Williamson County State: Texas Sampling Point: DPA-04-U
Investigator(s): Marcus H. and Pam B. Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-5%
Subregion (LRR): Southwest Plateaus and Plains Range and Cotton Region Lat: 30.742276 Long: -97.850254 Datum: North American Datum 1983
Soil Map Unit Name: Denton silty clay, 1 to 3 percent slopes NWI Classification: Riverine
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes No **X**
Hydric Soil Present? Yes No **X**
Wetland Hydrology Present? Yes No **X**

Is the Sampled Area within a Wetland? **Yes** **No X**

Remarks:
This point was determined not to be within a wetland due to the lack of all three wetland criteria.

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Cynodon dactylon*	100	Yes	FACU
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 0

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **0** (A)

Total Number of Dominant Species Across All Strata: **1** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**N/A**	x 1 =	**N/A**
FACW species	**N/A**	x 2 =	**N/A**
FAC species	**N/A**	x 3 =	**N/A**
FACU species	**N/A**	x 4 =	**N/A**
UPL species	**N/A**	x 5 =	**N/A**
Column Totals:	**N/A** (A)		**N/A** (B)

Prevalence Index = B/A = **N/A**

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptations[1] (Explain)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No X**

Remarks:
No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FACU or drier).

SOIL

Sampling Point: **DPA-04-U**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-18	10YR 5/1	100	None	—	—	—	Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Compaction

Depth (inches): 18+

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

No positive indication of hydric soils was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No **X** Depth (inches): **N/A**

Water Table Present? Yes ___ No **X** Depth (inches): **>18**

Saturation Present? (includes capillary fringe) Yes ___ No **X** Depth (inches): **>18**

Wetland Hydrology Present? **Yes** ___ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: CR 255 County: Williamson Sampling Date: January 25, 2023
Applicant/Owner: Williamson County State: Texas Sampling Point: DPA-05-U
Investigator(s): Marcus H. and Pam B. Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): N/A Local relief (concave, convex, none): None Slope (%): 0-5%
Subregion (LRR): Southwest Plateaus and Plains Range and Cotton Region Lat: 30.743062 Long: -97.850779 Datum: North American Datum 1983
Soil Map Unit Name: Denton silty clay, 1 to 3 percent slopes NWI Classification: Riverine
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes No **X**
Hydric Soil Present? Yes No **X**
Wetland Hydrology Present? Yes No **X**

Is the Sampled Area within a Wetland? **Yes** **No** **X**

Remarks:
This point was determined not to be within a wetland due to the lack of all three wetland criteria.

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *Quercus fusiformis*	15	Yes	UPL
2.			
3.			
4.			
	15 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Juniperus ashei*	10	Yes	UPL
2.			
3.			
4.			
5.			
	10 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Geranium carolinianum*	60	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	60 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 40

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **0** (A)

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**N/A**	x 1 =	**N/A**
FACW species	**N/A**	x 2 =	**N/A**
FAC species	**N/A**	x 3 =	**N/A**
FACU species	**N/A**	x 4 =	**N/A**
UPL species	**N/A**	x 5 =	**N/A**
Column Totals:	**N/A** (A)		**N/A** (B)

Prevalence Index = B/A = **N/A**

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptations[1] (Explain)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No** **X**

Remarks:
No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FACU or drier).

SOIL

Sampling Point: **DPA-05-U**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	10YR 3/1	100	None	—	—	—	Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rock

Depth (inches): 6+

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

No positive indication of hydric soils was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No **X** Depth (inches): **N/A**

Water Table Present? Yes ___ No **X** Depth (inches): **>6**

Saturation Present? (includes capillary fringe) Yes ___ No **X** Depth (inches): **>6**

Wetland Hydrology Present? **Yes** ___ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: CR 255 County: Williamson Sampling Date: January 25, 2023
Applicant/Owner: Williamson County State: Texas Sampling Point: DPA-06-U
Investigator(s): Marcus H. and Pam B. Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-5%
Subregion (LRR): Southwest Plateaus and Plains Range and Cotton Region Lat: 30.751892 Long: -97.854269 Datum: North American Datum 1983
Soil Map Unit Name: Denton silty clay, 1 to 3 percent slopes NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes No **X**
Hydric Soil Present? Yes **X** No
Wetland Hydrology Present? Yes No **X**

Is the Sampled Area within a Wetland? **Yes** **No X**

Remarks:
This point was determined not to be within a wetland due to the lack of hydrophytic vegetation and wetland hydrology.

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *Ulmus crassifolia*	15	Yes	FAC
2. *Quercus fusiformis*	15	Yes	UPL
3.			
4.			
	30 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Sorghum halepense*	3	No	FACU
2. *Bothriochloa saccharoides*	3	No	FACU
3. *Tridens albescens*	3	No	FAC
4. *Nothoscordum bivalve*	10	Yes	FACU
5.			
6.			
7.			
8.			
9.			
10.			
	19 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 81

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **1** (A)
Total Number of Dominant Species Across All Strata: **3** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **33%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**N/A**	x 1 =	**N/A**
FACW species	**N/A**	x 2 =	**N/A**
FAC species	**N/A**	x 3 =	**N/A**
FACU species	**N/A**	x 4 =	**N/A**
UPL species	**N/A**	x 5 =	**N/A**
Column Totals:	**N/A** (A)		**N/A** (B)

Prevalence Index = B/A = **N/A**

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptations[1] (Explain)
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No X**

Remarks:
No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FACU or drier).

SOIL

Sampling Point: **DPA-06-U**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 4/1	60	10YR 6/6	40	C	M	Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- **X** Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rock

Depth (inches): 6+

Hydric Soil Present? **Yes** **X** **No** ___

Remarks:

A positive indication of hydric soil was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No **X** Depth (inches): **N/A**

Water Table Present? Yes ___ No **X** Depth (inches): **>6**

Saturation Present? (includes capillary fringe) Yes ___ No **X** Depth (inches): **>6**

Wetland Hydrology Present? **Yes** ___ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: CR 255 County: Williamson Sampling Date: January 25, 2023
Applicant/Owner: Williamson County State: Texas Sampling Point: DPA-07-U
Investigator(s): Marcus H. and Pam B. Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Rangeland Local relief (concave, convex, none): None Slope (%): 0-5%
Subregion (LRR): Southwest Plateaus and Plains Range and Cotton Region Lat: 30.754045 Long: -97.854437 Datum: North American Datum 1983
Soil Map Unit Name: Fairlie clay, 1 to 2 percent slopes NWI Classification: Riverine
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes **X** No
Hydric Soil Present? Yes No **X**
Wetland Hydrology Present? Yes No **X**

Is the Sampled Area within a Wetland? **Yes** **No X**

Remarks:
This point was determined not to be within a wetland due to the lack of hydric soils and wetland hydrology.

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *Ulmus crassifolia*	20	Yes	FAC
2.			
3.			
4.			
	20 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *Ulmus crassifolia*	25	Yes	FAC
2.			
3.			
4.			
5.			
	25 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Iva annua*	30	Yes	FAC
2. *Ambrosia trifida*	30	Yes	FAC
3. *Sorghum halepense*	15	Yes	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	75 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 25

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **4** (A)

Total Number of Dominant Species Across All Strata: **5** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **80%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**N/A**	x 1 =	**N/A**
FACW species	**N/A**	x 2 =	**N/A**
FAC species	**N/A**	x 3 =	**N/A**
FACU species	**N/A**	x 4 =	**N/A**
UPL species	**N/A**	x 5 =	**N/A**
Column Totals:	**N/A** (A)		**N/A** (B)

Prevalence Index = B/A = **N/A**

Hydrophytic Vegetation Indicators:

- ___ 1 - Rapid Test for Hydrophytic Vegetation
- **X** 2 - Dominance Test is >50%
- ___ 3 - Prevalence Index is ≤ 3.0[1]
- ___ 4 - Morphological Adaptations[1] (Explain)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **X** **No**

Remarks:
A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

SOIL

Sampling Point: **DPA-07-U**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	10YR 3/1	100	None	—	—	—	Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Compaction

Depth (inches): 6+

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

No positive indication of hydric soils was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No **X** Depth (inches): **N/A**

Water Table Present? Yes ___ No **X** Depth (inches): **>6**

Saturation Present? (includes capillary fringe) Yes ___ No **X** Depth (inches): **>6**

Wetland Hydrology Present? **Yes** ___ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: CR 255 County: Williamson Sampling Date: January 25, 2023
Applicant/Owner: Williamson County State: Texas Sampling Point: DPA-08-U
Investigator(s): Marcus H. and Pam B. Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0-5%
Subregion (LRR): Southwest Plateaus and Plains Range and Cotton Region Lat: 30.726113 Long: -97.843964 Datum: North American Datum 1983
Soil Map Unit Name: Fairlie clay, 1 to 2 percent slopes NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes No **X**
Hydric Soil Present? Yes **X** No
Wetland Hydrology Present? Yes **X** No

Is the Sampled Area within a Wetland? **Yes** **No X**

Remarks:
This point was determined not to be within a wetland due to the lack of hydrophytic vegetation.

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Nassella leucotricha*	5	No	UPL
2. *Opuntia engelmannii*	15	Yes	UPL
3. *Erodium cicutarium*	50	Yes	UPL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	70 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 30

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **0** (A)

Total Number of Dominant Species Across All Strata: **2** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**0**	x 1 =	**0**
FACW species	**0**	x 2 =	**0**
FAC species	**0**	x 3 =	**0**
FACU species	**0**	x 4 =	**0**
UPL species	**70**	x 5 =	**350**
Column Totals:	**70** (A)		**350** (B)

Prevalence Index = B/A = **5.00**

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptations[1] (Explain)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No X**

Remarks:
No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FACU or drier).

SOIL

Sampling Point: **DPA-08-U**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4	10YR 4/2	95	10YR 6/6	5			Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rock

Depth (inches): 4+

Hydric Soil Present? **Yes** X **No** ___

Remarks:

A positive indication of hydric soil was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- X Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): **N/A**

Water Table Present? Yes ___ No X Depth (inches): **>4**

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): **>4**

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least two secondary indicators).

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: CR 255 County: Williamson Sampling Date: May 5, 2023
Applicant/Owner: Williamson County State: Texas Sampling Point: DPB-01-U
Investigator(s): Pam B. and N/A Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Rangeland Local relief (concave, convex, none): None Slope (%): 0-5%
Subregion (LRR): Southwest Plateaus and Plains Range and Cotton Region Lat: 30.750029 Long: -97.853331 Datum: North American Datum 1983
Soil Map Unit Name: Eckrant cobbly clay, 1 to 8 percent slopes NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes No **X**
Hydric Soil Present? Yes No **X**
Wetland Hydrology Present? Yes No **X**

Is the Sampled Area within a Wetland? **Yes** **No X**

Remarks:
This point was determined not to be within a wetland due to the lack of all three wetland criteria.

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Lindheimera texana*	10	No	UPL
2. *Diaperia verna*	20	Yes	UPL
3. *Ratibida columnifera*	10	No	UPL
4. *Glandularia bipinnatifida*	10	No	UPL
5. ***Thelesperma filifolium***	40	Yes	UPL
6.			
7.			
8.			
9.			
10.			
	90 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 10

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: **0** (A)
Total Number of Dominant Species Across All Strata: **2** (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: **0** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**N/A**	x 1 =	**N/A**
FACW species	**N/A**	x 2 =	**N/A**
FAC species	**N/A**	x 3 =	**N/A**
FACU species	**N/A**	x 4 =	**N/A**
UPL species	**N/A**	x 5 =	**N/A**
Column Totals:	**N/A** (A)		**N/A** (B)

Prevalence Index = B/A = **N/A**

Hydrophytic Vegetation Indicators:
___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptations[1] (Explain)
___ Problematic Hydrophytic Vegetation[1] (Explain)
[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No X**

Remarks:
No positive indication of hydrophytic vegetation was observed (≥50% of dominant species indexed as FACU or drier).

SOIL

Sampling Point: **DPB-01-U**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-8	10YR 3/2						Clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Rock

Depth (inches): 8+

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

No positive indication of hydric soils was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No **X** Depth (inches): **N/A**

Water Table Present? Yes ___ No **X** Depth (inches): **>8**

Saturation Present? (includes capillary fringe) Yes ___ No **X** Depth (inches): **>8**

Wetland Hydrology Present? **Yes** ___ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: CR 255 County: Williamson Sampling Date: May 5, 2023
Applicant/Owner: Williamson County State: Texas Sampling Point: DPB-02-PFO
Investigator(s): Pam B. and N/A Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Rangeland Local relief (concave, convex, none): Concave Slope (%): 0-5%
Subregion (LRR): Southwest Plateaus and Plains Range and Cotton Region Lat: 30.741261 Long: -97.850026 Datum: North American Datum 1983
Soil Map Unit Name: Fairlie clay, 1 to 2 percent slopes NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No ____
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes **X** No ____
Hydric Soil Present? Yes **X** No ____
Wetland Hydrology Present? Yes **X** No ____

Is the Sampled Area within a Wetland? **Yes X** **No** ____

Remarks:
This point was determined to be within a wetland due to the presence of all 3 wetland criteria.
The survey area was determined to be drier than normal at the time of survey.

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *Fraxinus pennsylvanica*	40	Yes	FAC
2. *Ulmus crassifolia*	20	Yes	FAC
3.			
4.			
	60 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Allium drummondii*	10	No	UPL
2. *Torilis arvensis*	5	No	UPL
3. *Eleocharis palustris*	50	Yes	OBL
4. *Ambrosia artemisiifolia*	10	No	FACU
5. *Xanthium strumarium*	5	No	FAC
6.			
7.			
8.			
9.			
10.			
	80 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 20

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **3** (A)

Total Number of Dominant Species Across All Strata: **3** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **100%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**N/A**	x 1 =	**N/A**
FACW species	**N/A**	x 2 =	**N/A**
FAC species	**N/A**	x 3 =	**N/A**
FACU species	**N/A**	x 4 =	**N/A**
UPL species	**N/A**	x 5 =	**N/A**
Column Totals:	**N/A** (A)		**N/A** (B)

Prevalence Index = B/A = **N/A**

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
____ 3 - Prevalence Index is ≤ 3.0[1]
____ 4 - Morphological Adaptations[1] (Explain)
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes X** **No** ____

Remarks:
A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

SOIL

Sampling Point: **DPB-02-PFO**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/2	20	7.5YR 6/4	5	C	M	Clay loam	Dual matrix
0-16	10YR 4/1	75						

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: Compaction

Depth (inches): 16+

Hydric Soil Present? **Yes** X **No** ___

Remarks:

A positive indication of hydric soil was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- X Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes X No ___ Depth (inches): **3**

Water Table Present? Yes ___ No X Depth (inches): **>16**

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): **>16**

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

A positive indication of wetland hydrology was observed (at least one primary indicator).

WETLAND DETERMINATION DATA FORM - Great Plains Region

Project/Site: CR 255 County: Williamson Sampling Date: May 5, 2023
Applicant/Owner: Williamson County State: Texas Sampling Point: DPB-03-U
Investigator(s): Pam B. and N/A Section, Township, Range: N/A
Landform (hillslope, terrace, etc.): Rangeland Local relief (concave, convex, none): Concave Slope (%): 0-5%
Subregion (LRR): Southwest Plateaus and Plains Range and Cotton Region Lat: 30.741261 Long: -97.849989 Datum: North American Datum 1983
Soil Map Unit Name: Fairlie clay, 1 to 2 percent slopes NWI Classification: None
Are climatic / hydrologic conditions on the site typical for this time of year? Yes ____ No X (if no, explain in Remarks.)
Are Vegetation **No**, Soil **No**, or Hydrology **No** significantly disturbed? Are "Normal Circumstances" present? Yes **X** No ____
Are Vegetation **No**, Soil **No**, or Hydrology **No** naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present? Yes **X** No ____
Hydric Soil Present? Yes ____ No **X**
Wetland Hydrology Present? Yes ____ No **X**

Is the Sampled Area within a Wetland? **Yes** ____ **No** **X**

Remarks:
This point was determined not to be within a wetland due to the lack of hydric soils and wetland hydrology.
The survey area was determined to be drier than normal at the time of survey.

VEGETATION - Use scientific names of plants.

	Absolute % cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 ft.)			
1. *Fraxinus pennsylvanica*	20	Yes	FAC
2.			
3.			
4.			
	20 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft.)			
1. *None Observed*			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 ft.)			
1. *Ranunculus abortivus*	20	Yes	FAC
2. *Torilis arvensis*	10	Yes	UPL
3. *Xanthium strumarium*	10	Yes	FAC
4. *Monarda citriodora*	5	No	UPL
5.			
6.			
7.			
8.			
9.			
10.			
	45 = Total Cover		
Woody Vine Stratum (Plot size: 30 ft.)			
1. *None Observed*			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 55

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: **3** (A)

Total Number of Dominant Species Across All Strata: **4** (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: **75%** (A/B)

Prevalence Index Worksheet:

Total % Cover of:		Multiply by:	
OBL species	**N/A**	x 1 =	**N/A**
FACW species	**N/A**	x 2 =	**N/A**
FAC species	**N/A**	x 3 =	**N/A**
FACU species	**N/A**	x 4 =	**N/A**
UPL species	**N/A**	x 5 =	**N/A**
Column Totals:	**N/A** (A)		**N/A** (B)

Prevalence Index = B/A = **N/A**

Hydrophytic Vegetation Indicators:

____ 1 - Rapid Test for Hydrophytic Vegetation
X 2 - Dominance Test is >50%
____ 3 - Prevalence Index is ≤ 3.0[1]
____ 4 - Morphological Adaptations[1] (Explain)
____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **X** **No** ____

Remarks:
A positive indication of hydrophytic vegetation was observed (>50% of dominant species indexed as OBL, FACW, or FAC).

SOIL

Sampling Point: **DPB-03-U**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4	10YR 3/1	80	10YR 6/6	20	C	M	Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soils Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) **(LRR F)**
- ___ 1 cm Muck (A9) **(LRR F, G, H)**
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) **(LRR G, H)**
- ___ 5 cm Mucky Peat or Peat (S3) **(LRR F)**
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) **(MLRA 72 & 73 of LRR H)**

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR I, J)**
- ___ Coast Prairie Redox (A16) **(LRR F, G, H)**
- ___ Dark Surface (S7) **(LRR G)**
- ___ High Plains Depressions (F16) **(LRR H outside of MLRA 72 & 73)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: 4+

Depth (inches): Rock layer

Hydric Soil Present? **Yes** ___ **No** **X**

Remarks:

No positive indication of hydric soils was observed.

HYDROLOGY

Wetland hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where not tilled)**
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) **(where tilled)**
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) **(LRR F)**

Field Observations:

Surface Water Present? Yes ___ No **X** Depth (inches): **N/A**

Water Table Present? Yes ___ No **X** Depth (inches): **>4**

Saturation Present? (includes capillary fringe) Yes ___ No **X** Depth (inches): **>4**

Wetland Hydrology Present? **Yes** ___ **No** **X**

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No positive indication of wetland hydrology was observed.

Appendix C

Antecedent Precipitation Tool

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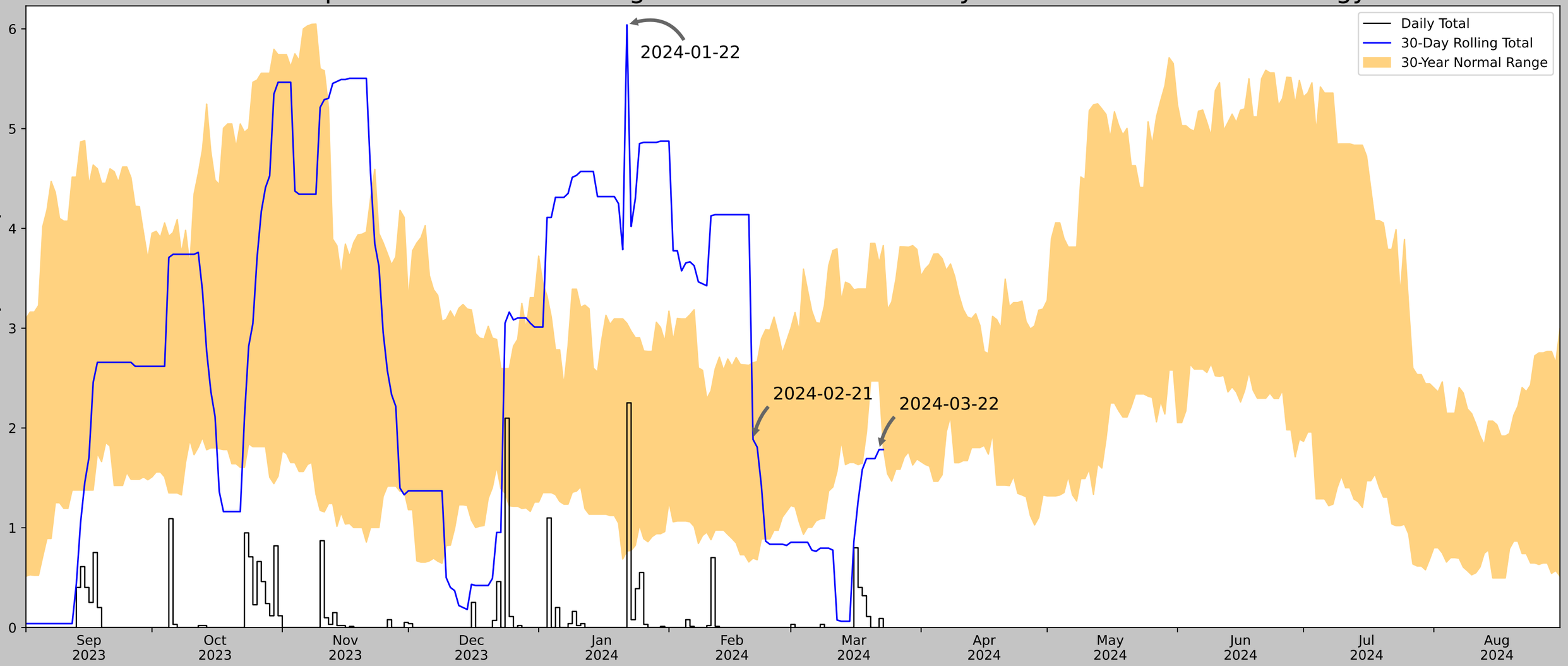
Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	30.732385, -97.846612
Observation Date	2024-03-22
Elevation (ft)	939.6
Drought Index (PDSI)	Mild drought (2024-02)
WebWIMP H_2O Balance	Wet Season

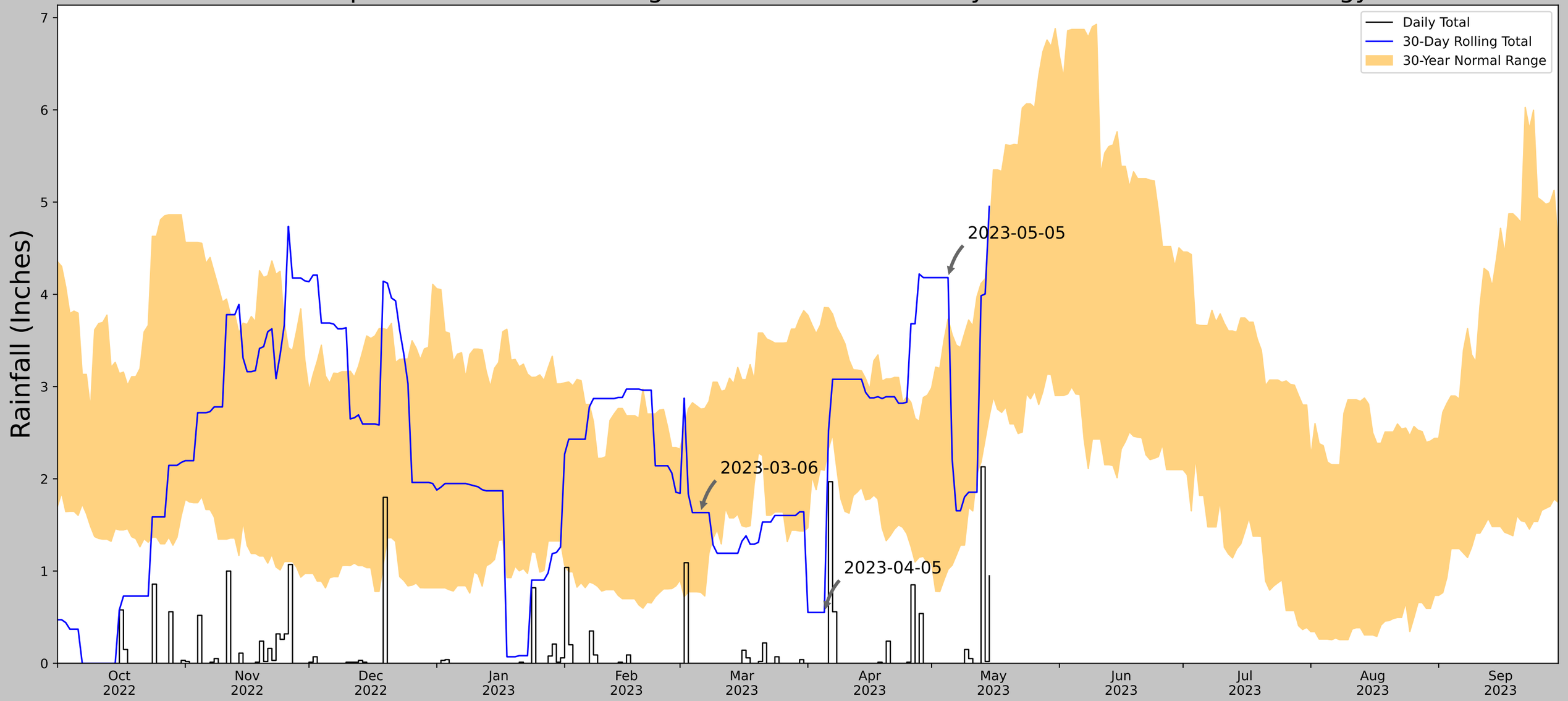
30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2024-03-22	2.47126	3.655512	1.783465	Dry	1	3	3
2024-02-21	0.695669	2.653937	1.885827	Normal	2	2	4
2024-01-22	0.766535	3.048819	6.03937	Wet	3	1	3
Result							Normal Conditions - 10

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
GEORGETOWN LAKE	30.6764, -97.7208	874.016	8.416	65.584	4.339	10779	76
GEORGETOWN 3.0 NW	30.6801, -97.7198	881.89	0.262	7.874	0.12	4	0
GEORGETOWN 2.8 NNW	30.6813, -97.7117	854.003	0.638	20.013	0.3	309	0
GEORGETOWN 2.2 NW	30.6692, -97.714	820.866	0.641	53.15	0.323	104	1
GEORGETOWN 3.9 NW	30.6898, -97.7311	882.874	1.11	8.858	0.509	7	0
GEORGETOWN 1.5 WNW	30.6575, -97.7093	799.869	1.474	74.147	0.773	11	1
GEORGETOWN 2.0 N	30.6763, -97.6926	783.137	1.676	90.879	0.907	13	0
GEORGETOWN 1.1 WNW	30.6559, -97.7021	756.89	1.8	117.126	1.021	29	12
GEORGETOWN 1.2 W	30.6504, -97.7069	799.869	1.977	74.147	1.036	35	0
GEORGETOWN 4.9 NW	30.7061, -97.7339	845.144	2.195	28.872	1.051	15	0
JARRELL	30.8294, -97.6011	875.984	12.738	1.968	5.757	46	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	30.741103, -97.849977
Observation Date	2023-05-05
Elevation (ft)	967.874
Drought Index (PDSI)	Moderate drought (2023-04)
WebWIMP H_2O Balance	Dry Season

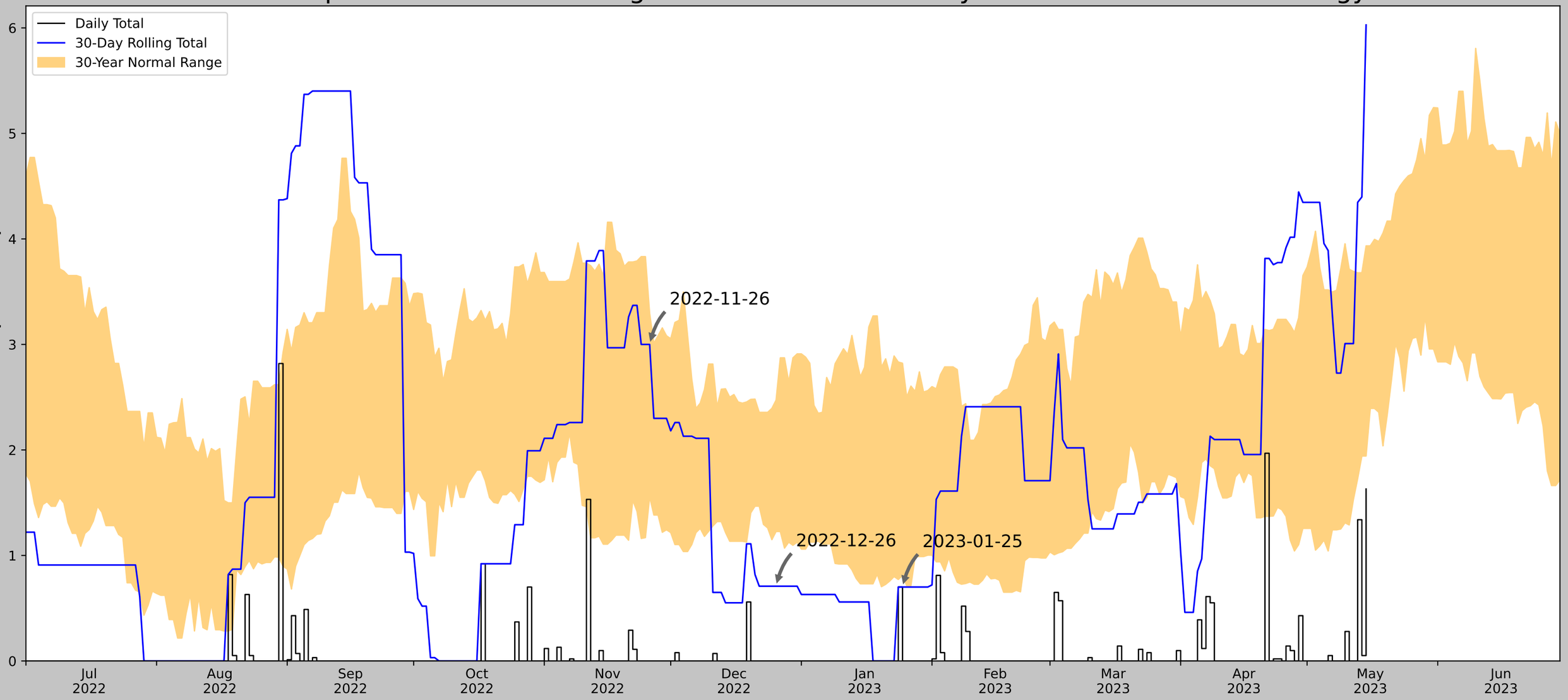
30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2023-05-05	1.017717	3.73189	4.181102	Wet	3	3	9
2023-04-05	2.093307	3.856693	0.551181	Dry	1	2	2
2023-03-06	0.77126	2.757087	1.633858	Normal	2	1	2
Result							Normal Conditions - 13

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
AUSTIN-CAMP MABRY	30.3208, -97.7603	669.948	29.527	297.926	22.084	11353	90

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	30.741103, -97.849977
Observation Date	2023-01-25
Elevation (ft)	967.874
Drought Index (PDSI)	Severe drought
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2023-01-25	0.81063	2.822047	0.700787	Dry	1	3	3
2022-12-26	1.226772	2.472441	0.708661	Dry	1	2	2
2022-11-26	1.556693	3.294882	3.0	Normal	2	1	2
Result							Drier than Normal - 7

Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
ANDICE 2 SW	30.7578, -97.8614	1071.85	1.338	103.976	0.741	10348	88
ANDICE 1.6 SW	30.7603, -97.857	1055.118	0.313	16.732	0.146	637	2
LIBERTY HILL 4.2 NE	30.7056, -97.8698	898.95	3.641	172.9	2.268	1	0
FLORENCE 5.9 W	30.8242, -97.8902	1119.095	4.896	47.245	2.435	9	0
FLORENCE	30.8394, -97.7928	985.892	6.954	85.958	3.727	328	0
BRIGGS	30.8833, -97.9333	1089.895	9.664	18.045	4.523	30	0

1. View of stream WWA-01 facing upstream.

2. View of stream WWA-02 facing Downstream.

3. View of stream WWB-01 facing upstream.

4. View of stream WWB-02 facing upstream.

5. View of wetland WETB-01 facing southwest.

6. View of pond WBB-01 facing east.

Attachment D: Summary Table of Single and Complete Crossings

Waterbody ID[1]	Latitude and Longitude (Decimal Degrees)	Resource Type[2]	Acres in Project Area	Impact Type[3]	Average Length of Impact (Feet)	Average Width of Impact (Feet)	Acres of Impact	Cubic Yards of Material to be Discharged	PCN Required	Reason[4]
WWA-01	30.739387, -97.849445	ES	0.03	D/P	340.7	3.4	0.03	-	Yes	C
WWA-02	30.740849, -97.850039	ES	>0.01	D/P	118.1	2.4	>0.01	-	Yes	C
WWB-01	30.741724, -97.850249	ES	0.01	D/P	178.7	3	0.01	-	Yes	C
WWB-02	30.732778, -97.847300	IS	0.03	D/P	415.0	4	0.03	-	Yes	C
WETB-01	30.741359, -97.850105	FW	0.10	D/P	-	-	0.10	-	Yes	C
WBB-01	30.741382, -97.850114	UCP	0.33	D/P	-	-	0.33	-	Yes	A,C

[1] Waterbody ID may be the name of a feature or an assigned label such as "W-1" for a wetland.

[2] Resource Types: EW – Emergent Wetland, SW – Scrub/Shrub Wetland, FW – Forested Wetland
PS – Perennial Stream, IS – Intermittent Stream, ES – Ephemeral Stream, I – Impoundment, UCP – Upland Constructed Pond

[3] Impact Types: D/P – Direct* and Permanent, D/T – Direct and Temporary, I/P – Indirect** and Permanent, I/T – Indirect and Temporary

* Direct impacts are here defined as those adverse effects caused by the proposed activity, such as discharge or excavation.

** Indirect impacts are here defined as those adverse effects caused subsequent to the proposed activity, such as flooding or effects of drainage on adjacent waters of the U.S.

[4] Reasons for PCN requirement:

A – The loss of waters of the U.S. exceeds 1/10 acre
B – There is a discharge in a special aquatic site (e.g., wetlands)
C – Potential endangered species
D – Potential historic properties
E – Discharge into pitcher plant bog or bald cypress-tupelo swamp
F – Discharge into the area of Caddo Lake within Texas that is designated as a "Wetland of International Importance" under the Ramsar Convention
G – Required by Louisiana Regional Conditions
H – Other

DRAFT

DRAFT

LEGEND

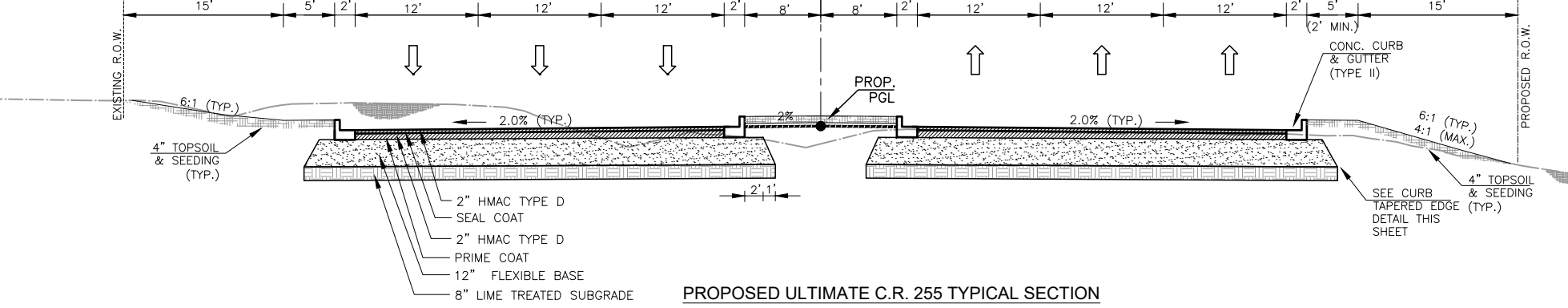
- PROP. PAVE.
- EXIST. R.O.W.
- PROP. R.O.W.
- PARCEL LINE
- RIVER/STREAM
- EXIST. ASPH. PAVE.
- EXIST. CONTOUR
- PROP. DETENTION / WATER QUALITY POND
- EXIST. OVERHEAD ELEC.
- EXIST. WATER LINE
- EXIST. TELEPHONE CABLE
- EXIST. GAS LINE

0 100 200 FT
SCALE: 1" = 200'

ROADWAY CLASSIFICATION: SUBURBAN COLLECTOR
DESIGN SPEED: 45 MPH

BASE LINE CURVE TABLE

NO	RADIUS	DELTA	ARC	TANGENT	CHORD
C1	6700.00'	13°45'12"	1608.28'	808.02'	S14°20'54"E 1604.41'
C2	4680.00'	16°28'34"	1345.79'	677.57'	S15°43'10"E 1339.58'
C3	6700.00'	4°30'08"	526.47'	263.37'	S21°41'48"E 526.34'
C4	20,000.00'	0°38'32"	224.19'	112.10'	N19°46'00"W 224.19'
C5	6500.00'	2°09'43"	245.27'	122.65'	S19°00'25"E 245.25'
C6	10000.00'	7°44'34"	1351.36'	676.71'	S21°47'50"E 1350.34'
C7	8000.00'	4°16'28"	596.82'	298.55'	S23°31'53"E 596.68'
C8	6500.00'	3°55'45"	445.75'	222.96'	S19°25'47"E 445.66'
C9	6500.00'	10°14'12"	1161.31'	582.20'	S22°34'60"E 1159.76'



PROPOSED ULTIMATE C.R. 255 TYPICAL SECTION
N.T.S.

NO.	DATE	BY	CK	DESCRIPTION
REVISIONS				

HEJL, LEE & ASSOCIATES, INC
ENGINEERING • SURVEYING • PLANNING
206 TAYLOR STREET HUTTO, TX 78634
PH.(512) 642-3292
TBPE FIRM NO. F-755, TBPLS FIRM NO. 10058500

WILLIAMSON COUNTY
COUNTY ROAD 255
DRAFT SCHEMATIC

WILLIAMSON COUNTY

DESIGNED BY:	
DRAWN BY:	STT
REVIEWED BY:	CL
APPROVED BY:	DPH
PROJECT NO.:	37002
DATE:	10-21-21
SCALE:	AS SHOWN
DWG. NO.:	-

SHEET - OF -

20211021-CR255-SchematicRoll.DWG

90% SUBMITTAL

WILLIAMSON COUNTY

CR 255
PRECINCT NUMBER 3

NET LENGTH OF ROADWAY = 19,113 FT (3.62 MILES)
NET LENGTH OF BRIDGES = 0.00 FT (0.000 MILES)
NET LENGTH OF PROJECT = 19,113 FT (3.62 MILES)

LIMITS: FROM CR 254 TO RONALD REAGAN BOULEVARD
IN WILLIAMSON COUNTY.

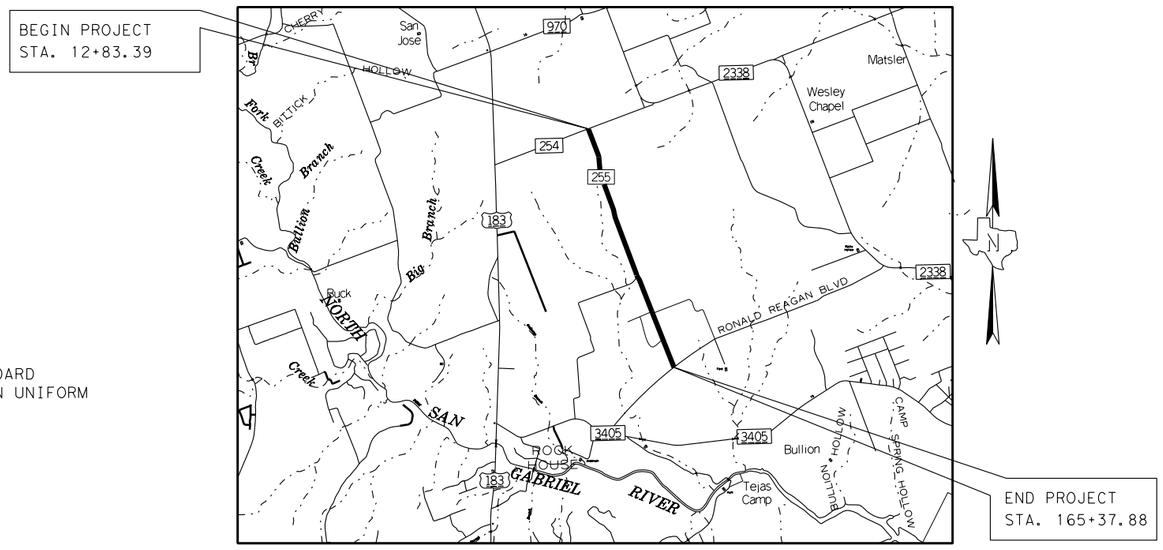
FOR THE CONSTRUCTION OF THE EARTHWORK,
GRADING, DRAINAGE & STRUCTURES, BASE COURSE,
ASPHALTIC CONCRETE PAVEMENT AND PAVEMENT MARKINGS.

FUNCTIONAL CLASSIFICATION	= MINOR COLLECTOR
DESIGN SPEED	= 45 MPH
ADT (2015)	= 1800
DHV (2015)	= 180
ADT (2035)	= 3600
DHV (2035)	= 360

255
DESIGN SPEED = 30 MPH
CR 289 & BIG VALLEY SPUR
DESIGN SPEED = 30 MPH
RONALD REAGAN BLVD
DESIGN SPEED = 60 MPH

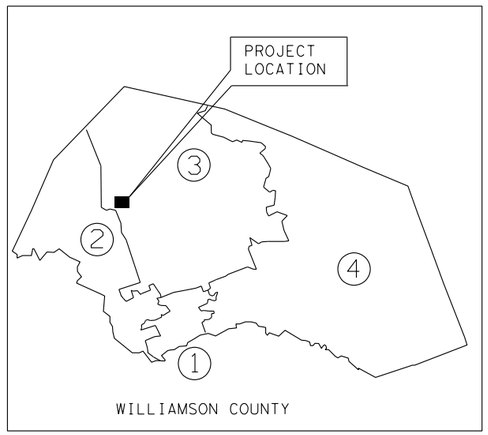
INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	INDEX OF SHEETS



VICINITY MAP
N. T. S.

REQUIRED SIGNS SHALL BE PLACED IN ACCORDANCE WITH STANDARD SHEETS BC(1)-21 THRU BC(12)-21 AND THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.:



WILLIAMSON COUNTY

TxDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION OF HIGHWAYS, STREETS AND BRIDGES ADOPTED ON NOVEMBER 1, 2014 AND ALL APPLICABLE SPECIAL PROVISIONS AND SPECIAL SPECIFICATIONS AS INDICATED IN THE BID DOCUMENTS SHALL GOVERN ON THIS PROJECT.

Seiler Lankes Group TBPE License No. 12670
PLANNING • ENGINEERING • CONSTRUCTION

EXCEPTIONS: NONE
EQUATIONS: NONE
RAILROAD CROSSINGS: NONE
WATERSHED: NORTH FORK OF SAN GABRIEL RIVER
AREA OF DISTURBANCE: 57.1 ACRES

PREPARED BY:
SEILER LANKES GROUP(DESIGN CONSULTANT)

GERALD LANKES, PE — DATE
PROJECT MANAGER

PRELIMINARY
FOR INTERIM REVIEW ONLY. NOT FOR PERMITTING, BIDDING, OR CONSTRUCTION.
Prepared by or under the
Direct Supervision of
GERALD A. LANKES, P.E. 107484
1/24/2024

WILLIAMSON COUNTY
DEPT. OF
INFRASTRUCTURE

APPROVED AND RECOMMENDED FOR CONSTRUCTION:

J. TERRON EUGRTSON, P.E. — DATE
DIRECTOR OF ROAD AND BRIDGE DIVISION
WILLIAMSON COUNTY

APPROVED BY:
HNTB CORPORATION

RICHARD L RIDINGS, PE — DATE
ROAD BOND MANAGEMENT TEAM

USER: korahoskie
DATE: 1/24/2024 4:42
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THE STANDARD SHEETS SPECIFICALLY IDENTIFIED BY * HAVE BEEN SELECTED Y ME OR UNDER MY RESPONSIBLE SUPERVISION AS BEING APPLICABLE TO THIS PROJECT

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GERALD A. LANKES, P.E. 107484
1/25/2024

WILCO TEXAS

WILLIAMSON COUNTY DEPT. OF INFRASTRUCTURE

Seiler Lankes Group
TBPE License No. 12170
PLANNING • ENGINEERING • CONSTRUCTION

CR 255

INDEX OF SHEETS

SHEET 1 OF 1

DESIGNED:	FED. RD DIV. No.	STATE	FEDERAL AID PROJECT No.	HIGHWAY No.
CHECKED:		TEXAS		CR 255
DRAWN:	COUNTY			JOB No. / SHEET No.
CHECKED:	WILLIAMSON			2

USER: jsallinas
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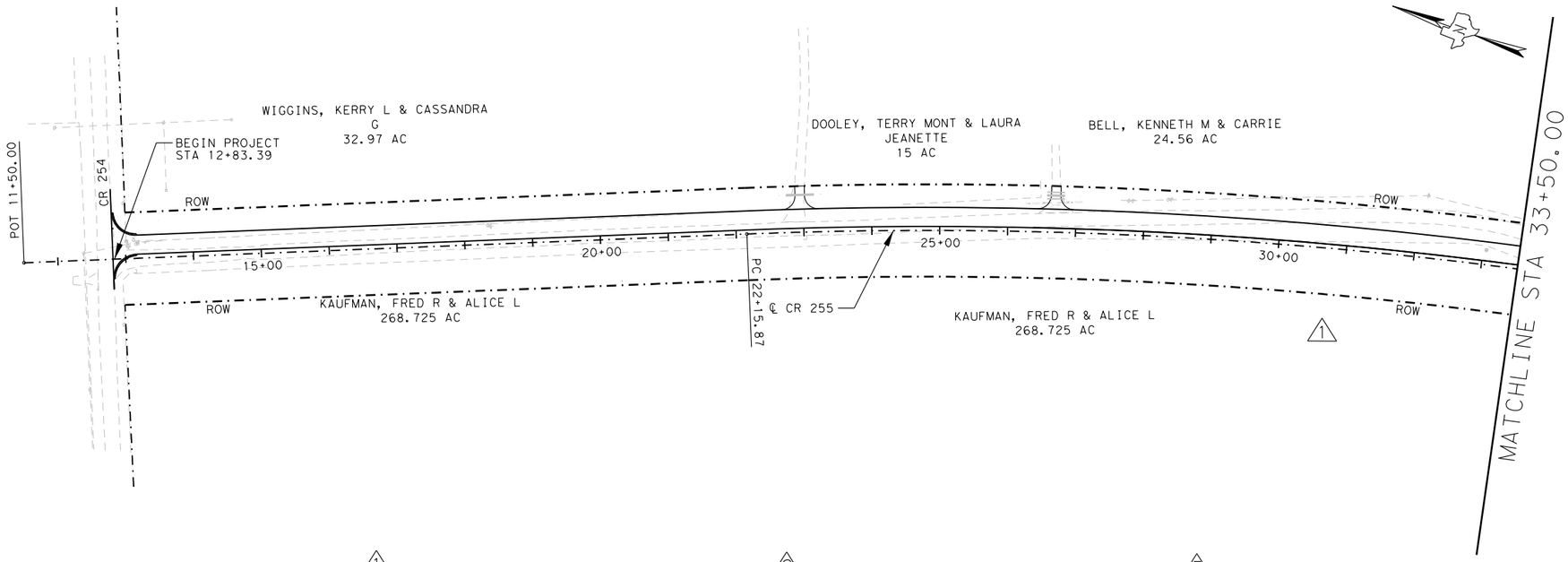


CURVE DATA 1

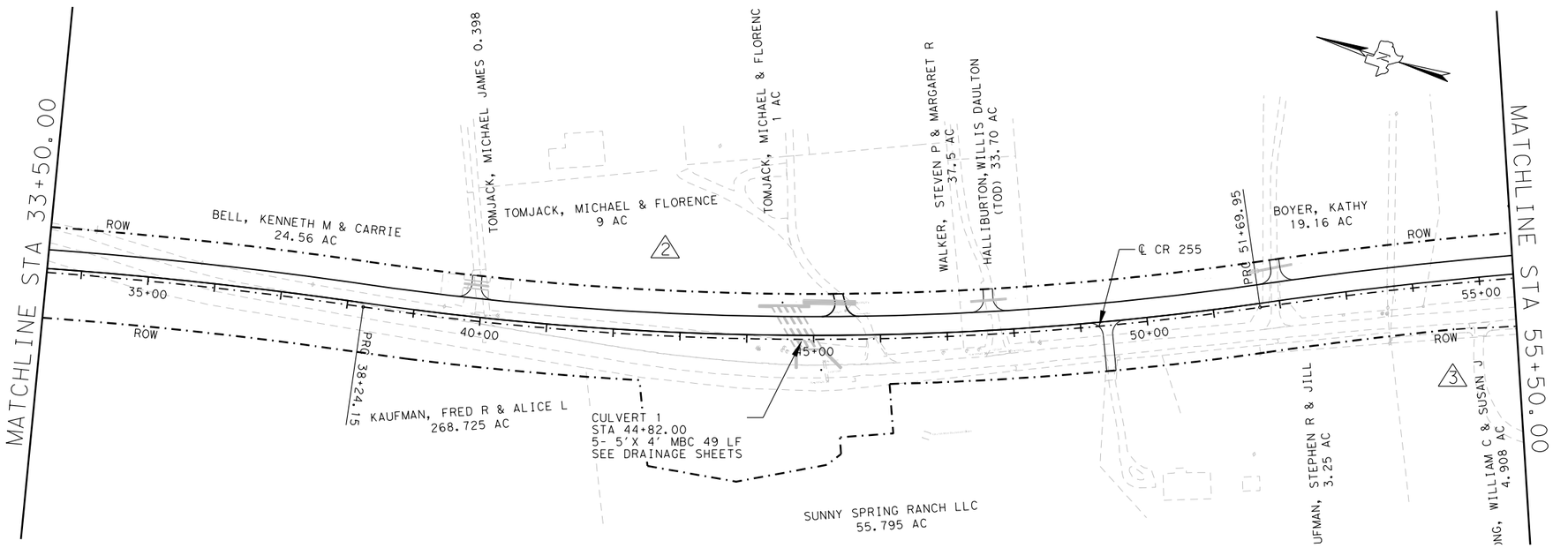
PI STATION	= 30+23.90
DELTA	= 13° 45′ 12.17" (RT)
DEGREE OF CURVE	= 0° 51′ 18.58"
TANGENT	= 808.02
LENGTH	= 1,608.28
RADIUS	= 6,700.00
PC STATION	= 22+15.87
PT STATION	= 38+24.15

CURVE DATA 2

PI STATION	= 45+01.73
DELTA	= 16° 28′ 34.05" (LT)
DEGREE OF CURVE	= 1° 13′ 27.37"
TANGENT	= 677.57
LENGTH	= 1,345.79
RADIUS	= 4,680.00
PC STATION	= 38+24.15
PT STATION	= 51+69.95

CURVE DATA 3

PI STATION	= 54+33.32
DELTA	= 4° 30′ 07.93" (RT)
DEGREE OF CURVE	= 0° 51′ 18.58"
TANGENT	= 263.37
LENGTH	= 526.47
RADIUS	= 6,700.00
PC STATION	= 51+69.95
PT STATION	= 56+96.42



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GERALD A. LANKES, P.E. 107484
1/24/2024

WILCO TEXAS

WILLIAMSON COUNTY
DEPT. OF
INFRASTRUCTURE

Seiler Lankes Group
TBPE License No. 12170
PLANNING • ENGINEERING • CONSTRUCTION

CR 255

PROJECT LAYOUT SHEETS

BEGINNING TO STA 55+50.00

SHEET 1 OF 4

DESIGNED:	FED. RD DIV. No.	STATE	FEDERAL AID PROJECT No.	HIGHWAY No.
CHECKED:		TEXAS		CR 255
DRAWN:	COUNTY			JOB No. / SHEET No.
CHECKED:	WILLIAMSON			3

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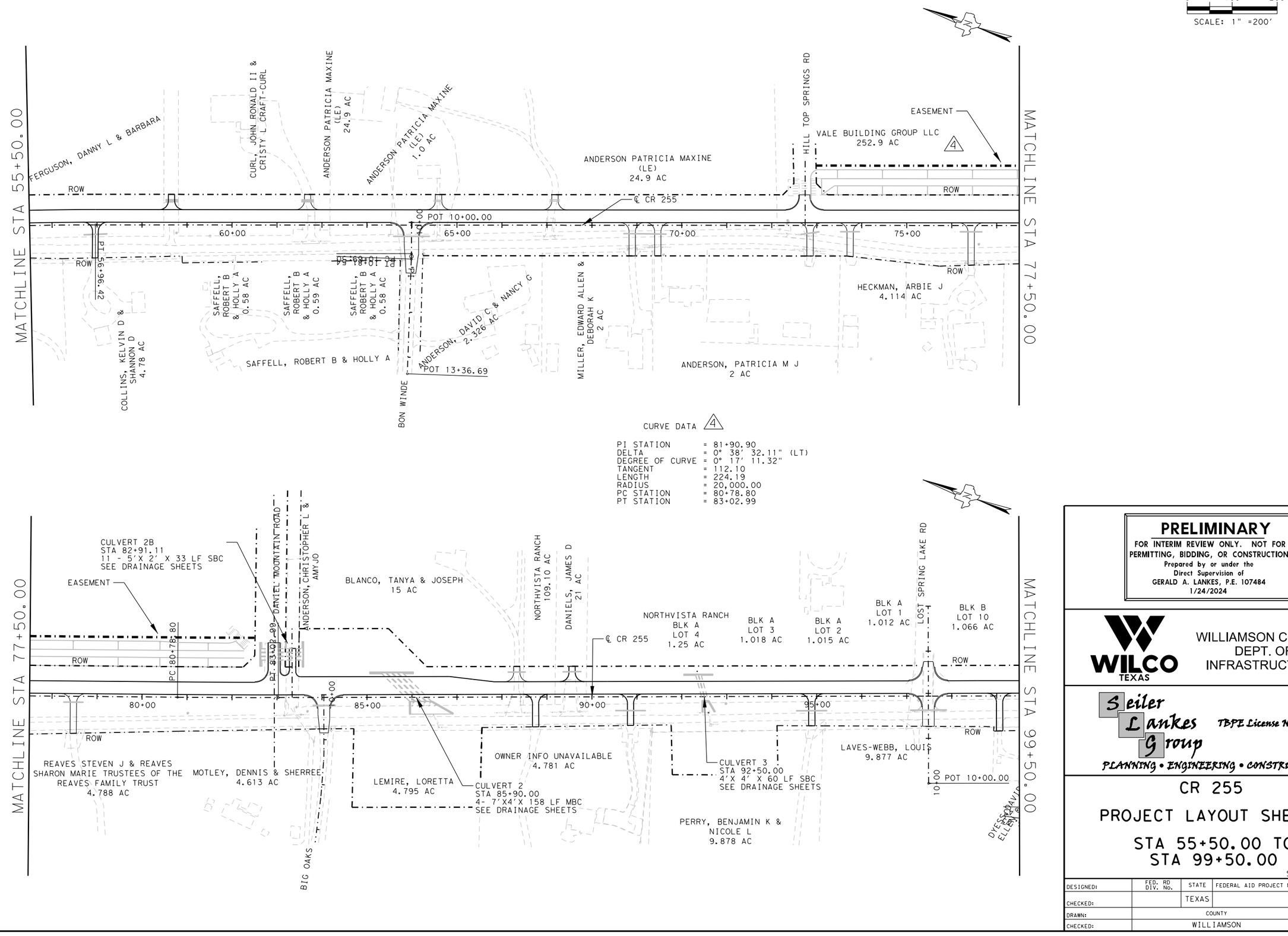

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GERALD A. LANKES, P.E. 107484
1/24/2024

WILCO TEXAS

WILLIAMSON COUNTY DEPT. OF INFRASTRUCTURE

Seiler Lankes Group
TBPE License No. 12170
PLANNING • ENGINEERING • CONSTRUCTION

CR 255

PROJECT LAYOUT SHEETS

STA 55+50.00 TO STA 99+50.00

SHEET 2 OF 4

DESIGNED:	FED. RD DIV. No.	STATE	FEDERAL AID PROJECT No.	HIGHWAY No.
CHECKED:		TEXAS		CR 255
DRAWN:	COUNTY			JOB No. / SHEET No.
CHECKED:	WILLIAMSON			4

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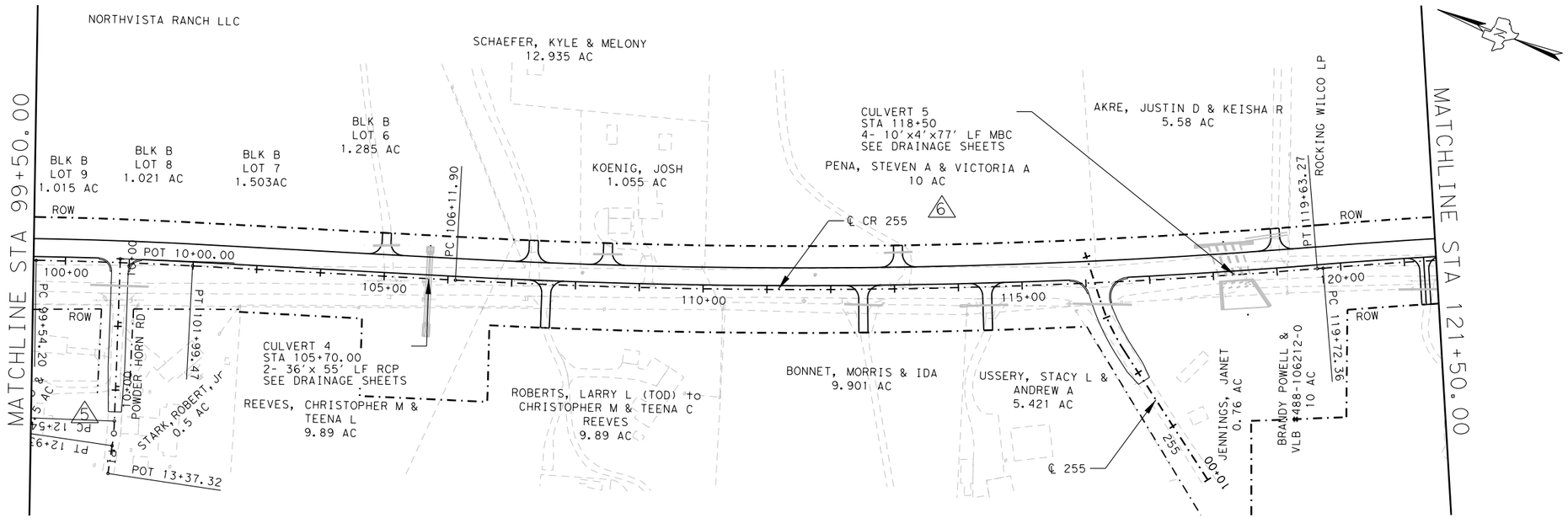


CURVE DATA 5

PI STATION	= 100+76.85
DELTA	= 2° 09′ 43.09" (RT)
DEGREE OF CURVE	= 0° 52′ 53.30"
TANGENT	= 122.65
LENGTH	= 245.27
RADIUS	= 6,500.00
PC STATION	= 99+54.20
PT STATION	= 101+99.47

CURVE DATA 6

PI STATION	= 112+88.62
DELTA	= 7° 44′ 33.89" (LT)
DEGREE OF CURVE	= 0° 34′ 22.65"
TANGENT	= 676.71
LENGTH	= 1,351.36
RADIUS	= 10,000.00
PC STATION	= 106+11.90
PT STATION	= 119+63.27

CURVE DATA 7

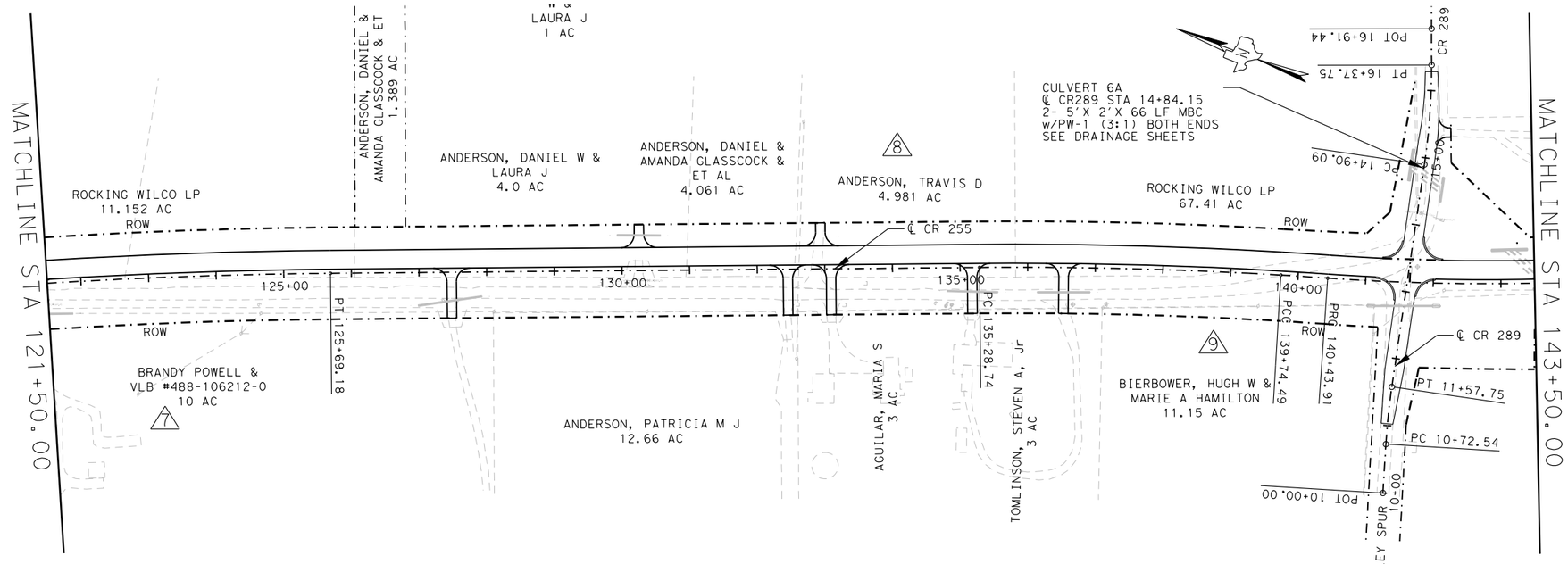
PI STATION	= 122+70.90
DELTA	= 4° 16′ 27.84" (RT)
DEGREE OF CURVE	= 0° 42′ 58.31"
TANGENT	= 298.55
LENGTH	= 596.82
RADIUS	= 8,000.00
PC STATION	= 119+72.36
PT STATION	= 125+69.18

CURVE DATA 8

PI STATION	= 137+51.70
DELTA	= 3° 55′ 45.03" (RT)
DEGREE OF CURVE	= 0° 52′ 53.30"
TANGENT	= 222.96
LENGTH	= 445.75
RADIUS	= 6,500.00
PC STATION	= 135+28.74
PT STATION	= 139+74.49

CURVE DATA 9

PI STATION	= 140+09.20
DELTA	= 0° 36′ 42.89" (RT)
DEGREE OF CURVE	= 0° 52′ 53.30"
TANGENT	= 34.71
LENGTH	= 69.42
RADIUS	= 6,500.00
PC STATION	= 139+74.49
PT STATION	= 140+43.91



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GERALD A. LANKES, P.E. 107484
1/24/2024

WILCO TEXAS

WILLIAMSON COUNTY
DEPT. OF
INFRASTRUCTURE

Seiler Lankes Group — TBPE License No. 12170

PLANNING • ENGINEERING • CONSTRUCTION

CR 255

PROJECT LAYOUT SHEETS

STA 99+50.00 TO STA 143+50.00

SHEET 3 OF 4

DESIGNED:	FED. RD DIV. No.	STATE	FEDERAL AID PROJECT No.	HIGHWAY No.
CHECKED:		TEXAS		CR 255
DRAWN:	COUNTY			JOB No. / SHEET No.
CHECKED:	WILLIAMSON			5

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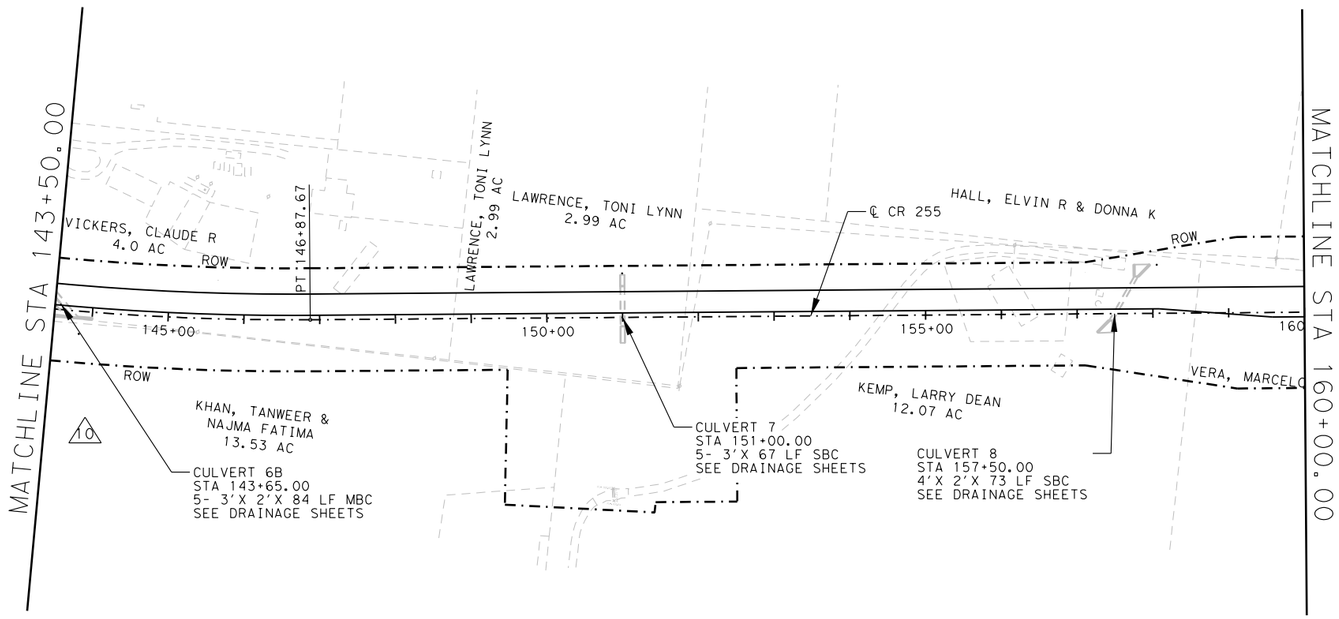
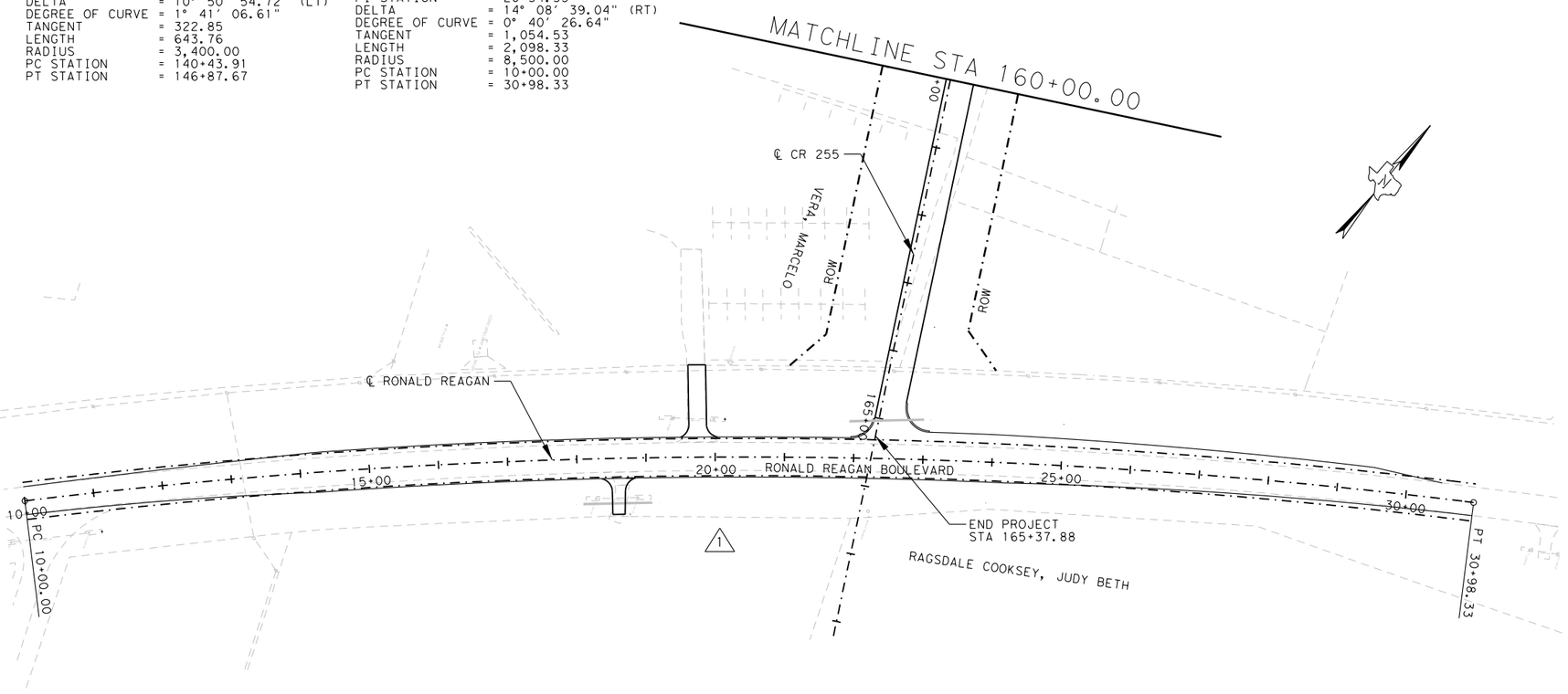


CURVE DATA (10)

PI STATION	= 143+66.75
DELTA	= 10° 50' 54.72" (LT)
DEGREE OF CURVE	= 1° 41' 06.61"
TANGENT	= 322.85
LENGTH	= 643.76
RADIUS	= 3,400.00
PC STATION	= 140+43.91
PT STATION	= 146+87.67

RONALD REAGAN CURVE DATA (1)

PI STATION	= 20+54.53
DELTA	= 14° 08' 39.04" (RT)
DEGREE OF CURVE	= 0° 40' 26.64"
TANGENT	= 1,054.53
LENGTH	= 2,098.33
RADIUS	= 8,500.00
PC STATION	= 10+00.00
PT STATION	= 30+98.33



0 100 200
SCALE: 1" =200'

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1/24/2024

WILCO TEXAS
WILLIAMSON COUNTY DEPT. OF INFRASTRUCTURE

Seiler Lankes Group
TBPE License No. 12170
PLANNING • ENGINEERING • CONSTRUCTION

CR 255
PROJECT LAYOUT SHEETS
STA 143+50.00 TO END

SHEET 4 OF 4

DESIGNED:	FED. RD DIV. No.	STATE	FEDERAL AID PROJECT No.	HIGHWAY No.
CHECKED:		TEXAS		CR 255
DRAWN:	COUNTY			JOB No. / SHEET No.
CHECKED:	WILLIAMSON			6

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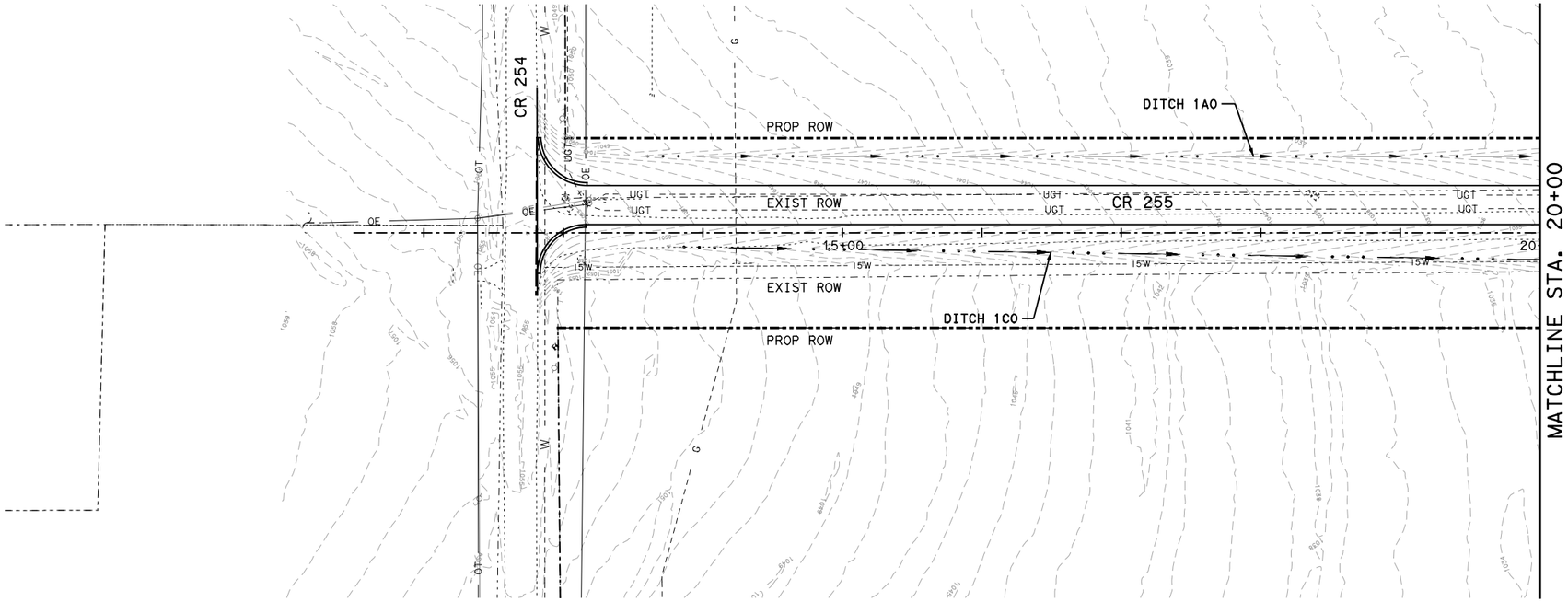

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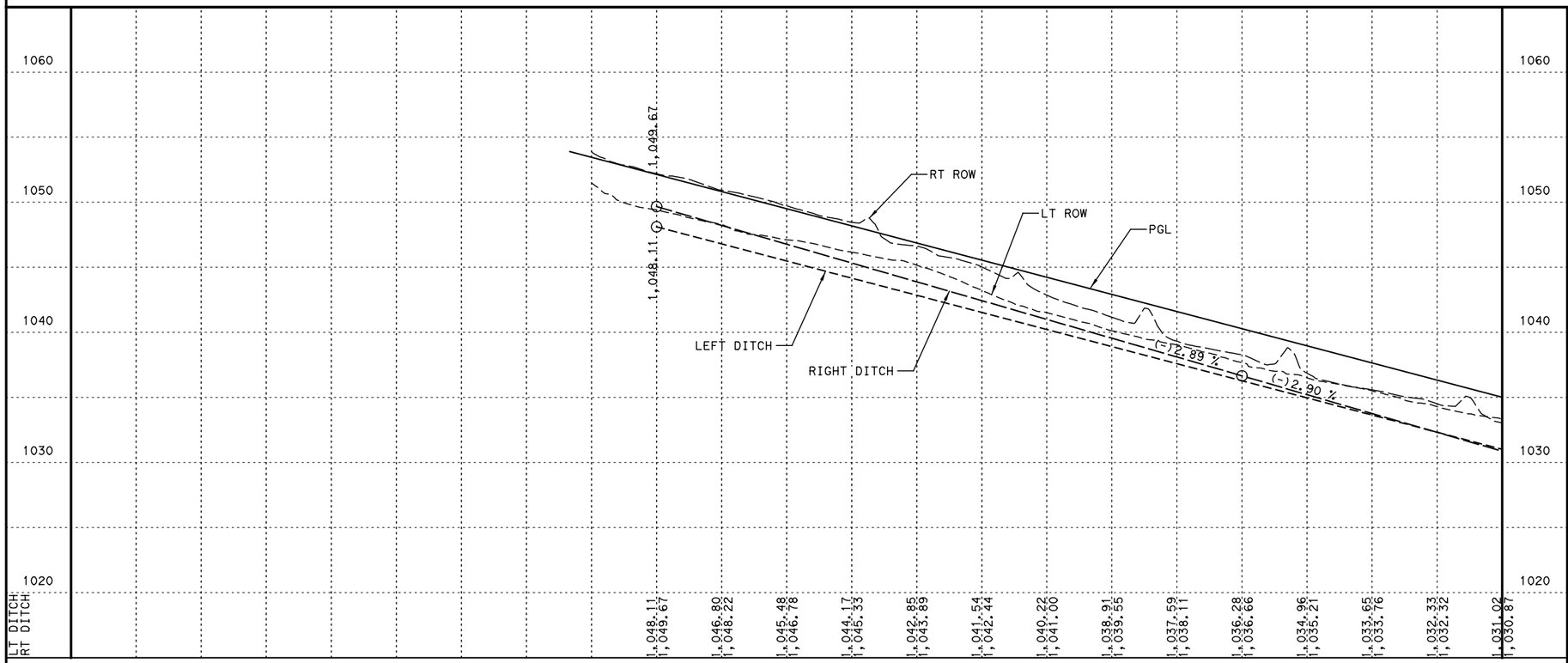
SCALE: 1" = 100'

LEGEND

- DITCH XX — DITCH FLOWLINE
- PROP CONTOUR
- EXIST ROW
- EXIST TOPOGRAPHY
- 15'W — EXIST UG UTILITY
- OT — EXIST OH UTILITY
- EXIST CULVERTS
- PROP ROADWAY
- PROP WINGWALLS/CONTOURS
- PROP CULVERT
- PROP ROW
- EXIST STORM SEWER
- PROP STORM SEWER
- PROP SET
- SRB TYPE 2, CLASS H (MUST BE TRM)
- RIPRAP (CONC)
- RIPRAP (STONE)
- DITCH BLOCK (W/TOP ELEV)

DRAINAGE PLAN NOTES:

1. FOR REFERENCE AND IDENTIFICATION PURPOSES, THE LINK ID MATCHES UPSTREAM NODE ID.
2. SEE REMOVAL PLANS FOR DRAINAGE STRUCTURES TO BE REMOVED.
3. ALL PRECAST SETS SHALL HAVE RIPRAP APRONS PER THE PSET-RR STD. DROP INLETS SHALL HAVE RIPRAP APRONS PER THE APPLICABLE STD.
4. REFER TO THE OUTLET PROTECTION DETAILS FOR SIZE AND SPEC INFO FOR EACH STONE RIPRAP APRON.
5. REFER TO THE DRIVEWAY CULVERT SUMMARY FOR LOCATION AND SPEC INFO.



NO.	REVISION	BY	DATE

CLG

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WILCO TEXAS

CLG CIVIL ENGINEERING

CLGANN, LLC
3708 Norman Loop
Round Rock, TX 78664
512.574.5738
TBPE Firm No. 20717

CR 255
DITCH PLAN & PROFILE
BEGIN PROJECT TO STA 20+00

H SCALE: 1" = 100'
V SCALE: 1" = 10'

SHEET 1 OF 15

DESIGNED:	FED. RD DIV. No.	STATE	FEDERAL AID PROJECT No.		HIGHWAY No.	
CHECKED:	X	TEXAS			CR 255	
DRAWN:	STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
CHECKED:	XX	XX	XX	XX	XX	184

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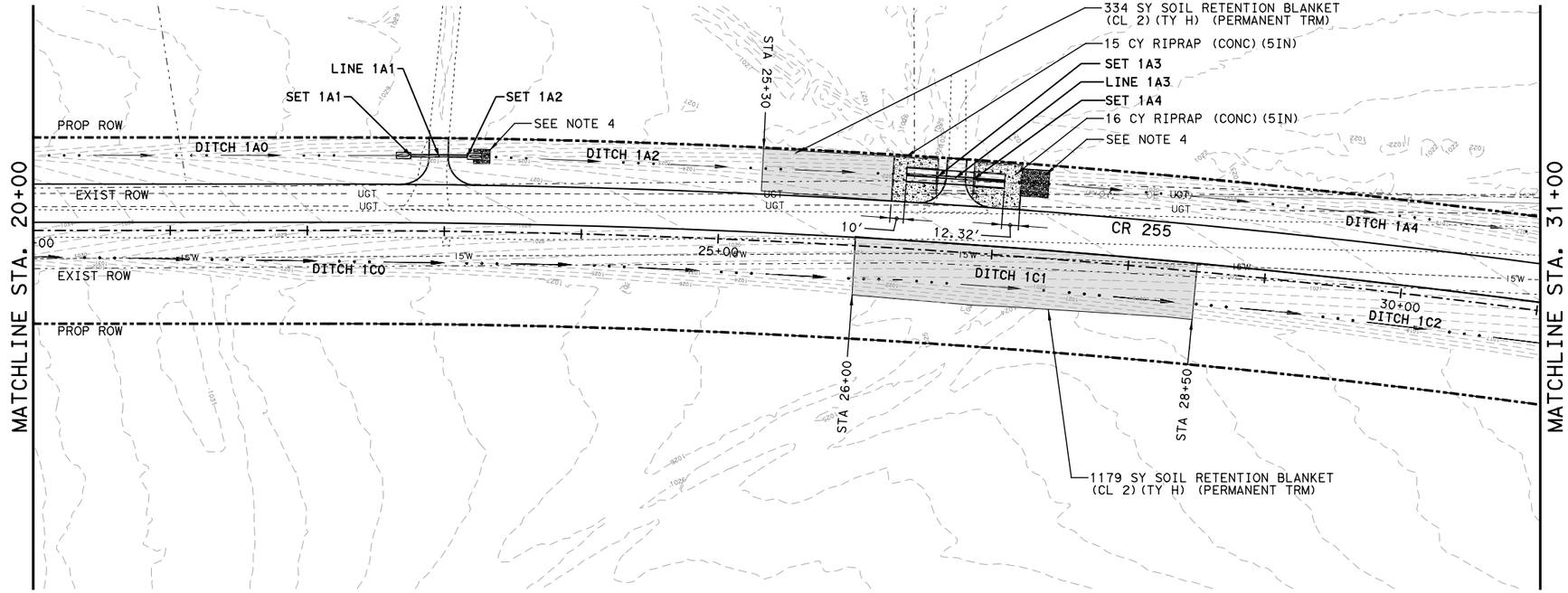

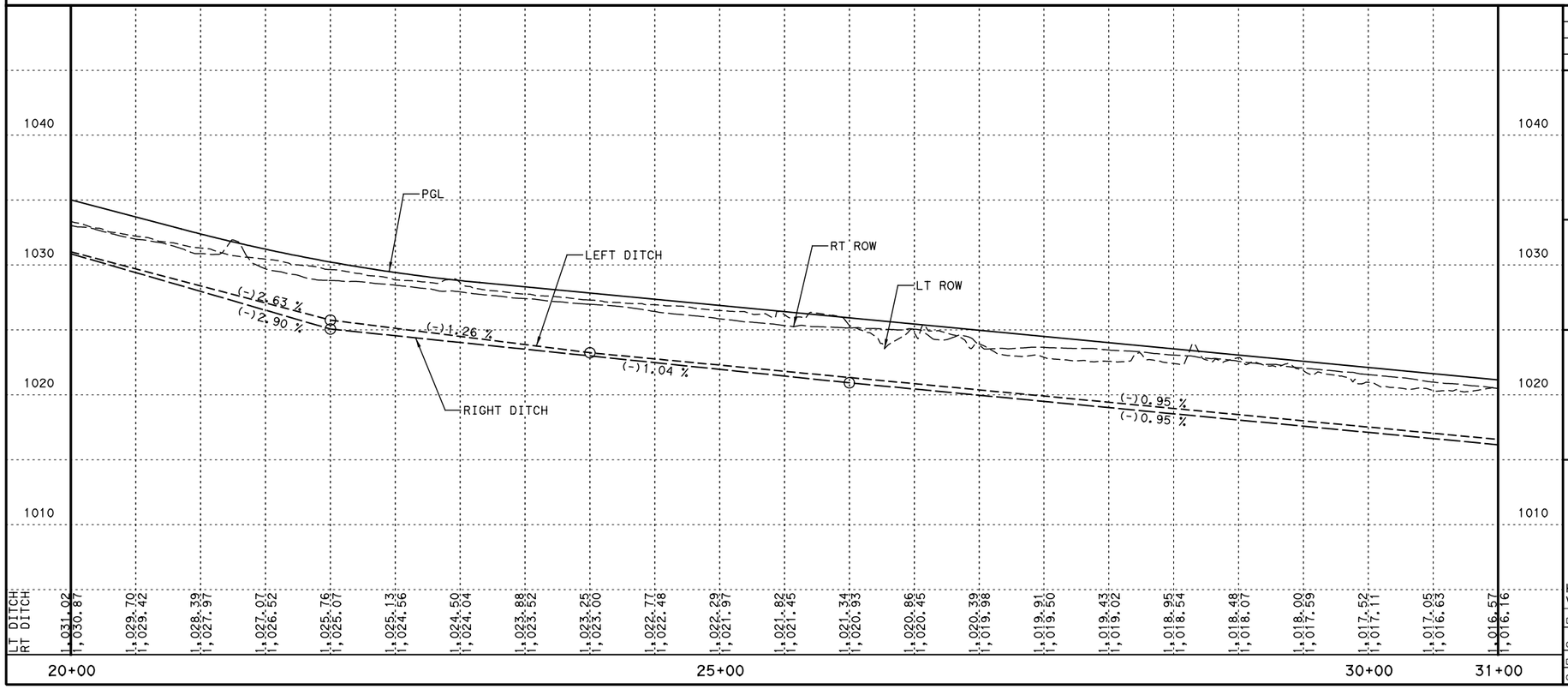

0 50 100
SCALE: 1" = 100'

LEGEND

- DITCH XX — DITCH FLOWLINE
- PROP CONTOUR
- EXIST ROW
- EXIST TOPOGRAPHY
- 15'W — EXIST UG UTILITY
- OT — EXIST OH UTILITY
- EXIST CULVERTS
- PROP ROADWAY
- PROP WINGWALLS/CONTOURS
- PROP CULVERT
- PROP ROW
- EXIST STORM SEWER
- PROP STORM SEWER
- PROP SET
- SRB TYPE 2, CLASS H (MUST BE TRM)
- RIPRAP (CONC)
- RIPRAP (STONE)
- DITCH BLOCK (W/TOP ELEV)

DRAINAGE PLAN NOTES:

1. FOR REFERENCE AND IDENTIFICATION PURPOSES, THE LINK ID MATCHES UPSTREAM NODE ID.
2. SEE REMOVAL PLANS FOR DRAINAGE STRUCTURES TO BE REMOVED.
3. ALL PRECAST SETS SHALL HAVE RIPRAP APRONS PER THE PSET-RR STD. DROP INLETS SHALL HAVE RIPRAP APRONS PER THE APPLICABLE STD.
4. REFER TO THE OUTLET PROTECTION DETAILS FOR SIZE AND SPEC INFO FOR EACH STONE RIPRAP APRON.
5. REFER TO THE DRIVEWAY CULVERT SUMMARY FOR LOCATION AND SPEC INFO.

NO.	REVISION	BY	DATE

CLG

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WILCO TEXAS

CLG CIVIL ENGINEERING
CLGANN, LLC
3708 Norman Loop
Round Rock, TX 78664
512.574.5738
TBPE Firm No. 20717

CR 255
DITCH PLAN & PROFILE
STA 20+00 TO 31+00

H SCALE: 1" = 100'
V SCALE: 1" = 10'

DESIGNED:	FED. RD DIV. No.	STATE	FEDERAL AID PROJECT No.		HIGHWAY No.	
CHECKED:	X	TEXAS			CR 255	
DRAWN:	STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
CHECKED:	XX	XX	XX	XX	XX	185

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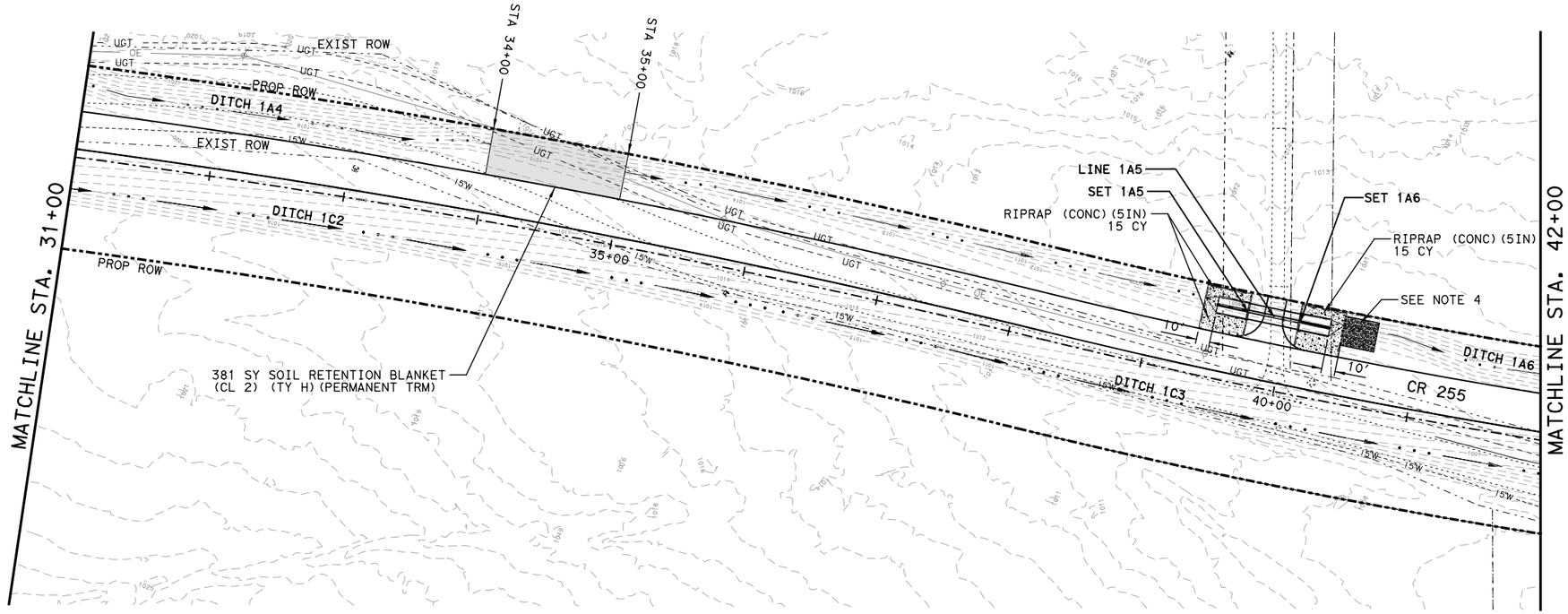

0 50 100

SCALE: 1" = 100'

LEGEND

- DITCH XX — DITCH FLOWLINE
- PROP CONTOUR
- EXIST ROW
- EXIST TOPOGRAPHY
- 15W — EXIST UG UTILITY
- OT — EXIST OH UTILITY
- EXIST CULVERTS
- PROP ROADWAY
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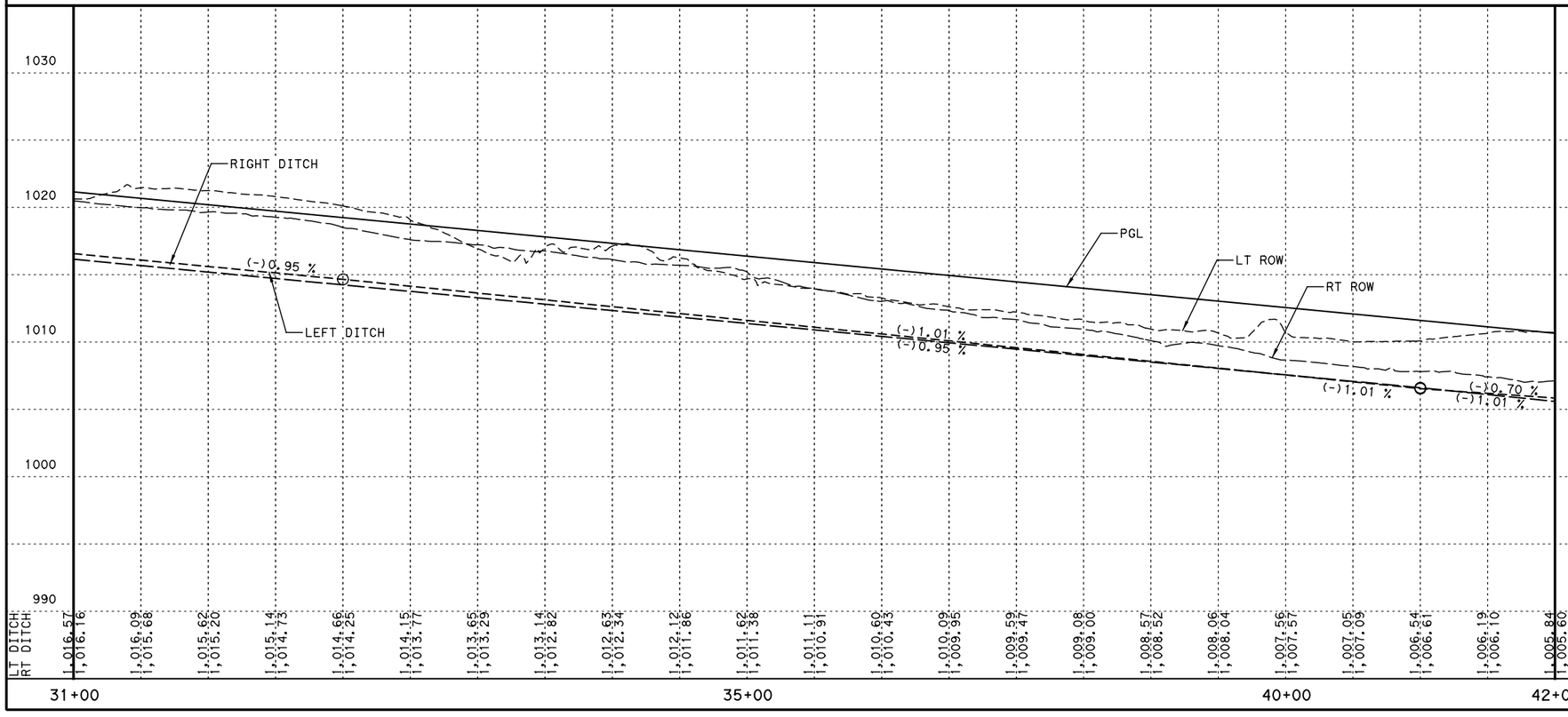
- PROP CULVERT
- PROP ROW
- EXIST STORM SEWER
- PROP STORM SEWER
- PROP SET
- SRB TYPE 2, CLASS H (MUST BE TRM)
- RIPRAP (CONC)
- RIPRAP (STONE)
- DITCH BLOCK (W/TOP ELEV)

DRAINAGE PLAN NOTES:

1. FOR REFERENCE AND IDENTIFICATION PURPOSES, THE LINK ID MATCHES UPSTREAM NODE ID.
2. SEE REMOVAL PLANS FOR DRAINAGE STRUCTURES TO BE REMOVED.
3. ALL PRECAST SETS SHALL HAVE RIPRAP APRONS PER THE PSET-RR STD. DROP INLETS SHALL HAVE RIPRAP APRONS PER THE APPLICABLE STD.
4. REFER TO THE OUTLET PROTECTION DETAILS FOR SIZE AND SPEC INFO FOR EACH STONE RIPRAP APRON.
5. REFER TO THE DRIVEWAY CULVERT SUMMARY FOR LOCATION AND SPEC INFO.



NO.	REVISION	BY	DATE

CLG

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WILCO TEXAS

CLG CIVIL ENGINEERING

CLGANN, LLC
3708 Norman Loop
Round Rock, TX 78664
512.574.5738
TBPE Firm No. 20717

CR 255
DITCH PLAN & PROFILE
STA 31+00 TO 42+00

H SCALE: 1" = 100'
V SCALE: 1" = 10'

SHEET 3 OF 15

DESIGNED:	FED. RD DIV. No.	STATE	FEDERAL AID PROJECT No.		HIGHWAY No.	
CHECKED:	X	TEXAS			CR 255	
DRAWN:	STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
CHECKED:	XX	XX	XX	XX	XX	186

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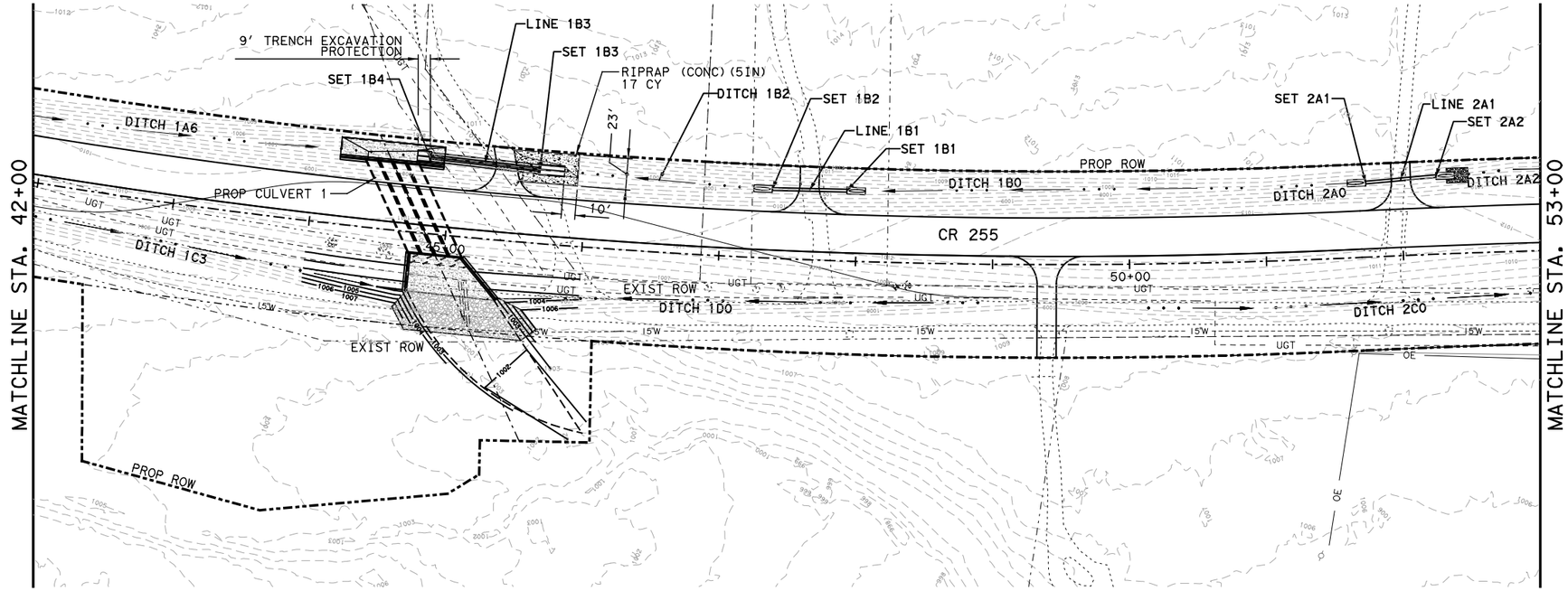

0 50 100

SCALE: 1" = 100'

LEGEND

- DITCH XX — DITCH FLOWLINE
- PROP CONTOUR
- EXIST ROW
- EXIST TOPOGRAPHY
- 15W — EXIST UG UTILITY
- OT — EXIST OH UTILITY
- EXIST CULVERTS
- PROP ROADWAY
- PROP WINGWALLS/CONTOURS
- PROP CULVERT
- PROP ROW
- EXIST STORM SEWER
- PROP STORM SEWER
- PROP SET
- SRB TYPE 2, CLASS H (MUST BE TRM)
- RIPRAP (CONC)
- RIPRAP (STONE)
- DITCH BLOCK (W/TOP ELEV)

DRAINAGE PLAN NOTES:

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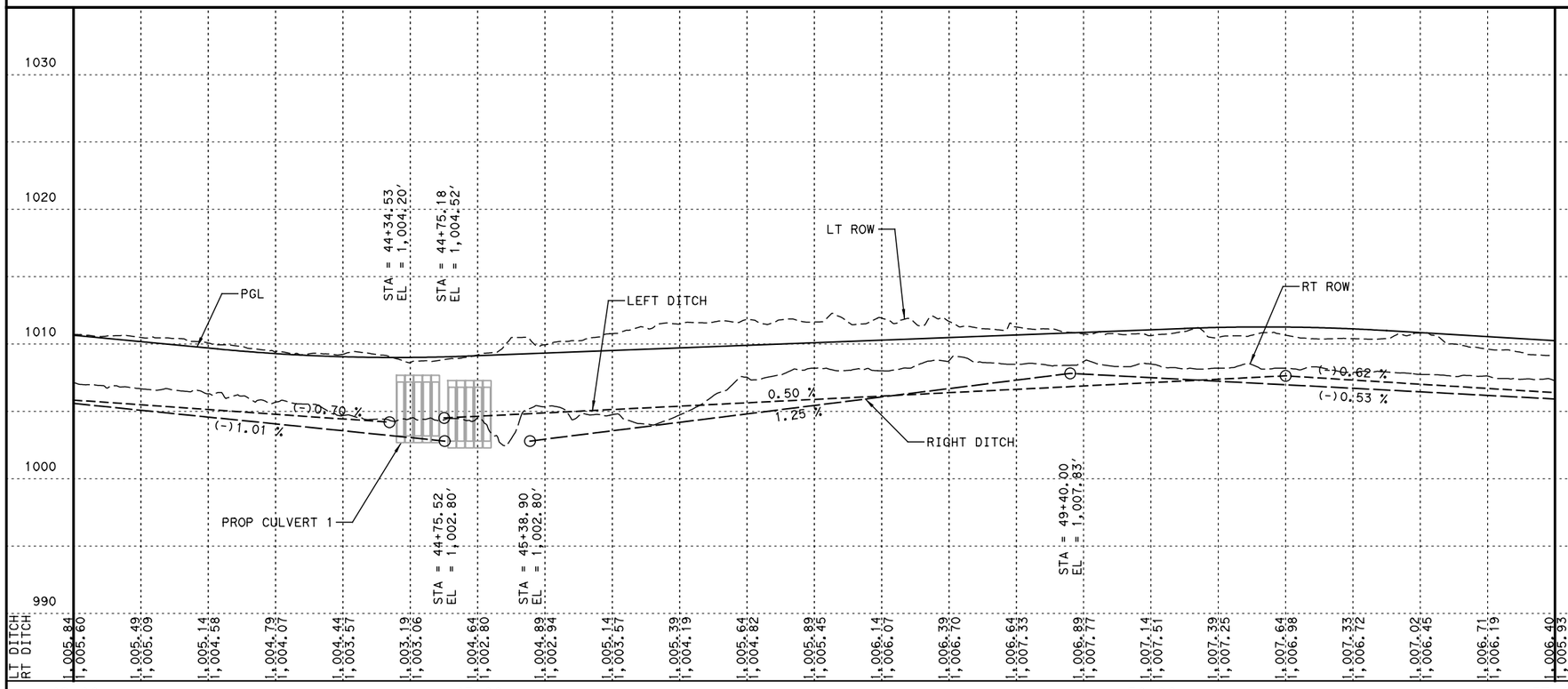
5. REFER TO THE DRIVEWAY CULVERT SUMMARY FOR LOCATION AND SPEC INFO.



NO.	REVISION	BY	DATE

CLG

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WILCO TEXAS

CLG CIVIL ENGINEERING

CLGANN, LLC
3708 Norman Loop
Round Rock, TX 78664
512.574.5738
TBPE Firm No. 20717

CR 255
DITCH PLAN & PROFILE
STA 42+00 TO 53+00

H SCALE: 1" = 100'
V SCALE: 1" = 10'

SHEET 4 OF 15

DESIGNED:	FED. RD DIV. No.	STATE	FEDERAL AID PROJECT No.		HIGHWAY No.	
CHECKED:	X	TEXAS			CR 255	
DRAWN:	STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
CHECKED:	XX	XX	XX	XX	XX	187

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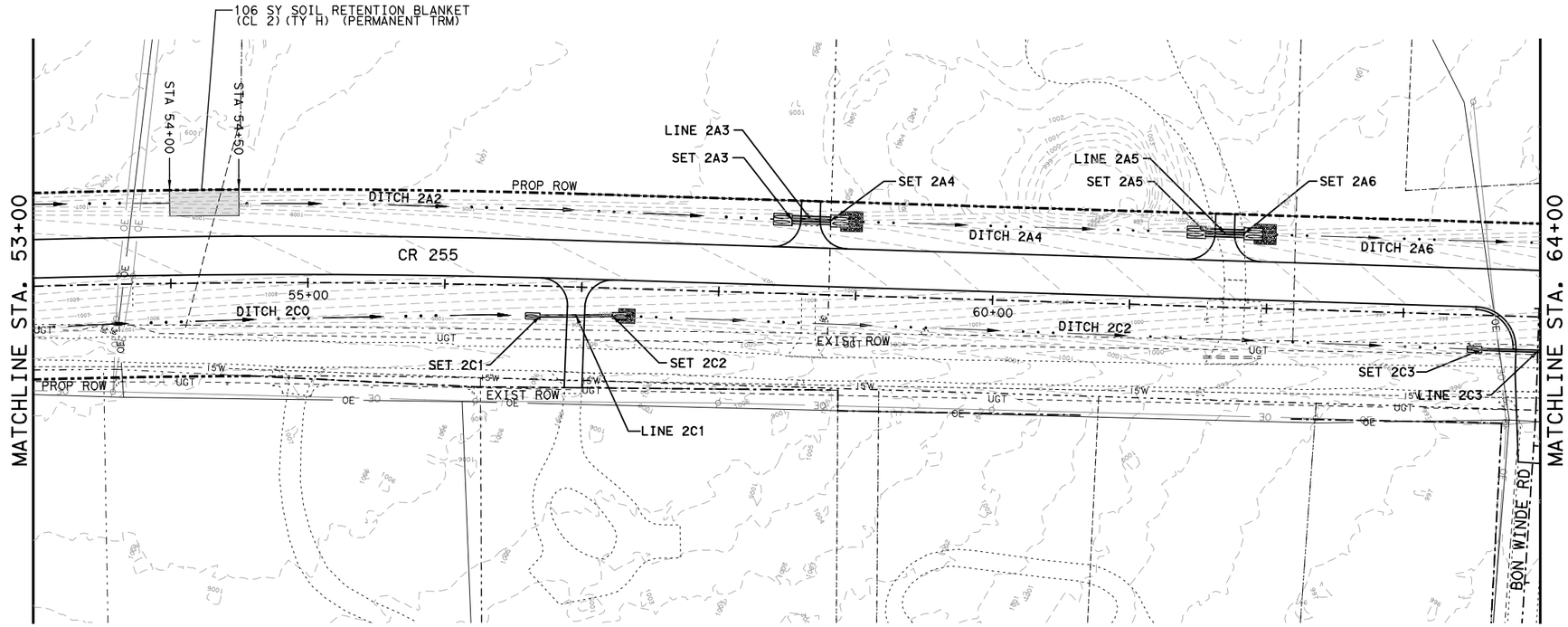

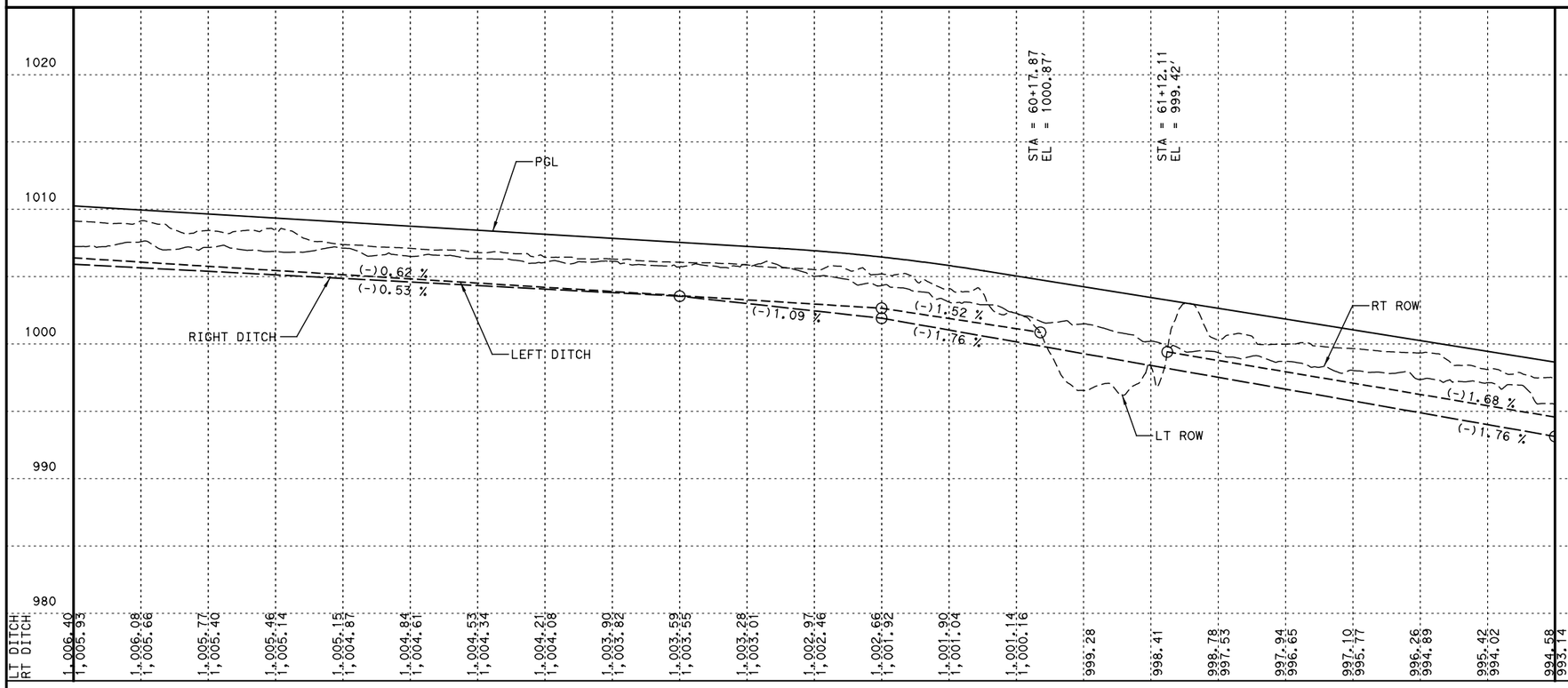

0 50 100

SCALE: 1" = 100'

LEGEND

- DITCH XX — DITCH FLOWLINE
- PROP CONTOUR
- EXIST ROW
- EXIST TOPOGRAPHY
- 15"W — EXIST UG UTILITY
- OT — EXIST OH UTILITY
- EXIST CULVERTS
- PROP ROADWAY
- PROP WINGWALLS/CONTOURS
- PROP CULVERT
- PROP ROW
- EXIST STORM SEWER
- PROP STORM SEWER
- PROP SET
- SRB TYPE 2, CLASS H (MUST BE TRM)
- RIPRAP (CONC)
- RIPRAP (STONE)
- DITCH BLOCK (W/TOP ELEV)

DRAINAGE PLAN NOTES:

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5. REFER TO THE DRIVEWAY CULVERT SUMMARY FOR LOCATION AND SPEC INFO.

NO.	REVISION	BY	DATE

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WILCO TEXAS

CLG CIVIL ENGINEERING

CLGANN, LLC
3708 Norman Loop
Round Rock, TX 78664
512.574.5738
TBPE Firm No. 20717

CR 255
DITCH PLAN & PROFILE
STA 53+00 TO 64+00

H SCALE: 1" = 100'
V SCALE: 1" = 10'

SHEET 5 OF 15

DESIGNED:	FED. RD DIV. No.	STATE	FEDERAL AID PROJECT No.		HIGHWAY No.	
CHECKED:	X	TEXAS			CR 255	
DRAWN:	STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
CHECKED:	XX	XX	XX	XX	XX	188

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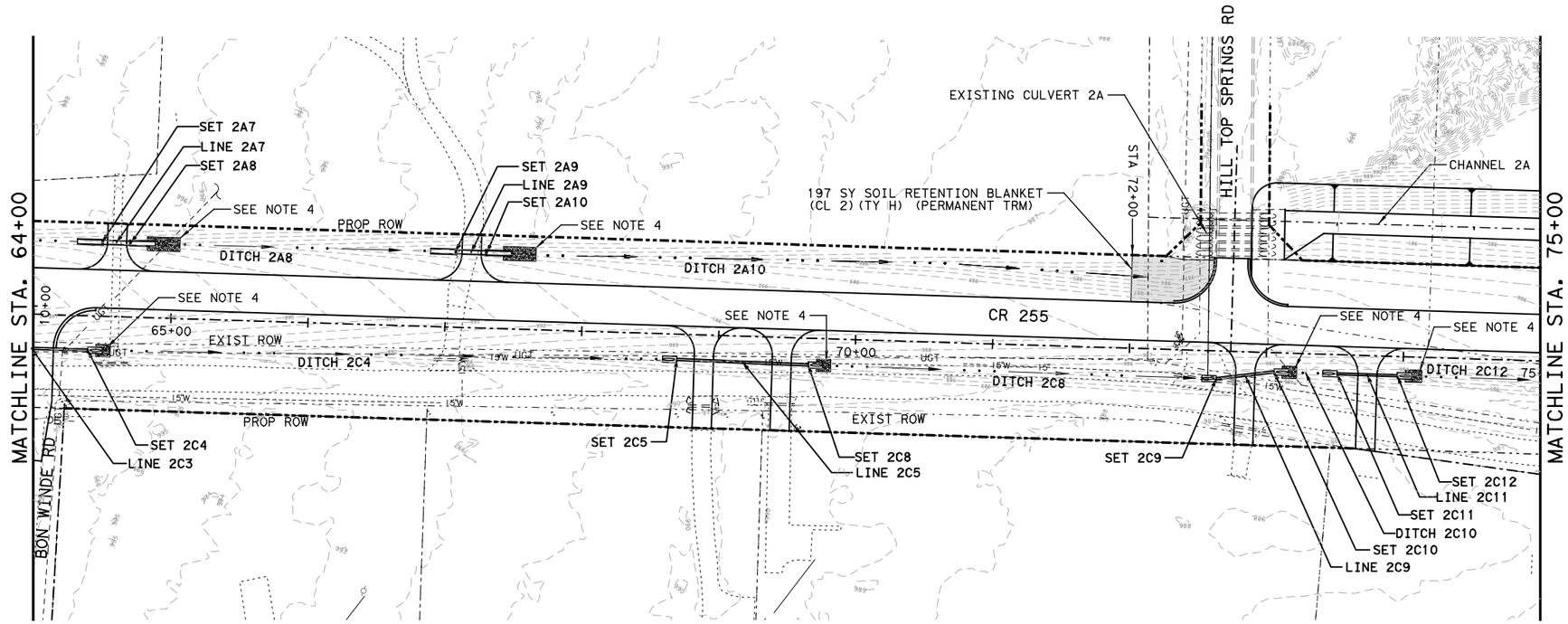

0 50 100

SCALE: 1" = 100'

LEGEND

- DITCH XX — DITCH FLOWLINE
- PROP CONTOUR
- EXIST ROW
- EXIST TOPOGRAPHY
- 15W — EXIST UG UTILITY
- OT — EXIST OH UTILITY
- EXIST CULVERTS
- PROP ROADWAY
- PROP WINGWALLS/CONTOURS
- PROP CULVERT
- PROP ROW
- EXIST STORM SEWER
- PROP STORM SEWER
- PROP SET
- SRB TYPE 2, CLASS H (MUST BE TRM)
- RIPRAP (CONC)
- RIPRAP (STONE)
- DITCH BLOCK (W/TOP ELEV)

DRAINAGE PLAN NOTES:

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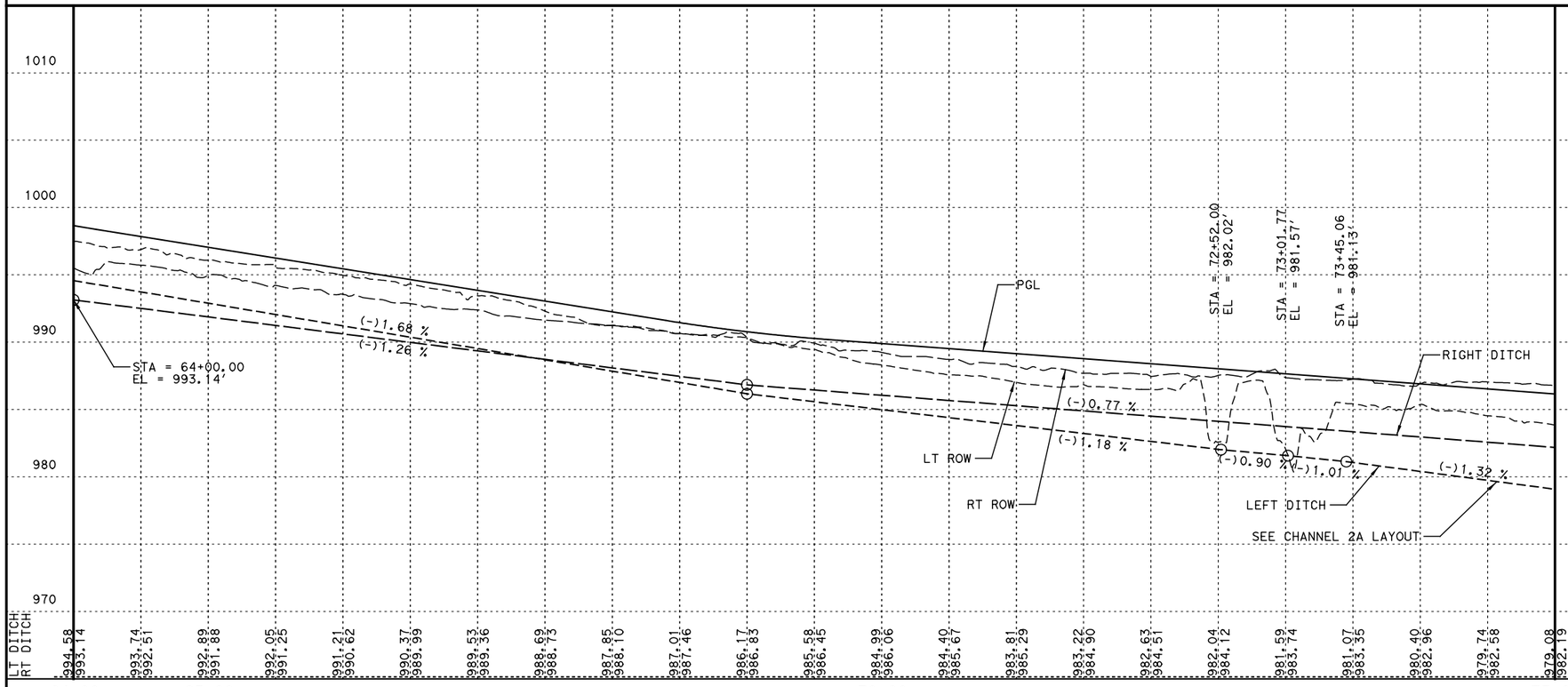
5. REFER TO THE DRIVEWAY CULVERT SUMMARY FOR LOCATION AND SPEC INFO.



NO.	REVISION	BY	DATE

CLGANN, LLC
3708 Norman Loop
Round Rock, TX 78664
512.574.5738
TBPE Firm No. 20717

CR 255
DITCH PLAN & PROFILE
STA 64+00 TO 75+00

H SCALE: 1" = 100'
V SCALE: 1" = 10'

SHEET 6 OF 15

DESIGNED:	FED. RD DIV. No.	STATE	FEDERAL AID PROJECT No.		HIGHWAY No.	
CHECKED:	X	TEXAS			CR 255	
DRAWN:	STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
CHECKED:	XX	XX	XX	XX	XX	189

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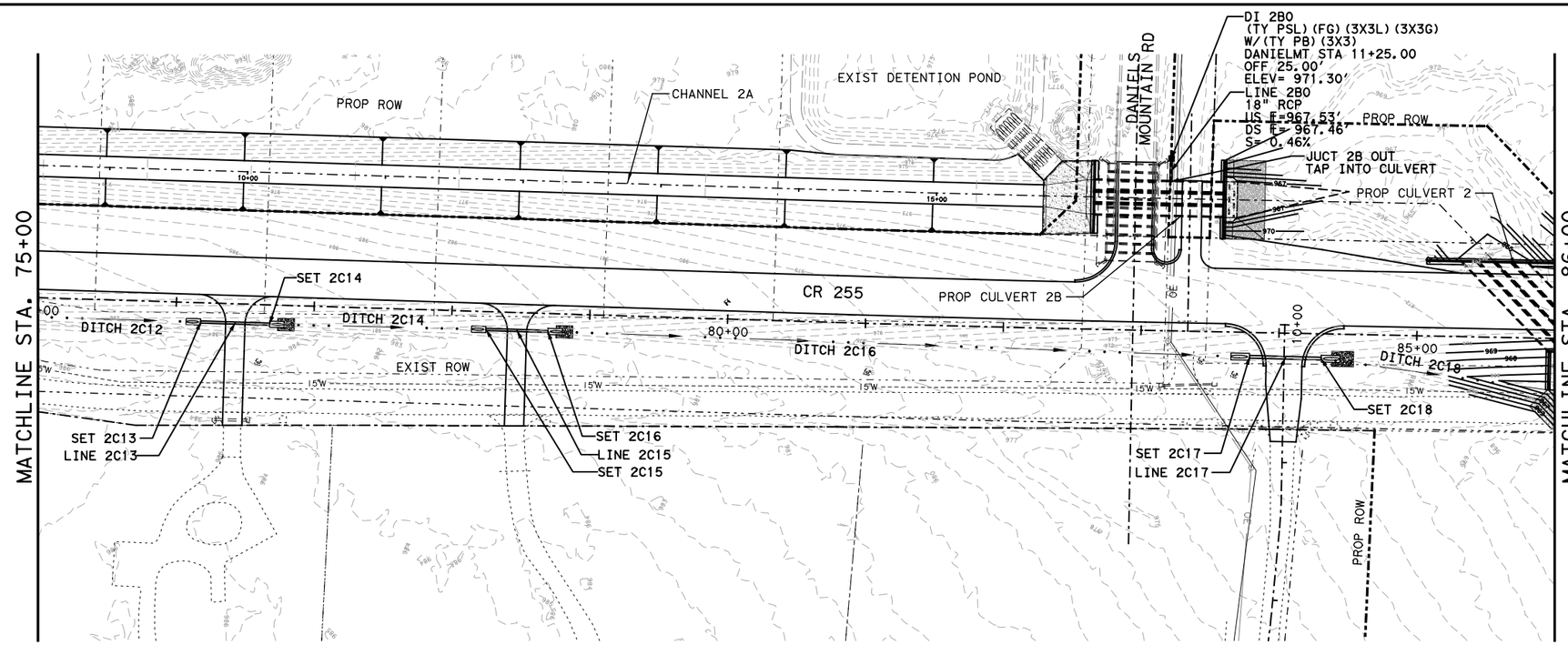

0 50 100

SCALE: 1" = 100'

LEGEND

- DITCH XX — DITCH FLOWLINE
- PROP CONTOUR
- EXIST ROW
- EXIST TOPOGRAPHY
- 15'W — EXIST UG UTILITY
- OT — EXIST OH UTILITY
- EXIST CULVERTS
- PROP ROADWAY
- PROP WINGWALLS/CONTOURS
- PROP CULVERT
- PROP ROW
- EXIST STORM SEWER
- PROP STORM SEWER
- PROP SET
- SRB TYPE 2, CLASS H (MUST BE TRM)
- RIPRAP (CONC)
- RIPRAP (STONE)
- DITCH BLOCK (W/TOP ELEV)

DRAINAGE PLAN NOTES:

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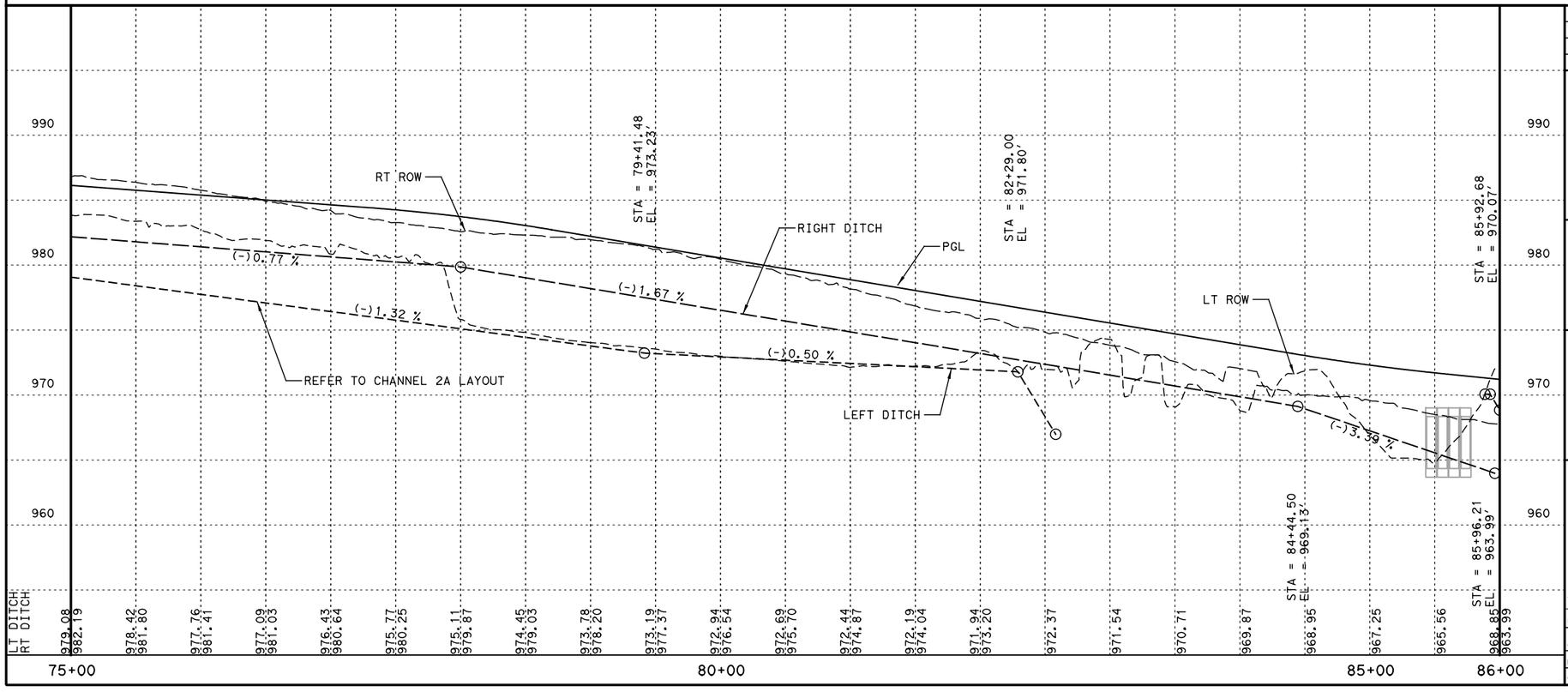

NO.	REVISION	BY	DATE

CLGANN, LLC
3708 Norman Loop
Round Rock, TX 78664
512.574.5738
TBPE Firm No. 20717

CR 255
DITCH PLAN & PROFILE
STA 75+00 TO 86+00

H SCALE: 1" = 100'
V SCALE: 1" = 10'

SHEET 7 OF 15

DESIGNED:	FED. RD DIV. No.	STATE	FEDERAL AID PROJECT No.		HIGHWAY No.	
CHECKED:	X	TEXAS			CR 255	
DRAWN:	STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
CHECKED:	XX	XX	XX	XX	XX	190

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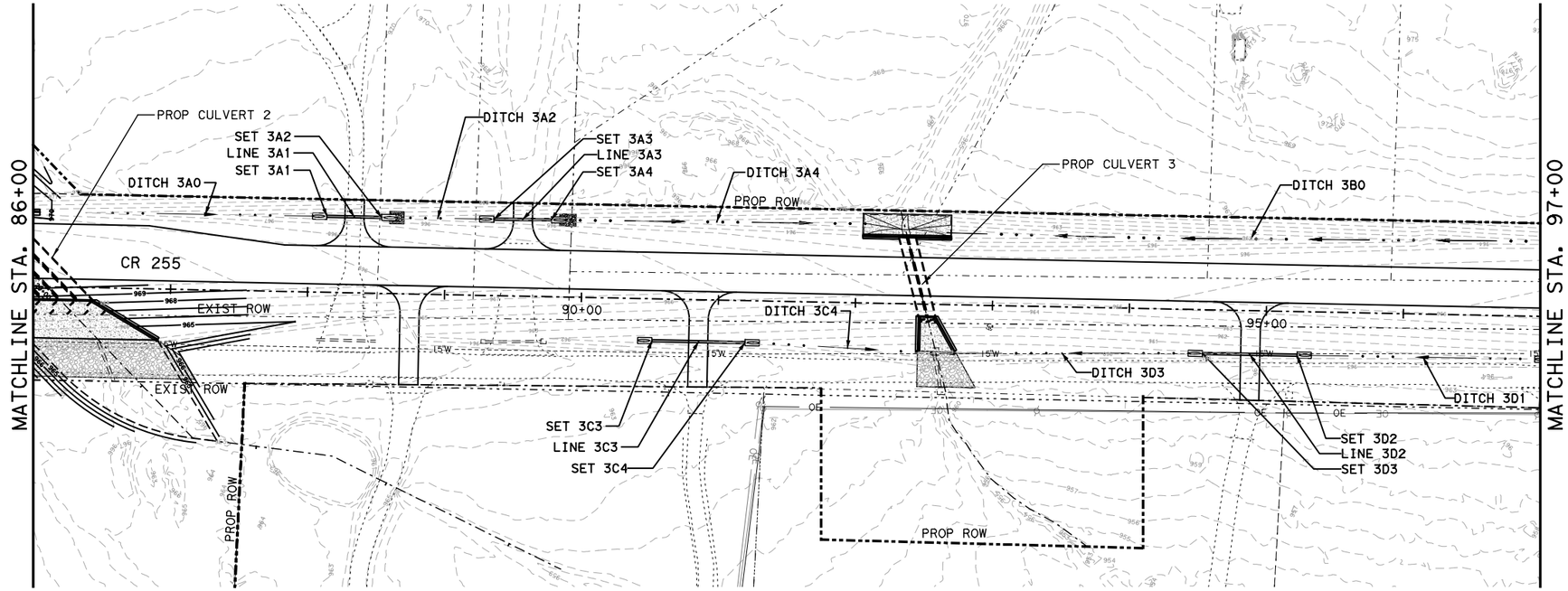

LEGEND

- DITCH XX — DITCH FLOWLINE
- PROP CONTOUR
- EXIST ROW
- EXIST TOPOGRAPHY
- 15"W — EXIST UG UTILITY
- OT — EXIST OH UTILITY
- EXIST CULVERTS
- PROP ROADWAY
- PROP WINGWALLS/CONTOURS
- PROP CULVERT
- PROP ROW
- EXIST STORM SEWER
- PROP STORM SEWER
- PROP SET
- SRB TYPE 2, CLASS H (MUST BE TRM)
- RIPRAP (CONC)
- RIPRAP (STONE)
- DITCH BLOCK (W/TOP ELEV)

DRAINAGE PLAN NOTES:

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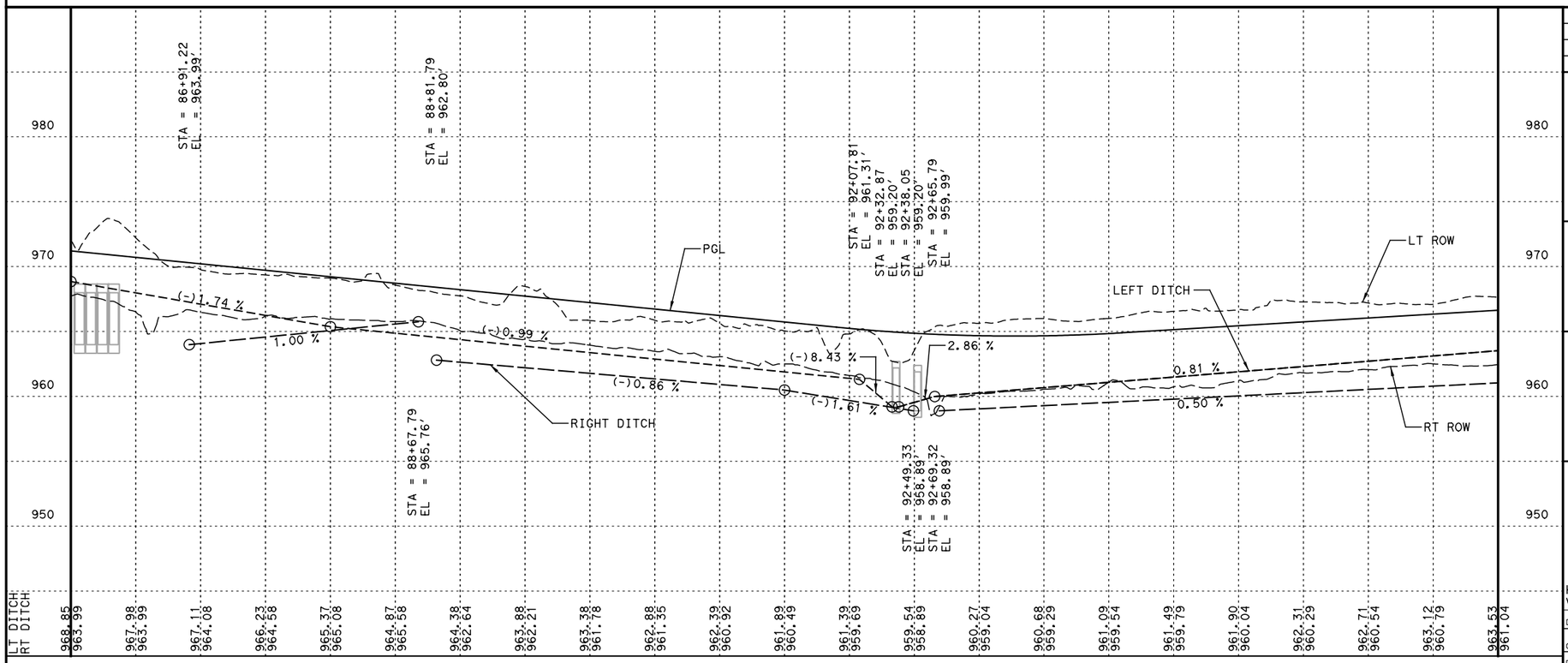

NO.	REVISION	BY	DATE

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WILCO TEXAS

CLG CIVIL ENGINEERING
CLGANN, LLC
3708 Norman Loop
Round Rock, TX 78664
512.574.5738
TBPE Firm No. 20717

CR 255
DITCH PLAN & PROFILE
STA 86+00 TO 97+00

H SCALE: 1" = 100'
V SCALE: 1" = 10'

SHEET 8 OF 15

DESIGNED:	FED. RD DIV. No.	STATE	FEDERAL AID PROJECT No.		HIGHWAY No.	
CHECKED:	X	TEXAS			CR 255	
DRAWN:	STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
CHECKED:	XX	XX	XX	XX	XX	191

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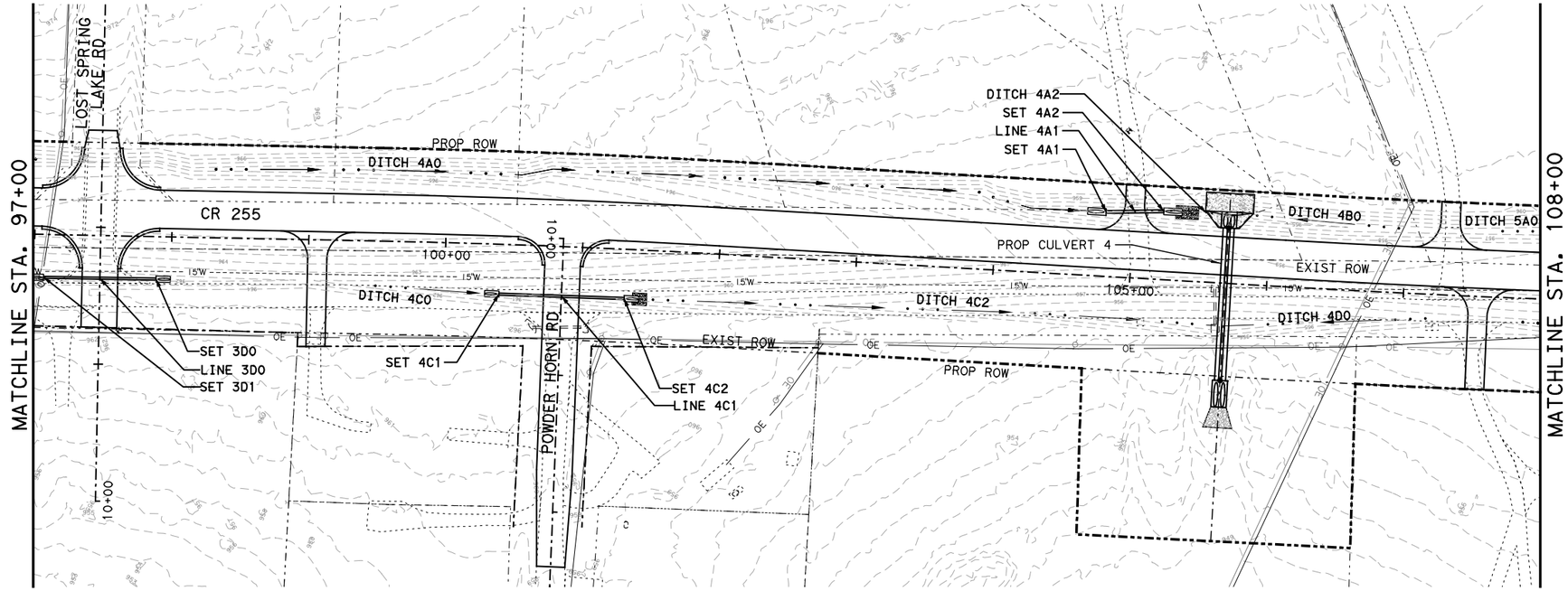

0 50 100

SCALE: 1" = 100'

LEGEND

- DITCH XX — DITCH FLOWLINE
- PROP CONTOUR
- EXIST ROW
- EXIST TOPOGRAPHY
- 15'W — EXIST UG UTILITY
- OT — EXIST OH UTILITY
- EXIST CULVERTS
- PROP ROADWAY
- PROP WINGWALLS/CONTOURS
- PROP CULVERT
- PROP ROW
- EXIST STORM SEWER
- PROP STORM SEWER
- PROP SET
- SRB TYPE 2, CLASS H (MUST BE TRM)
- RIPRAP (CONC)
- RIPRAP (STONE)
- DITCH BLOCK (W/TOP ELEV)

DRAINAGE PLAN NOTES:

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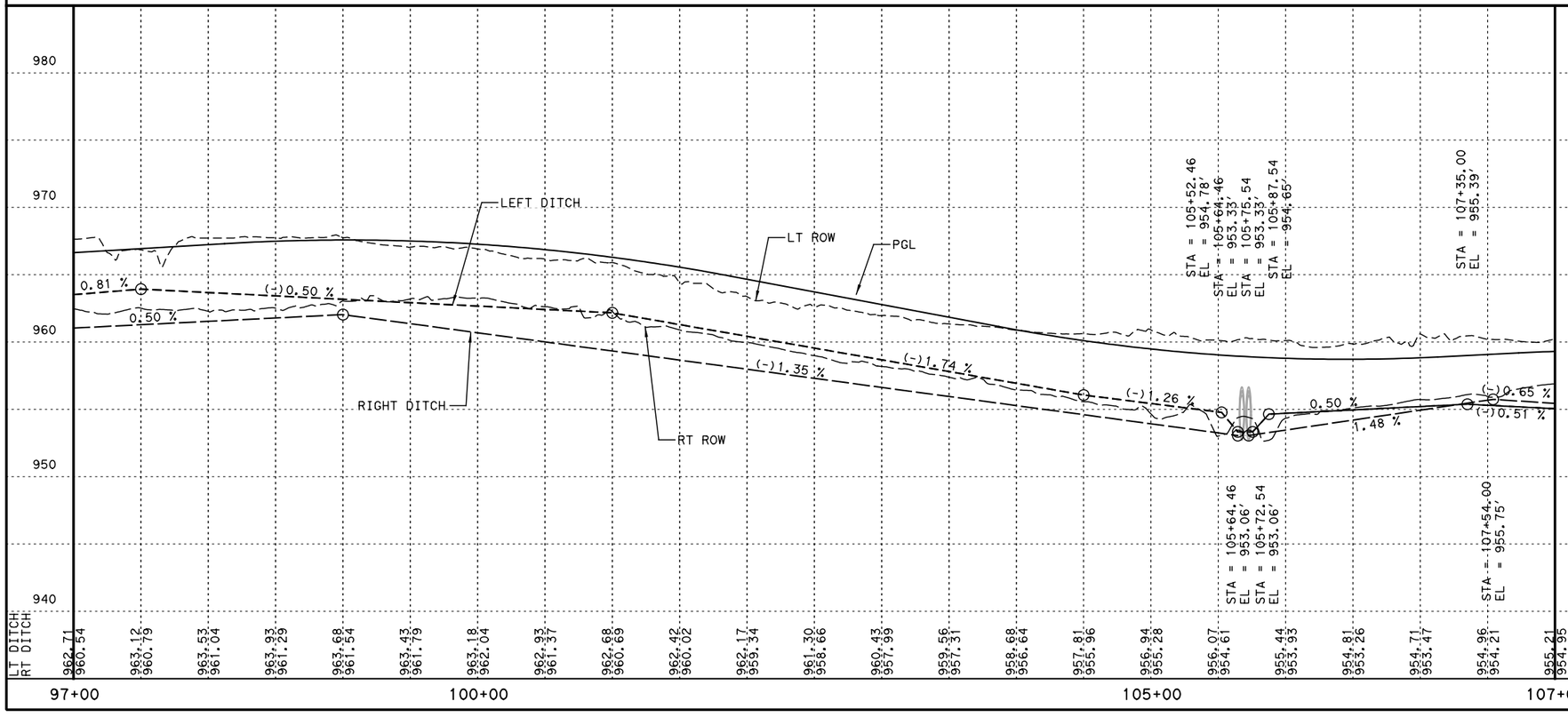

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WILCO TEXAS

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CLGANN, LLC
3708 Norman Loop
Round Rock, TX 78664
512.574.5738
TBPE Firm No. 20717

CR 255
DITCH PLAN & PROFILE
STA 97+00 TO 108+00

H SCALE: 1" = 100'
V SCALE: 1" = 10'

SHEET 9 OF 15

DESIGNED:	FED. RD DIV. No.	STATE	FEDERAL AID PROJECT No.		HIGHWAY No.	
CHECKED:	X	TEXAS			CR 255	
DRAWN:	STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
CHECKED:	XX	XX	XX	XX	XX	192

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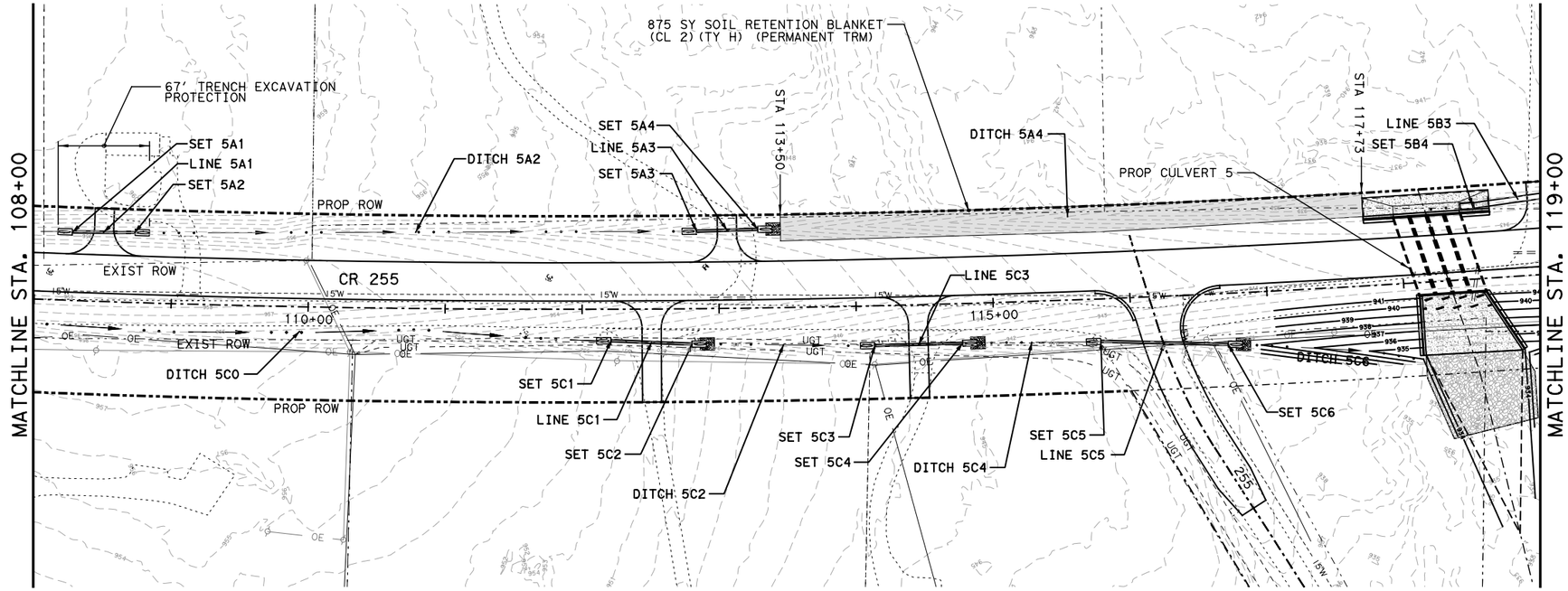

0 50 100

SCALE: 1" = 100'

LEGEND

- DITCH XX — DITCH FLOWLINE
- PROP CONTOUR
- EXIST ROW
- EXIST TOPOGRAPHY
- 15'W — EXIST UG UTILITY
- OT — EXIST OH UTILITY
- EXIST CULVERTS
- PROP ROADWAY
- PROP WINGWALLS/CONTOURS
- PROP CULVERT
- PROP ROW
- EXIST STORM SEWER
- PROP STORM SEWER
- PROP SET
- SRB TYPE 2, CLASS H (MUST BE TRM)
- RIPRAP (CONC)
- RIPRAP (STONE)
- DITCH BLOCK (W/TOP ELEV)

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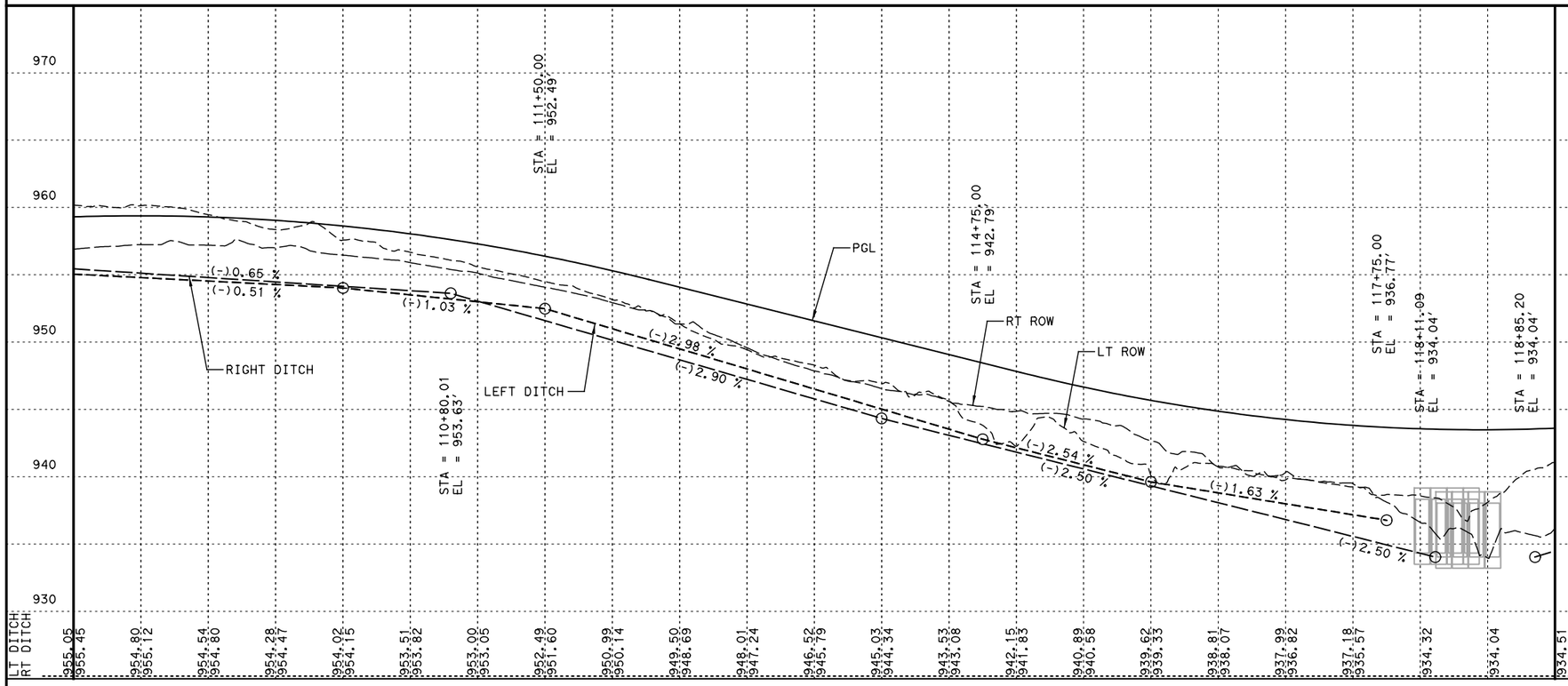

NO.	REVISION	BY	DATE

WILCO TEXAS

CLG CIVIL ENGINEERING

CLGANN, LLC
3708 Norman Loop
Round Rock, TX 78664
512.574.5738
TBPE Firm No. 20717

CR 255
DITCH PLAN & PROFILE
STA 108+00 TO 119+00

H SCALE: 1" = 100'
V SCALE: 1" = 10'

SHEET 10 OF 15

DESIGNED:	FED. RD DIV. No.	STATE	FEDERAL AID PROJECT No.		HIGHWAY No.	
CHECKED:	X	TEXAS			CR 255	
DRAWN:	STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
CHECKED:	XX	XX	XX	XX	XX	193

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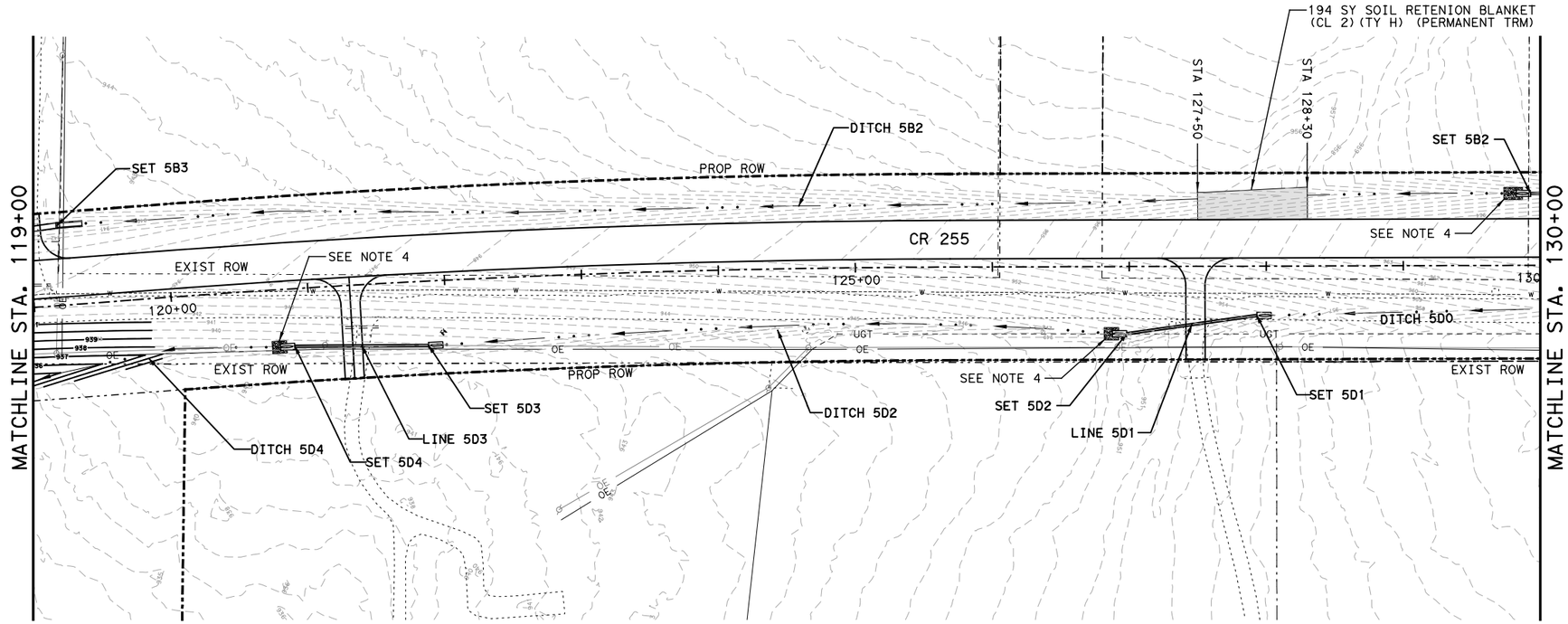

LEGEND

- DITCH XX — DITCH FLOWLINE
- PROP CONTOUR
- EXIST ROW
- EXIST TOPOGRAPHY
- 15"W — EXIST UG UTILITY
- OT — EXIST OH UTILITY
- EXIST CULVERTS
- PROP ROADWAY
- PROP WINGWALLS/CONTOURS
- PROP CULVERT
- PROP ROW
- EXIST STORM SEWER
- PROP STORM SEWER
- PROP SET
- SRB TYPE 2, CLASS H (MUST BE TRM)
- RIPRAP (CONC)
- RIPRAP (STONE)
- DITCH BLOCK (W/TOP ELEV)

DRAINAGE PLAN NOTES:

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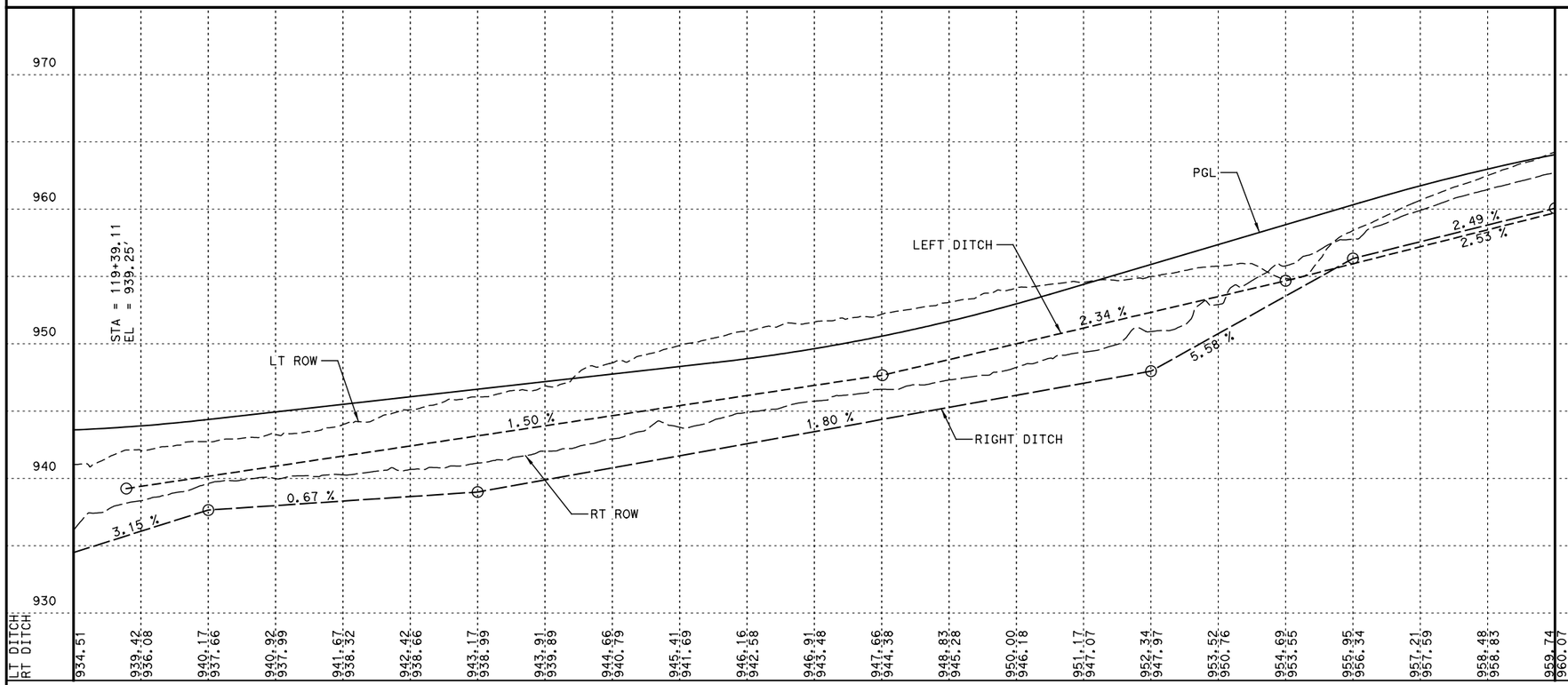

NO.	REVISION	BY	DATE

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CLGANN, LLC
3708 Norman Loop
Round Rock, TX 78664
512.574.5738
TBPE Firm No. 20717

CR 255
DITCH PLAN & PROFILE
STA 119+00 TO 130+00

H SCALE: 1" = 100'
V SCALE: 1" = 10'

SHEET 11 OF 15

DESIGNED:	FED. RD DIV. No.	STATE	FEDERAL AID PROJECT No.		HIGHWAY No.	
CHECKED:	X	TEXAS			CR 255	
DRAWN:	STATE DISTRICT	COUNTY	CONTROL No.	SECTION No.	JOB No.	SHEET No.
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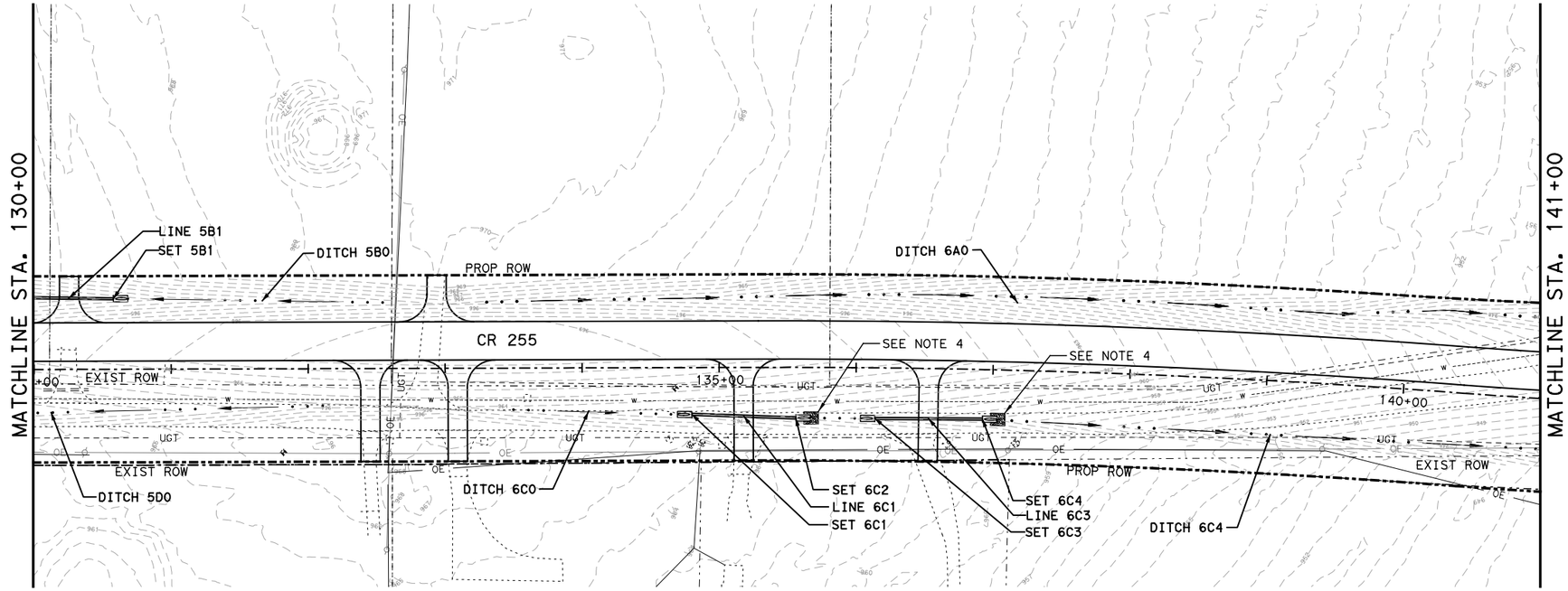

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- EXIST TOPOGRAPHY
- 15"W — EXIST UG UTILITY
- OT — EXIST OH UTILITY
- EXIST CULVERTS
- PROP ROADWAY
- PROP WINGWALLS/CONTOURS
- PROP CULVERT
- PROP ROW
- EXIST STORM SEWER
- PROP STORM SEWER
- PROP SET
- SRB TYPE 2, CLASS H (MUST BE TRM)
- RIPRAP (CONC)
- RIPRAP (STONE)
- DITCH BLOCK (W/TOP ELEV)

DRAINAGE PLAN NOTES:

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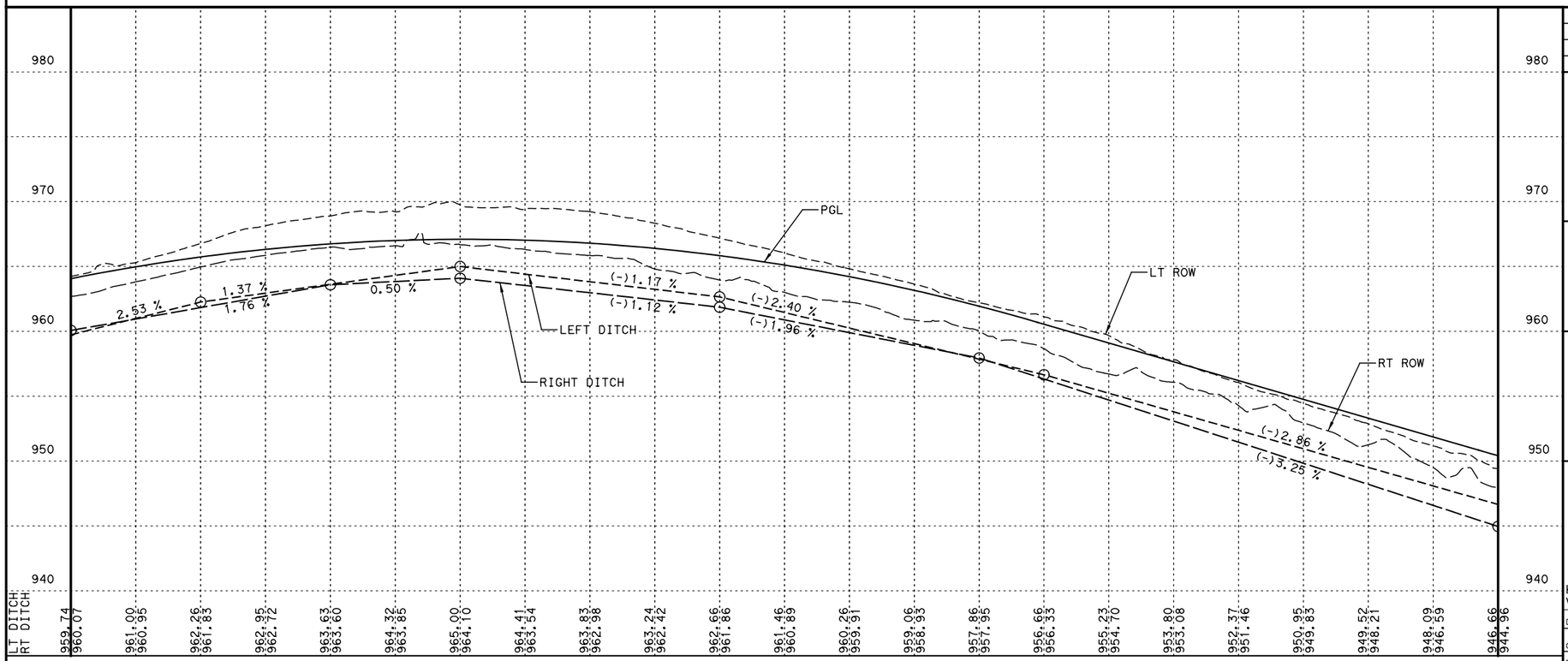

NO.	REVISION	BY	DATE

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CLG CIVIL ENGINEERING

CLGANN, LLC
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Round Rock, TX 78664
512.574.5738
TBPE Firm No. 20717

CR 255
DITCH PLAN & PROFILE
STA 130+00 TO 141+00

H SCALE: 1" = 100'
V SCALE: 1" = 10'

SHEET 12 OF 15

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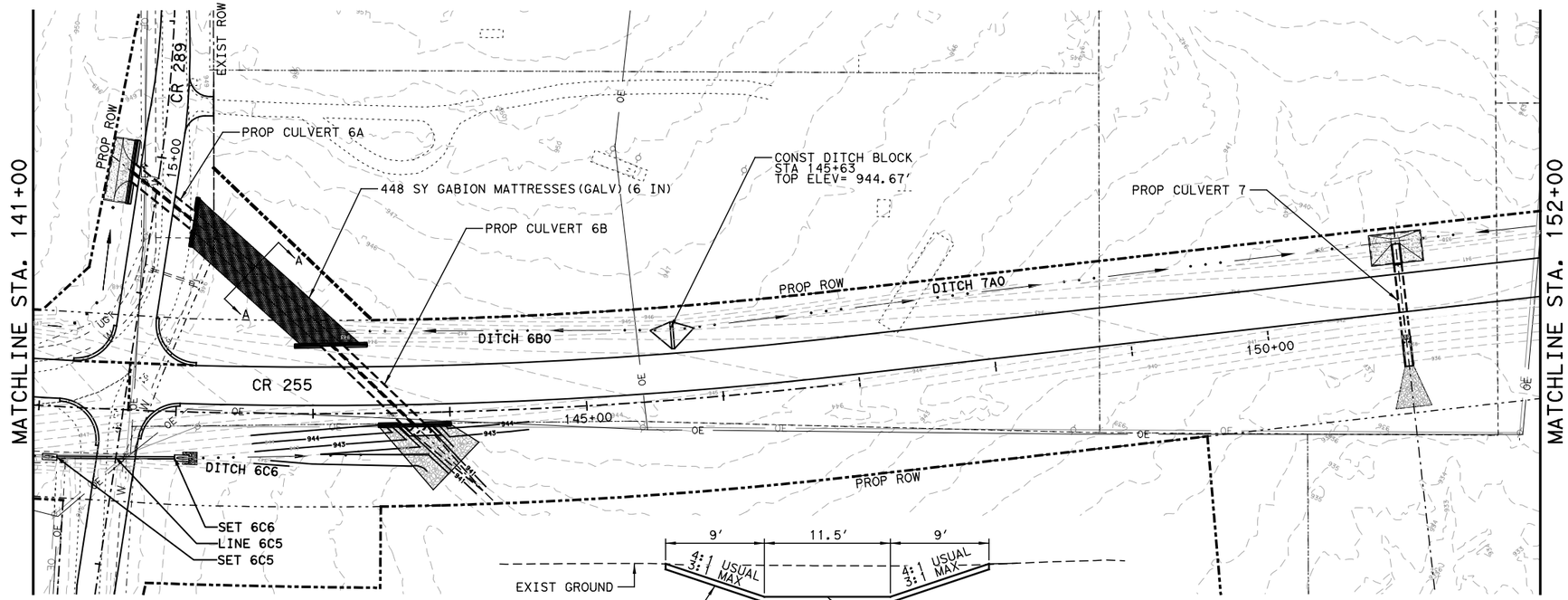

SECTION A-A
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- EXIST TOPOGRAPHY
- 15"W — EXIST UG UTILITY
- OT — EXIST OH UTILITY
- EXIST CULVERTS
- PROP ROADWAY
- PROP WINGWALLS/CONTOURS
- PROP CULVERT
- PROP ROW
- EXIST STORM SEWER
- PROP STORM SEWER
- PROP SET
- SRB TYPE 2, CLASS H (MUST BE TRM)
- RIPRAP (CONC)
- RIPRAP (STONE)
- DITCH BLOCK (W/TOP ELEV)

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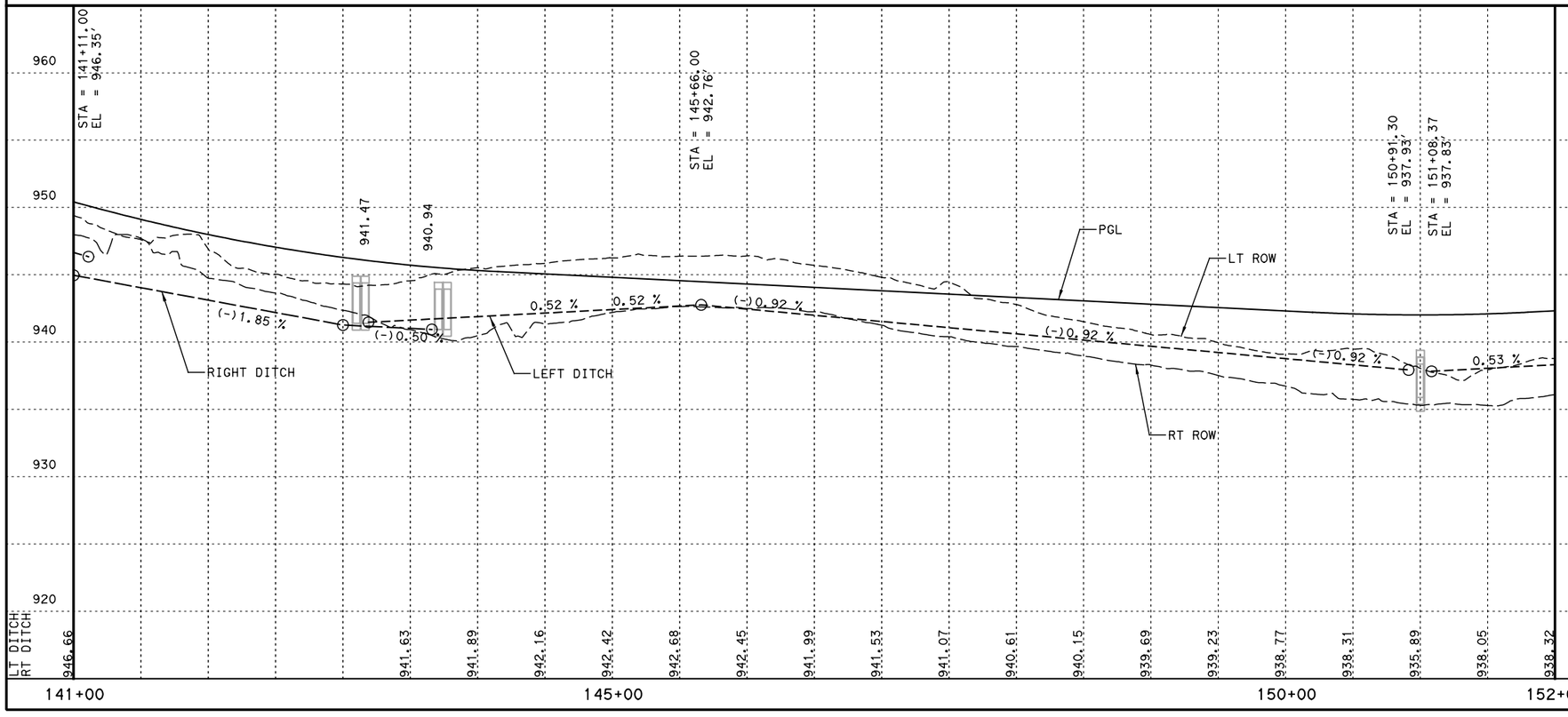

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3708 Norman Loop
Round Rock, TX 78664
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TBPE Firm No. 20717

CR 255
DITCH PLAN & PROFILE
STA 141+00 TO 152+00

H SCALE: 1" = 100'
V SCALE: 1" = 10'

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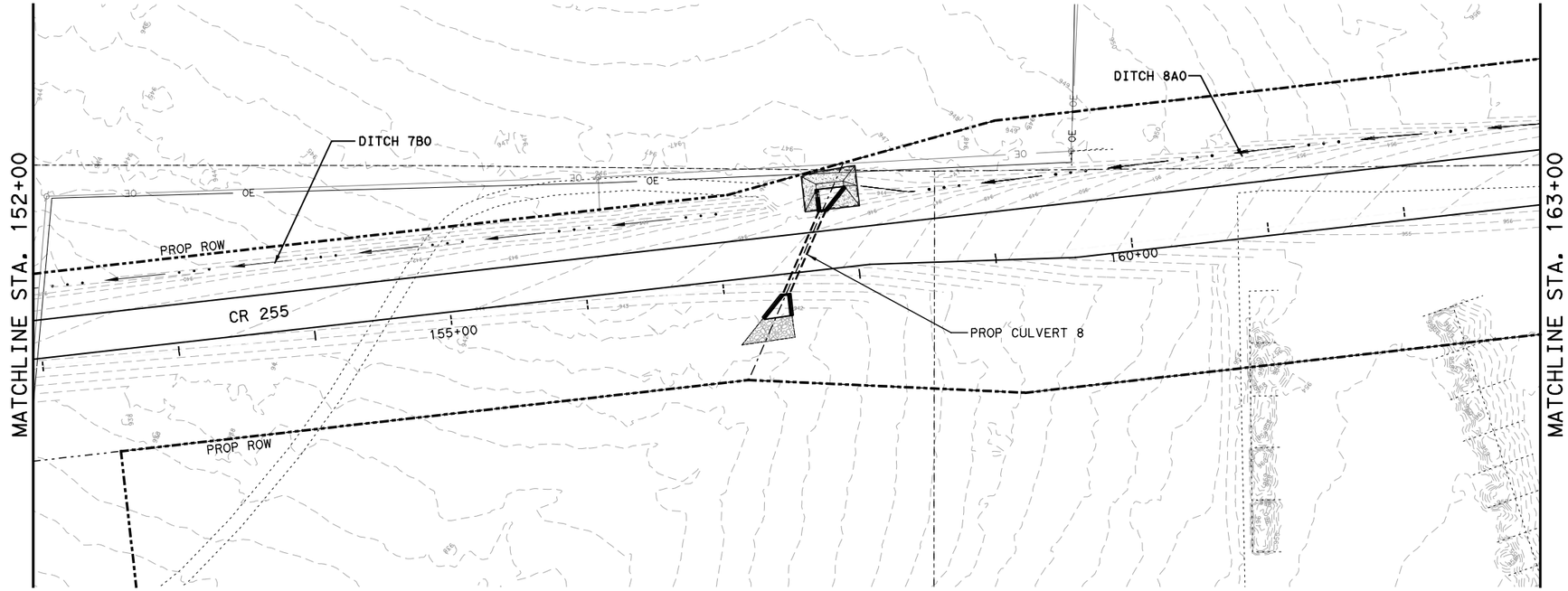

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LEGEND

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- EXIST TOPOGRAPHY
- 15"W — EXIST UG UTILITY
- OT — EXIST OH UTILITY
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- PROP CULVERT
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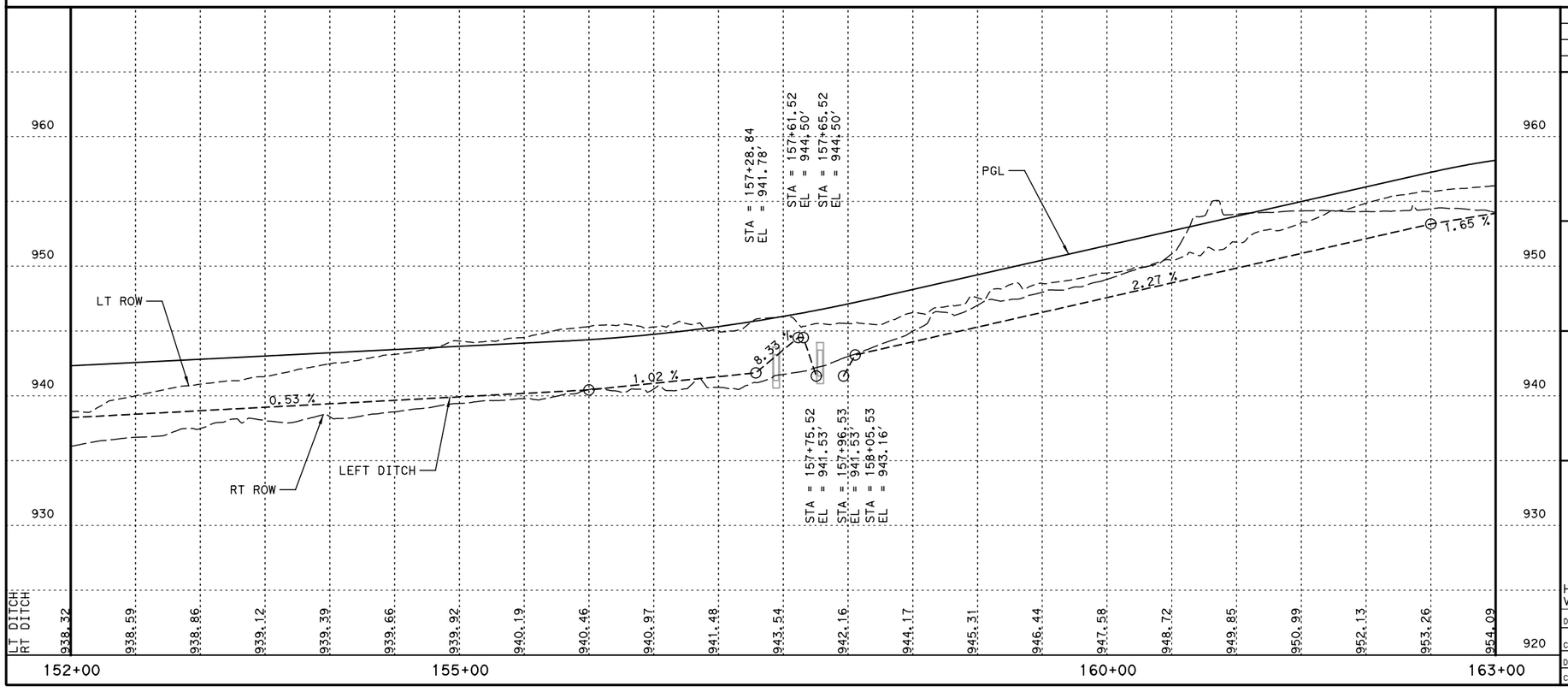

NO.	REVISION	BY	DATE

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512.574.5738
TBPE Firm No. 20717

CR 255
DITCH PLAN & PROFILE
STA 152+00 TO 163+00

H SCALE: 1" = 100'
V SCALE: 1" = 10'

SHEET 14 OF 15

DESIGNED:	FED. RD DIV. No.	STATE	FEDERAL AID PROJECT No.		HIGHWAY No.	
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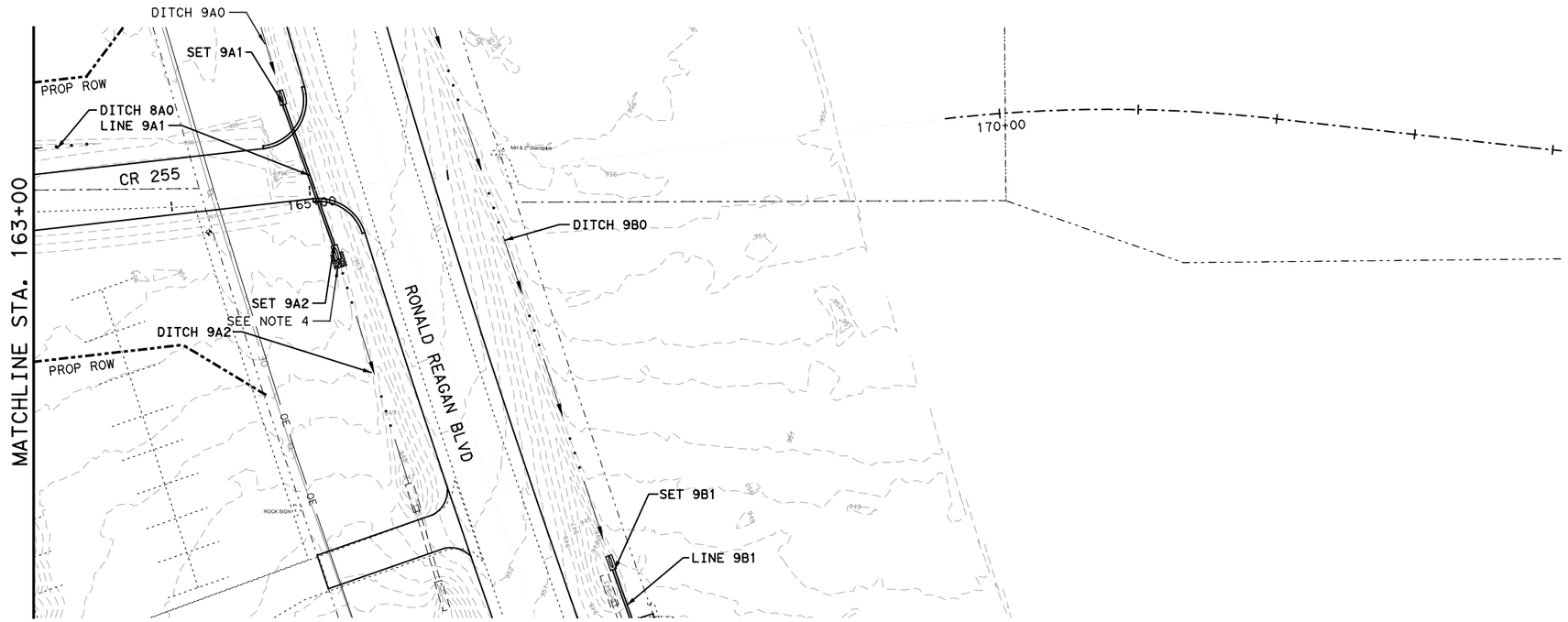

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SCALE: 1" = 100'

LEGEND

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- PROP CONTOUR
- EXIST ROW
- EXIST TOPOGRAPHY
- 15"W — EXIST UG UTILITY
- OT — EXIST OH UTILITY
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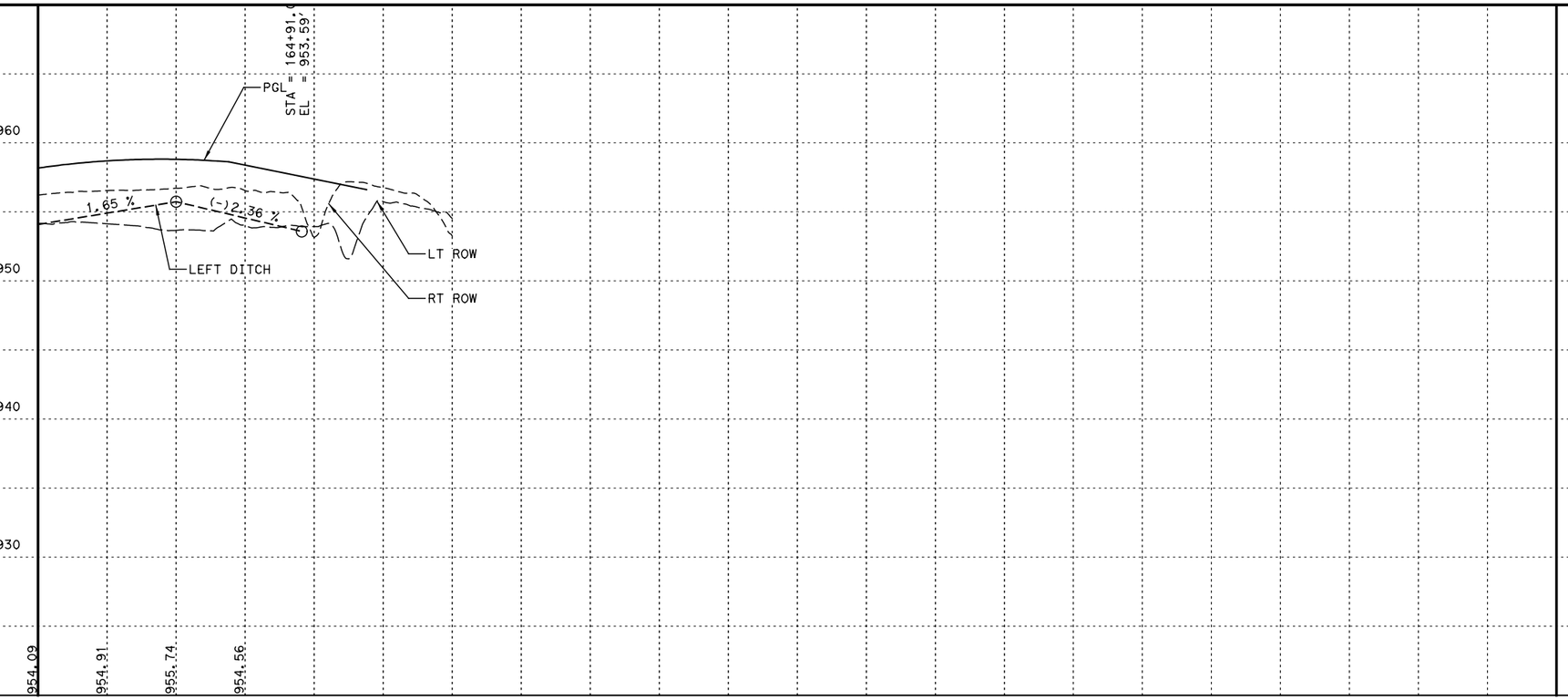

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3708 Norman Loop
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512.574.5738
TBPE Firm No. 20717

CR 255
DITCH PLAN & PROFILE
STA 163+00 TO END PROJECT

H SCALE: 1" = 100'
V SCALE: 1" = 10'

SHEET 15 OF 15

DESIGNED:	FED. RD DIV. No.	STATE	FEDERAL AID PROJECT No.		HIGHWAY No.	
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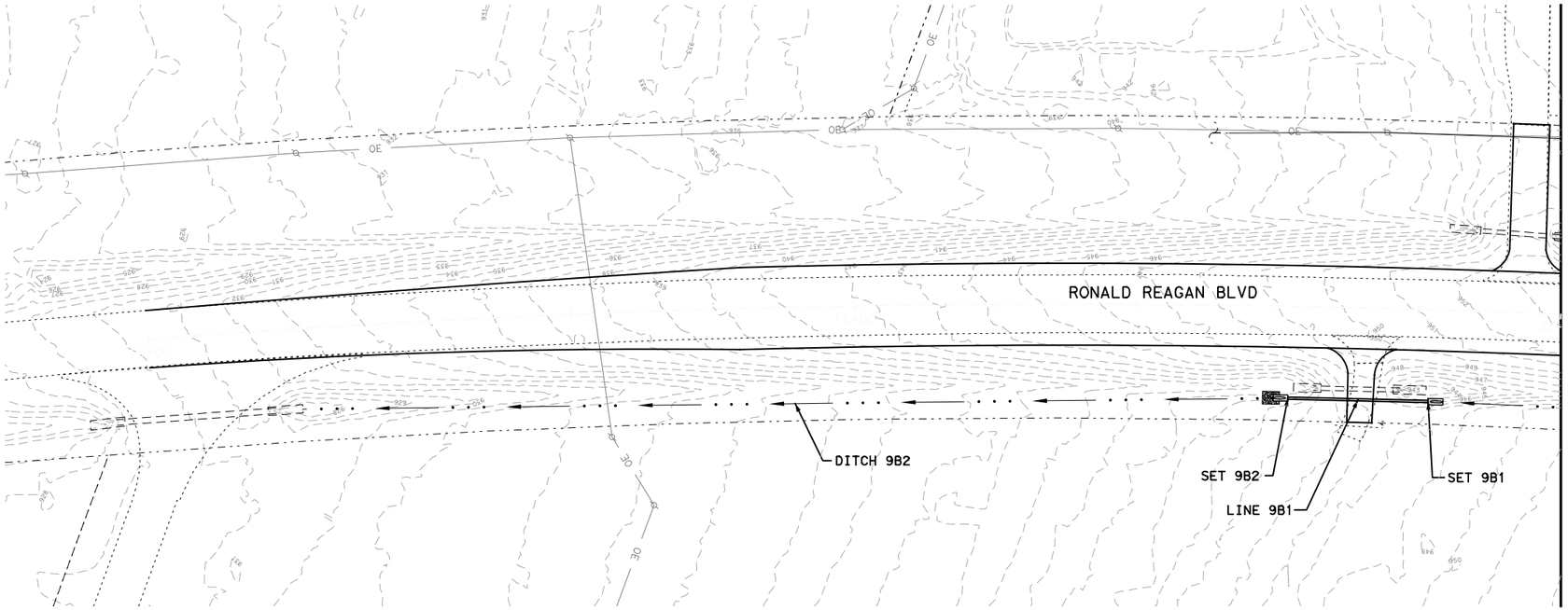

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LEGEND

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- 15"W — EXIST UG UTILITY
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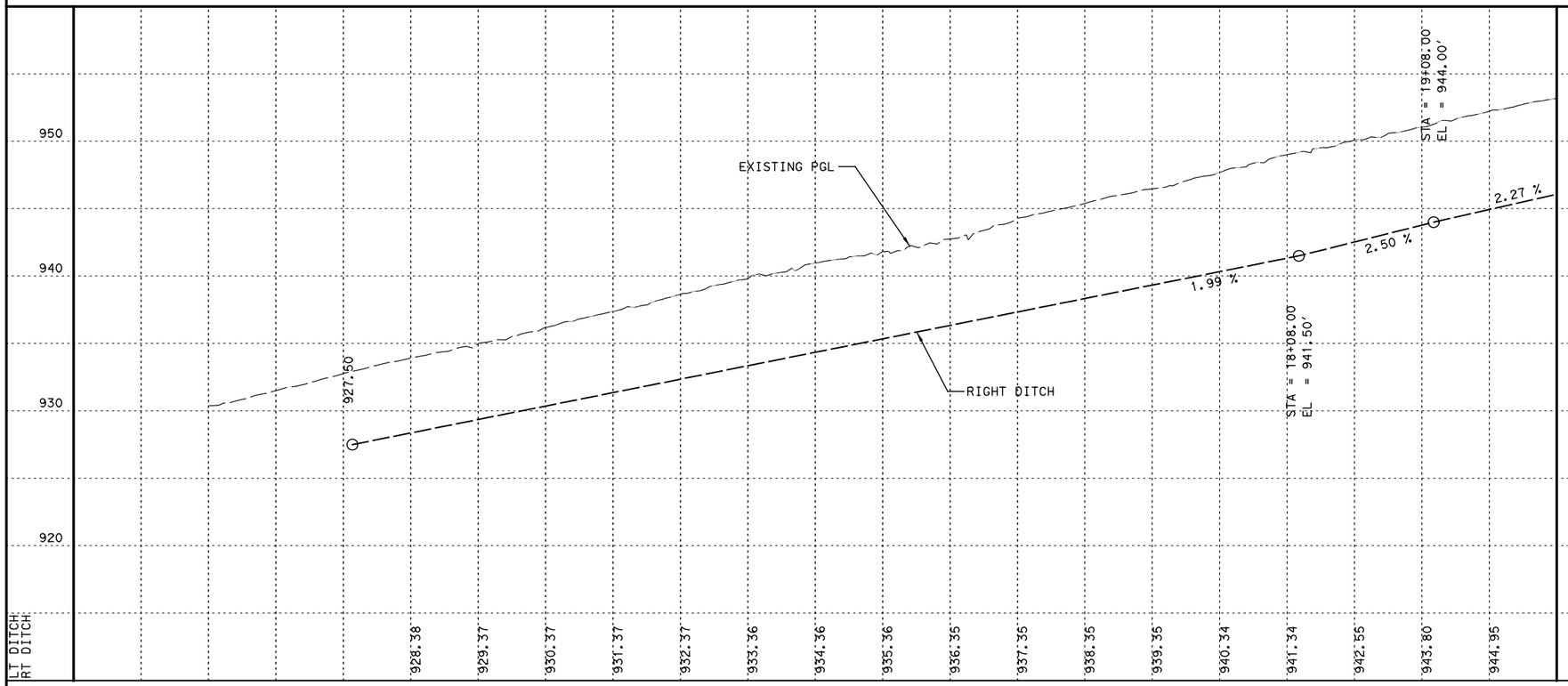

NO.	REVISION	BY	DATE

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Round Rock, TX 78664
512.574.5738
TBPE Firm No. 20717

CR 255

RONALD REAGAN BLVD

BEGIN PROJECT TO STA 20+00

H SCALE: 1" = 100'
V SCALE: 1" = 10'

SHEET 1 OF 2

DESIGNED:	FED. RD DIV. No.	STATE	FEDERAL AID PROJECT No.		HIGHWAY No.	
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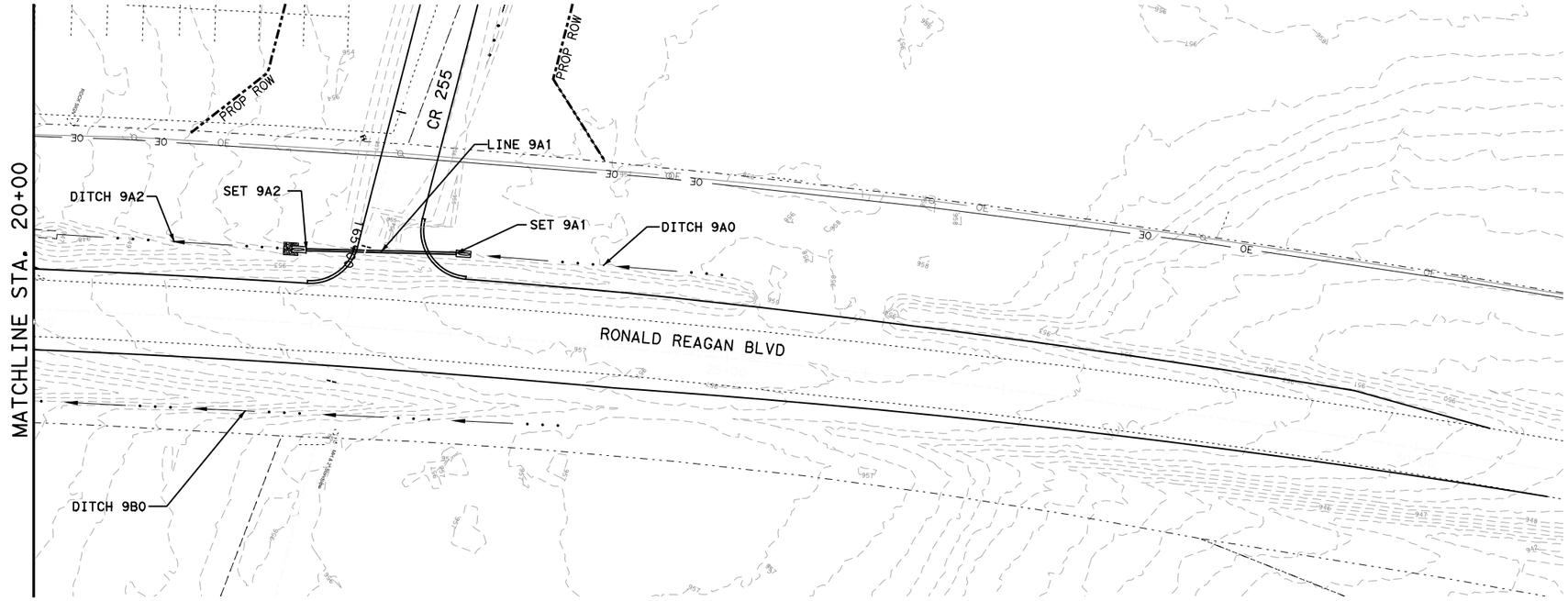

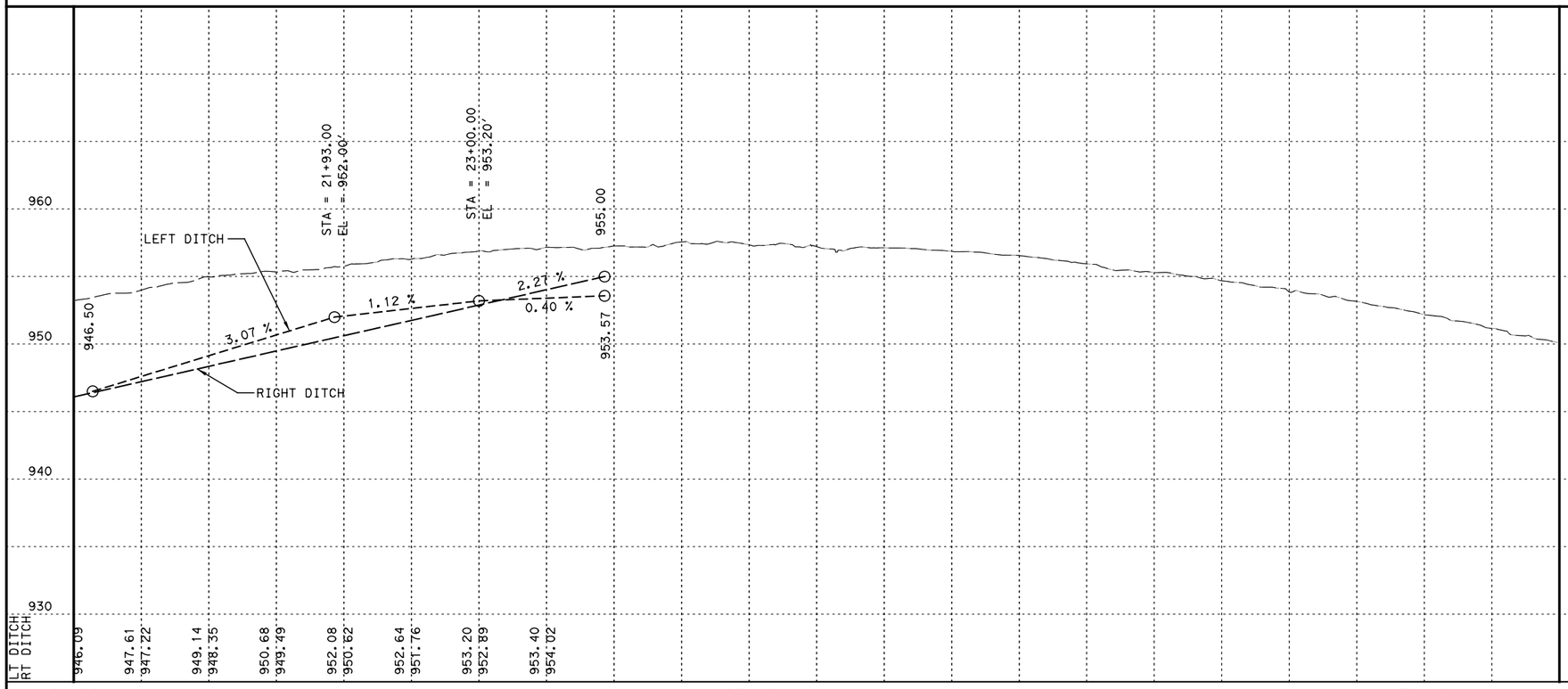

0 50 100

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512.574.5738
TBPE Firm No. 20717

CR 255

RONALD REAGAN BLVD

STA 20+00 TO END PROJECT

H SCALE: 1" = 100'
V SCALE: 1" = 10'

DESIGNED:	FED. RD DIV. No.	STATE	FEDERAL AID PROJECT No.		HIGHWAY No.	
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Threatened and Endangered Species Habitat Assessment for the County Road 255 Improvements Project, Williamson County, Texas

JULY 2023

PREPARED FOR

HNTB Corporation

PREPARED BY

SWCA Environmental Consultants

THREATENED AND ENDANGERED SPECIES HABITAT ASSESSMENT FOR THE COUNTY ROAD 255 IMPROVEMENTS PROJECT, WILLIAMSON COUNTY, TEXAS

Prepared for

HNTB Corporation
101 East Old Settlers Boulevard
Suite 225
Round Rock, Texas 78664

Prepared by

SWCA Environmental Consultants
4407 Monterey Oaks Boulevard
Building 1, Suite 110
Austin, Texas 78749
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www.swca.com

SWF-2023-00430

July 2023

CONTENTS

Appendices

Figures

Tables

1 INTRODUCTION

HNTB Corporation, on behalf of Williamson County, retained SWCA Environmental Consultants (SWCA) to complete a threatened and endangered species habitat assessment for the proposed County Road 255 Improvements Project (project) in Williamson County, Texas. The project is located just east of Interstate Highway 183 and extends 2.9 miles north of Ronald Reagan Boulevard. Proposed improvements include straightening and widening the existing two lanes to a four-lane (two in each direction) divided roadway (Figure 1). The proposed improvements would be constructed within an approximately 136-foot-wide right-of-way for approximately 2.9 miles of roadway. The total survey area for the roadway, bridge, and intersection improvements for the project is 55.5 acres (project area).

The purpose of this habitat assessment is to evaluate the project's potential impacts on federally listed threatened or endangered species as protected under the Endangered Species Act of 1973, as amended (ESA) (16 U.S. Code 1531–1544 et seq.), to ensure the project is performed in compliance with the provisions of the ESA. This report also investigates potential impacts to species currently proposed for federal listing, as well as those that the U.S. Fish and Wildlife Service (USFWS) has designated as candidates for federal listing.

2 METHODS

SWCA biologists performed field investigations on January 25, 2023, and May 5, 2023, to search for potentially suitable habitat for federally threatened and endangered species habitat within the project area. SWCA used the following sources to conduct a desktop analysis of the project area prior to conducting the field investigation:

- U.S. Geological Survey (USGS) Leander NE, Texas, 7.5-minute quadrangle map (USGS 2022)
- National Wetlands Inventory (NWI) maps (USFWS 2022)
- National Hydrography Dataset (NHD) data (USGS 2018)
- Federal Emergency Management Agency (FEMA) National Flood Hazard Layer Viewer (FEMA 2022)
- Natural Resource Conservation Service (NRCS) soils data (NRCS 2019)
- Texas Parks and Wildlife Department (TPWD) Texas Natural Diversity Database (TXNDD) (2022)
- Texas Commission on Environmental Quality (TCEQ) Edwards Aquifer Viewer (TCEQ 2022)
- USFWS (2023) Information for Planning and Consultation (IPaC) System (Appendix A)

During the field investigation, SWCA biologists recorded the vegetation communities and other existing conditions within the project area. SWCA used a Samsung Galaxy Tab Active2 SM-T390 and Geode real-time GPS receiver with sub-meter accuracy to geographically reference points of interest. SWCA used geographic information system (GIS) software to generate map figures. SWCA did not conduct species-specific presence/absence surveys as part of this habitat assessment. Appendix B provides photographs of the project area taken during the field investigation.

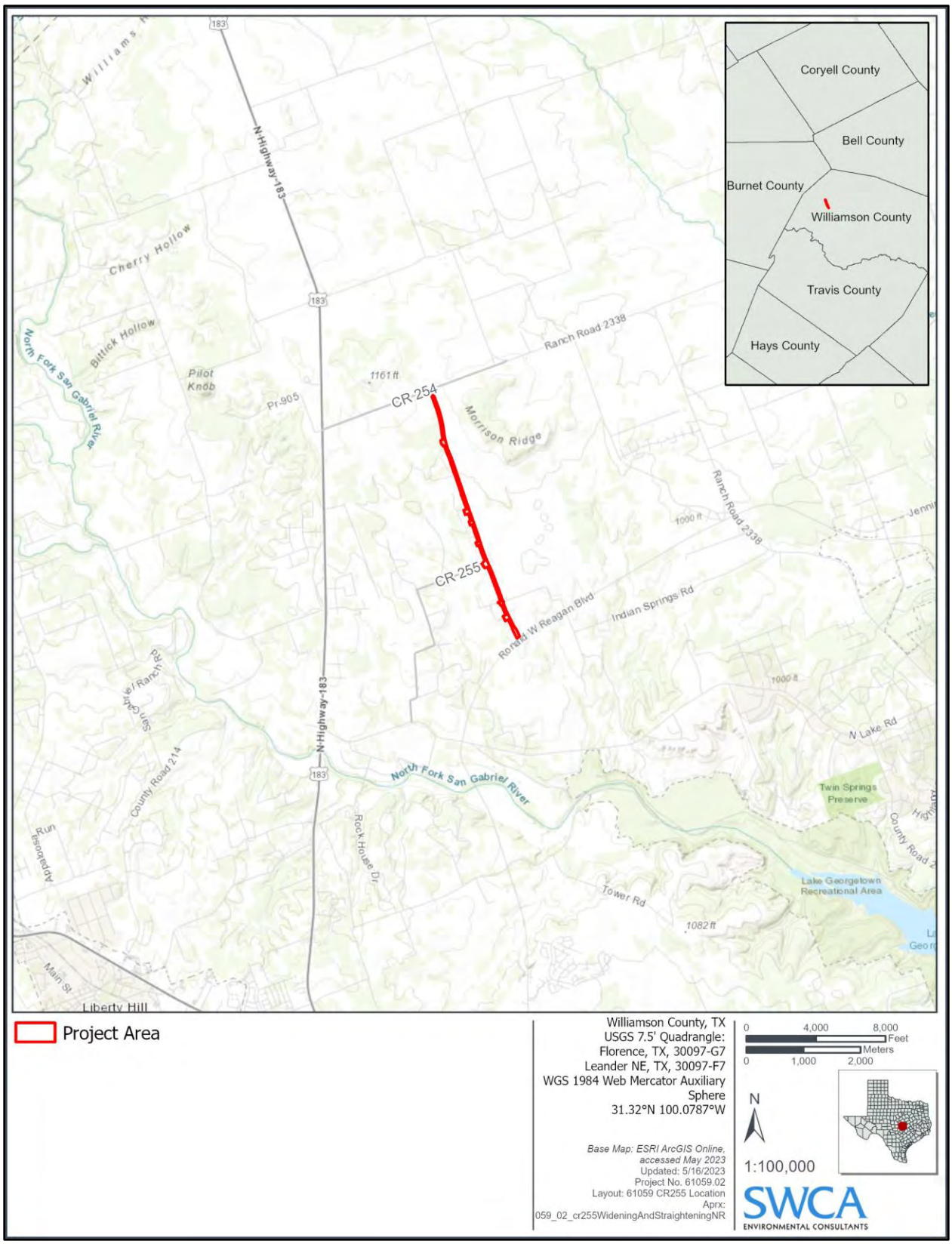

Figure 1. Project area location map.

3 PROJECT AREA DESCRIPTION

Existing conditions within and adjacent to the project area are a mixture of rural and urban land uses. Medium- and high-density developments present along the project area consist of driveways to private residences and several commercial buildings intermixed with agricultural land or rural developments (Appendix B, Photographs 1–2). The northern and eastern portions of the project area largely rangelands and pastures with some mixed forest (Appendix B, Photographs 3–5). The topography of the project area is gently rolling. Ground elevation within the project area ranges from ±284 to ±321 feet above mean sea level.

3.1 Geology, Karst, and Soils

Approximately 45.5% of the project area is underlain by Bee Cave Marl, which consists of Chert limestone and fine-grained dolomite. The Cedar Park geological formation makes up approximately 40.7% of the project area and is composed of clay, limestone, and shale. Approximately 8.7% of the project area is underlain by Upper Glen Rose Limestone, which consists of layers composed of limestone, clay, and sand, with some sandstone. Approximately 5.1% of the project area is underlain by Keys Valley Marl, which consists of layers of composed of clayey limestone, silt, and sand. (Bureau of Economic Geology 1974; Collins 2005). Figure 2 depicts the surface geology of the project area.

The project area is located within the North Williamson County Karst Fauna Region (KFR) as described by Veni and Jones (2021). The boundaries of this KFR are described as "extending north from the North Fork of the San Gabriel River to where the cavernous unit is crossed by Buttermilk Creek. Its eastern boundary is delineated along a fault at the edge of the cavernous unit, and the west boundary is located where the cavernous unit is removed by erosion" (Veni and Jones 2021). Broadly, the North Williamson County KFR is known to contain two endangered species of karst invertebrates (karst invertebrates are also referred to as "troglobites"): the Coffin Cave mold beetle and the Bone Cave harvestman. These species are dependent on karst voids and specific karst features of Edwards limestone. The Veni and Jones (2021) KFRs generally map the separate and distinct ecological communities present within the Edwards limestone complex of the Austin area and describe the known endangered karst invertebrates within each of those communities, whereas Karst Zones (also described by Veni and Jones 2021) describe the likelihood of those species' occurrence and are defined thusly:

- **Karst Zone 1**: Areas known to contain endangered cave fauna
- **Karst Zone 2**: Areas having a high probability of suitable habitat for endangered or other endemic invertebrate cave fauna
- **Karst Zone 3**: Areas that probably do not contain endangered cave fauna
    - *Karst Zone 3a*: Areas suitable for troglobite species but which have a low probability of containing endangered karst species because the habitat is occupied by other troglobite species
    - *Karst Zone 3b*: Areas which have a low probability of containing endangered karst species because they are poorly suited for troglobite species
- **Karst Zone 4**: Areas which do not contain endangered cave fauna
    - *Karst Zone 4a*: Areas suitable for troglobite species but which do not contain endangered karst species because the habitat is occupied by other troglobite species
    - *Karst Zone 4b*: Areas which do not contain troglobite species

The project area is entirely mapped as Karst Zone 4b (see Figure 3).

According to the NRCS (2019), the project area contains five soil map units. The majority of the mapped soil units within the project area consist of clay, cobbly clay, and silty clay soils (Table 1). None of the five soil map units are classified as hydric by the NRCS (2019).

Table 1. Soil Map Units within the Project Area

Soil Map Unit Name	Soil Description	Hydric Soil	Acres within Project Area	Percentage of Project Area
Fairlie clay, 1 to 2 percent slopes	Residuum weathered from Austin chalk formation occurs on ridges.	No	19.1	34.4
Doss silty clay, moist, 1 to 5 percent slopes	Residuum weathered from limestone occurs on hillslopes.	No	13.2	23.8
Eckrant cobbly clay, 1 to 8 percent slopes	Residuum weathered from limestone occurs on ridges.	No	12.0	21.6
Denton silty clay, 1 to 3 percent slopes	Silty and clayey slope alluvium over residuum weathered from limestone occurs on hillslopes.	No	8.5	15.2
Brackett association, 1 to 8 percent slopes	Residuum weathered from limestone occurs on ridges.	No	2.7	5.0
Total			**55.5**	**100.0%**

Source: NRCS (2019).

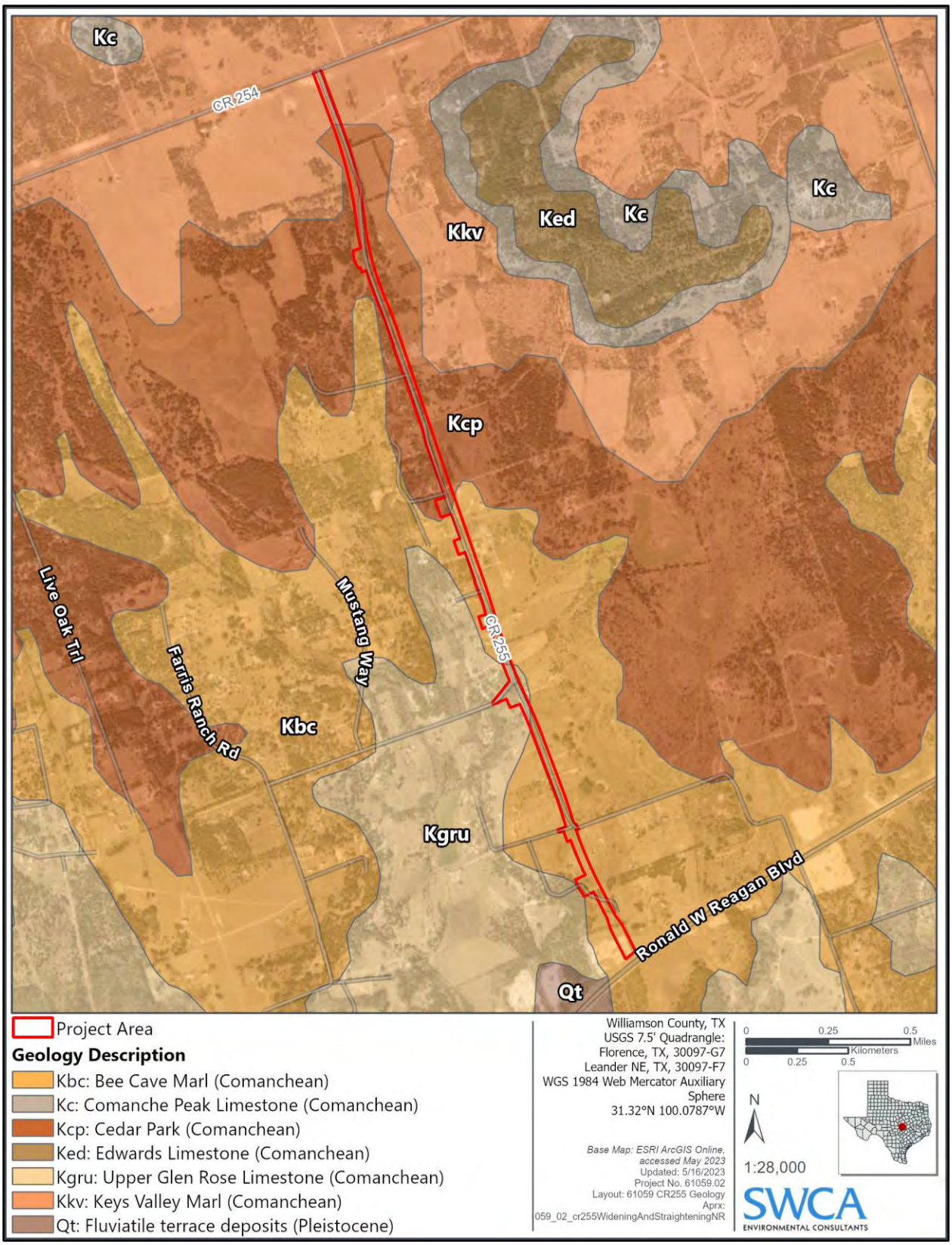

Figure 2. Project area geology map.

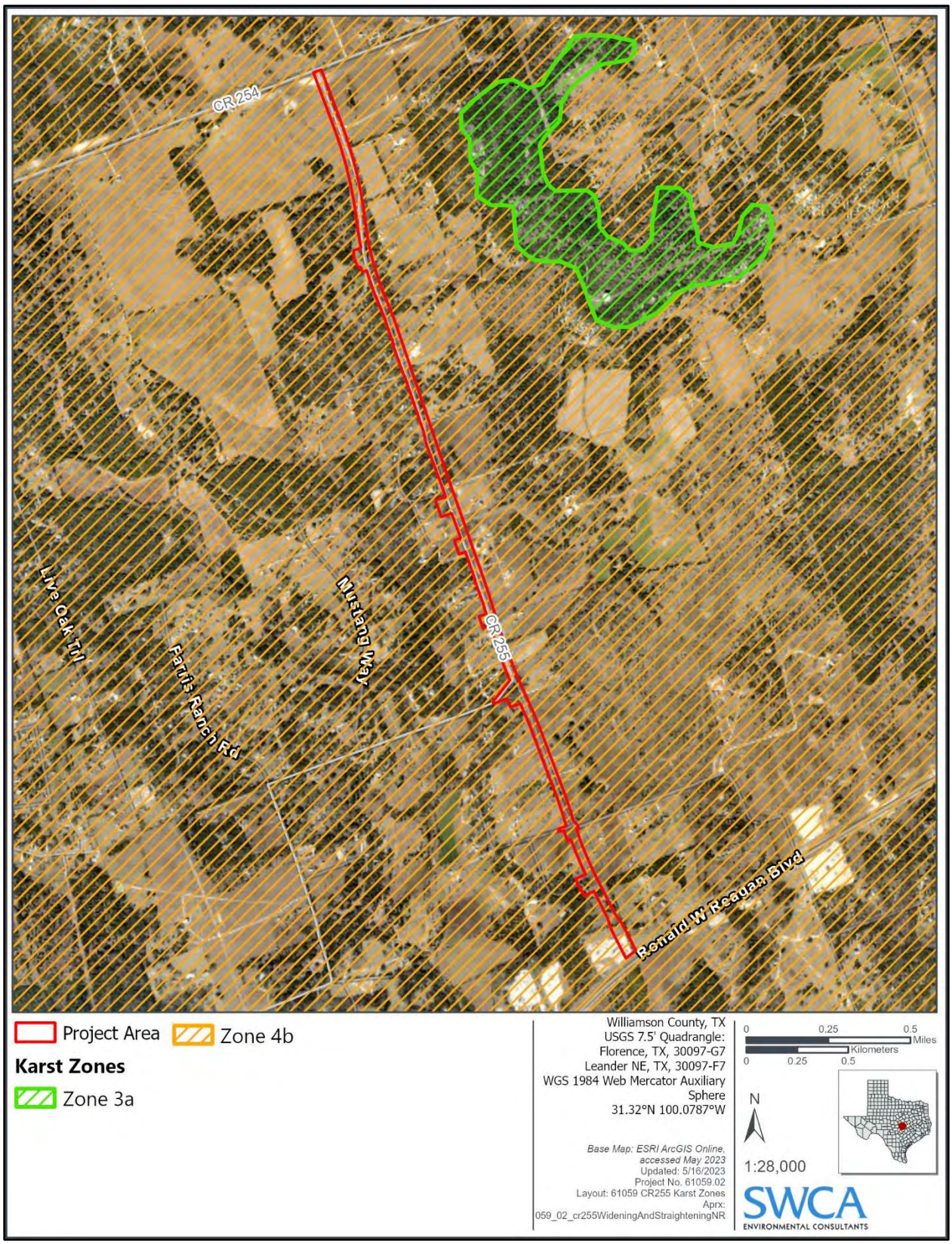

Figure 3. Project area compared to the karst zones mapped by Veni and Jones (2021).

3.2 Hydrology

The project area is within the North Fork San Gabriel River watershed of the Brazos River Basin (TPWD 2022). The primary source of surface water within the project area is precipitation runoff (overland flow) from the undeveloped lands adjacent to the project area. Surface water in the southern portions of the project area generally flows east into North Fork San Gabriel River, located approximately 2 miles south of the project area. The North Fork San Gabriel River flows east into lake Georgetown, approximately 2.1 miles southeast of the project area. Surface water in the northern portions of the project area generally flows northeast into North Fork San Gabriel River, which flows through the northern portion of the project area. The FEMA Flood Insurance Rate Map panels (48491C0275E and 48491C0100E) for this region indicate that none of the project area is within Zone A, within the 100-year floodplain (FEMA 2022). Figure 4 depicts drainages and wetlands within and near the project area as depicted by the NHD and NWI. Appendix B, Photographs 6 and 7 depict ephemeral streams found within the project area.

The entire project area lies within the EACZ (TCEQ 2008), meaning that surface water runoff from the project area has potential to be carried down-gradient to the EARZ (Jones 2003). Precipitation that infiltrates the ground within the project area has potential to reach the Edwards Aquifer. Groundwater within the Northern Segment of the Edwards Aquifer has a regional flow direction that is overall to the northeast, although locally it may travel in other directions as a result of faults, springs, or other features (Jones 2003).

The project area is within the contributing zone for the Northern Segment of the Edwards Aquifer (TCEQ 2022) (Figure 5). The entire project area lies within the Edwards Aquifer Contributing Zone (EACZ), indicating that surface water runoff from the project area has potential to be carried down-gradient to the Edwards Aquifer Recharge Zone (EARZ) within nearby drainages (TCEQ 2008).

3.3 Vegetation

The project area is located within the Balcones Canyonlands (ecoregion 30c) subdivision of the Texas Edwards Plateau Level IV ecoregion (Griffith et al. 2007). Development within the project area has resulted in the removal of some vegetation along the roadway. Where present, vegetation is primarily herbaceous with Johnsongrass (*Sorghum halepense*), Texas wintergrass (*Nassella leucotricha*), Bermudagrass (*Cynodon dactylon*), and silver bluestem (*Bothriochloa saccharoides*). SWCA identified two vegetation communities within the undeveloped portion of the project area: mixed forest and rangeland.

The mixed forest vegetation community is primarily located along waterways, as riparian corridors, and the western side of the project area. The tree stratum consists of Ashe juniper (*Juniperus ashei*), cedar elm (*Ulmus crassifolia*), green ash (*Fraxinus pennsylvanica*), and plateau live oak (*Quercus fusiformis*). The sapling/shrub stratum consists of the previously mentioned tree species in addition to elbowbush (*Forestiera pubescens*). Tree height ranges from 20 to 30 feet and canopy cover ranges from 40% to 60% (see Appendix B, Photograph 5).

The rangeland vegetation community is in areas used for livestock grazing within the project area. The tree stratum of this vegetation community consists of cedar elm, plateau live oak, and Ashe juniper. Grasses within this vegetation community include Johnsongrass, Bermudagrass, white tridens (*Tridens albescens*), and silver bluestem. There are very few scattered trees and herbaceous species in this community, including cedar elms, and plateau live oak (see Appendix B, Photographs 3 and 4).

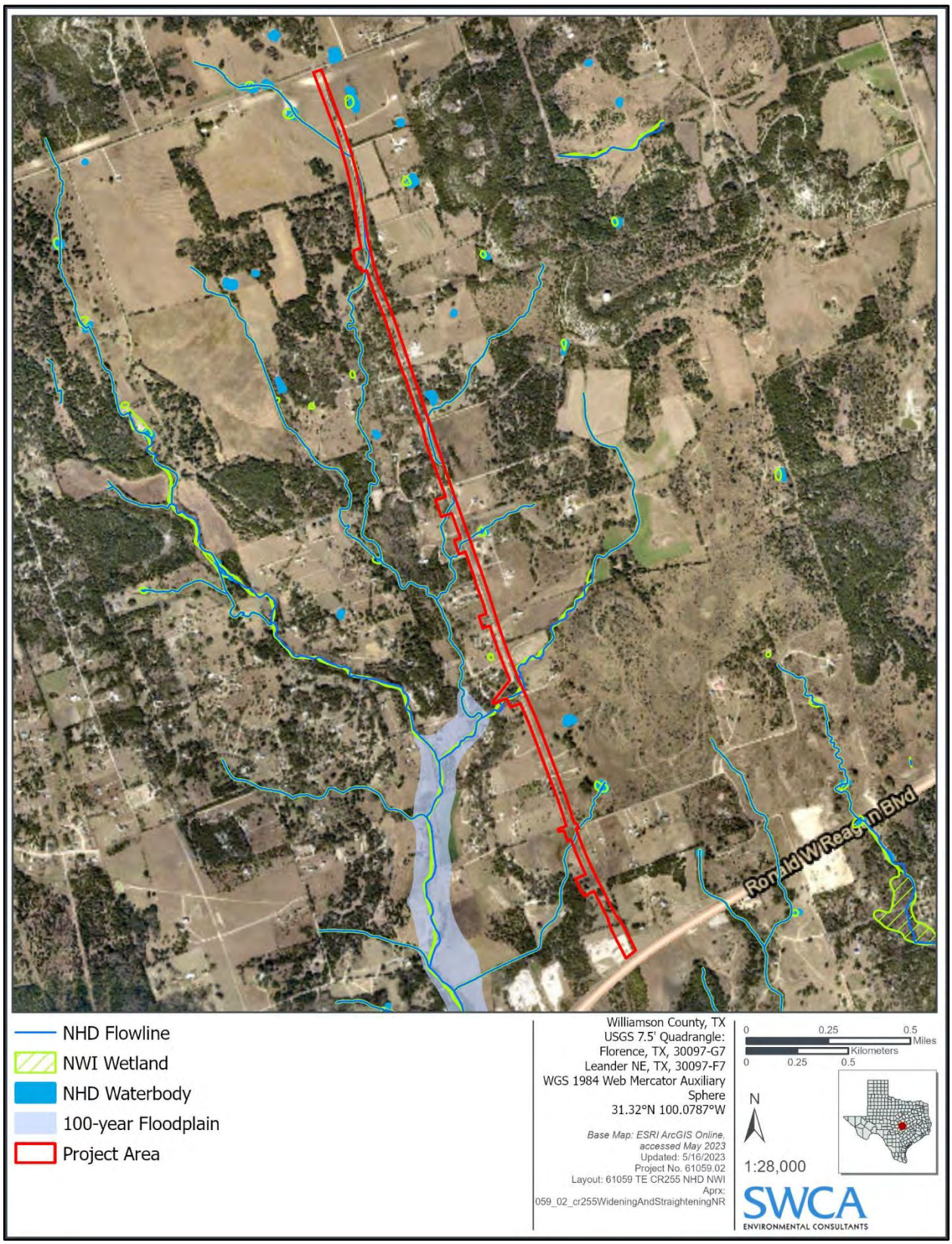

Figure 4. Drainages and wetlands within and near the project area as mapped by the NHD and NWI.

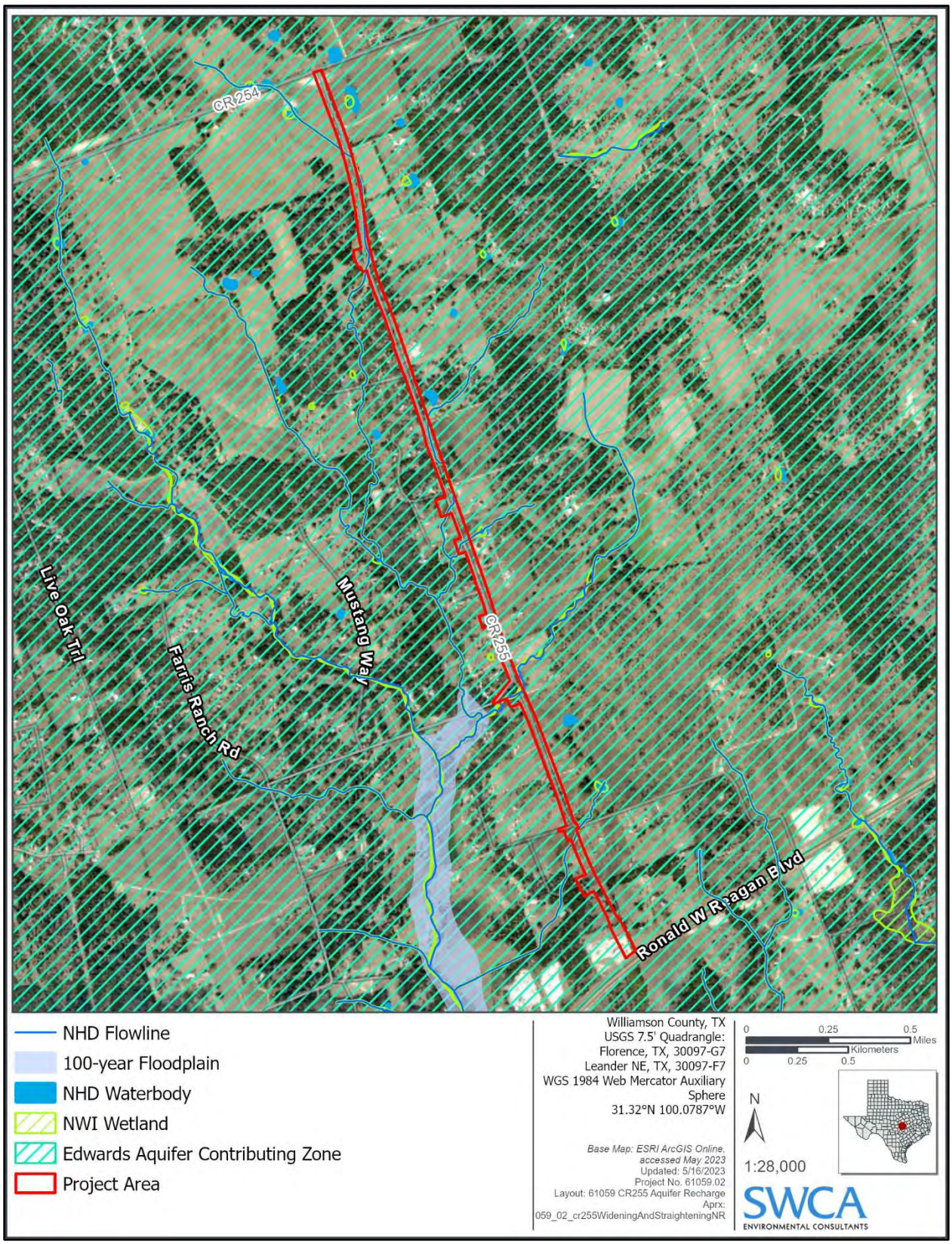

Figure 5. Edwards Aquifer Recharge and Contributing Zone map with streams depicted by the NHD.

4 THREATENED AND ENDANGERED SPECIES HABITAT ASSESSMENT

4.1 Regulatory Background Information

Section 9 of the ESA prohibits the take of federally listed endangered species of fish and wildlife. The ESA defines "take" as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct" (16 U.S. Code 1532 (19)).

USFWS regulations define "harm" as an "act which actually kills or injures wildlife and may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns including breeding, feeding or sheltering" (50 Code of Federal Regulations 17.3). USFWS regulations define "harass" as "an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding, or sheltering" (50 Code of Federal Regulations 17.3). The USFWS issued guidance to its Regional Directors on April 26, 2018, further clarifying that a demonstration of harm via habitat modification must find that habitat modification is likely to be significant, that the significant habitat modification is also likely to significantly impair an essential behavior pattern of a listed species, and that the significant behavioral impairment is likely to result in the actual killing or injuring of listed wildlife (Sheehan 2018).

The USFWS designates species as candidates for listing as threatened or endangered through a review process that determines whether the listing of candidate species is warranted or not. If the agency determines that the listing of a species is warranted, it will publish a proposed listing rule in the Federal Register. Candidate species are not afforded protection under the ESA; however, once proposed to be listed as threatened or endangered, federal agencies often treat them as if they are listed species.

4.2 Species Background Information

The USFWS (2023) IPaC database identifies 14 federally listed, federally proposed, and federal candidate species known to occur or as having potential to occur in the project area (see Appendix A). These include five threatened species, six endangered species, two species proposed for listing as threated or endangered, and one candidate species proposed for federal protection. These species consist of a combination of amphibians, arthropods, birds, mollusks, and plants. The USFWS (2023) indicates that the potential for impacts to two of the bird species included on the IPaC list, the threatened piping plover (*Charadrius melodus*) and threatened/endangered rufa red knot (*Calidris canutus rufa*), need only be considered for wind energy projects in Williamson County and are, therefore, omitted from discussion in this report.

There is no critical habitat for any of the above listed species within the project area.

Table 2 identifies the threatened, endangered, proposed, and candidate species addressed in this assessment and summarizes their likelihood of occurrence in the project area. Determination of the potential for local species' occurrence was based on 1) existing information on distribution, and 2) qualitative comparisons of the habitat requirements of each species against habitat conditions occurring within the project area. SWCA identified the potential for occurrence of species using the following categories:

- *Known to occur*: The species was documented in the project area either during or prior to the habitat assessment by a reliable observer.

- *May occur*: The project area is within the species' currently known range and geology, soils, vegetation, and water quality conditions, among other factors, resemble those known to be used by the species.
- *Unlikely to occur:* The project area is within the species' currently known range, but geology, soils, vegetation, and water, among other factors, do not resemble those known to be used by the species.
- *None:* The project area is clearly outside the species' currently known and expected range.

Table 2. Species of Concern for Non-Wind Energy Projects in Williamson County

Common Name	Scientific Name	Status*	Range or Habitat Requirements	Potential for Occurrence in Project Area
Amphibians				
Georgetown salamander	*Eurycea naufragia*	T	This species is restricted to springs, spring runs, and the Edwards Aquifer in the North Fork San Gabriel River drainages south of Lake Georgetown in Williamson County (Devitt et al. 2019).	**None** because the project area is outside known range.
Salado salamander	*Eurycea chisholmensis*	T	This species is restricted to springs, spring runs, and underlying Edwards Aquifer in Bell County and northern Williamson County, north of Lake Georgetown (Devitt et al. 2019).	**None** because the project area is outside known range, which occurs approximately 1.5 miles east of the project area, where the Edwards Aquifer occurs in the subsurface.
Arthropods				
Bone Cave harvestman	*Texella reyesi*	E	Inhabits Edwards limestone caves, enlarged rock joints, sinkholes, and smaller karst conduits where subsurface voids are in permanent darkness (USFWS 2018a).	**None** because the project area is within Karst Zone 4b (see Figure 3) and the project area is not underlain by Edwards Limestone.
Inner Space Caverns mold beetle (syn. Coffin Cave mold beetle)	*Batrisodes texanus*	E	Inhabits Edwards limestone caves, enlarged rock joints, sinkholes, and smaller karst conduits where subsurface voids are in permanent darkness (USFWS 2018b).	**None** because the project area is within Karst Zone 4b (see Figure 3) and the project area is not underlain by Edwards Limestone.
Monarch butterfly	*Danaus plexippus*	C	Inhabits environments that support milkweed (*Asclepias* spp.) and other blooming nectar plants (Cardno 2020)	**May occur** because the project area includes grasslands that could provide habitat during breeding and migration (Cardno 2020). See Section 4.3.4.
Tooth Cave ground beetle	*Rhadine persephone*	E	Inhabits Edwards limestone caves, enlarged rock joints, sinkholes, and smaller karst conduits where subsurface voids are in permanent darkness (USFWS 2018c). Species is known from southwestern Williamson County and northwestern Travis County.	**None** because the project area is outside known range.
Tooth Cave spider	*Tayshaneta myopica*	E	Inhabits Edwards limestone caves, enlarged rock joints, sinkholes, and smaller karst conduits where subsurface voids are in permanent darkness (USFWS 2018d). South central portions of Williamson County and north-central Travis County.	**None** because the project area is outside known range.
Birds				

Common Name	Scientific Name	Status*	Range or Habitat Requirements	Potential for Occurrence in Project Area
Golden-cheeked warbler	*Setophaga chrysoparia*	E	Occurs on the Edwards Plateau during the breeding season (early to mid-March to July/August) (Lockwood and Freeman 2014). Inhabits areas with mature woodlands having a high percentage of canopy closure and composed of a mixture of Ashe juniper, broad-leafed deciduous trees, and plateau live oak (Campbell 2003).	**Unlikely to occur** due to lack of potentially suitable habitat within the project area.
Whooping crane	*Grus americana*	E	Migrates across central Texas during spring and fall, may stop over in suitable habitat (Campbell 2003; Lockwood and Freeman 2014). Campbell (2003) indicates suitable migratory habitat includes cropland, large wetland areas, and that the species is known to roost near large rivers with sandbars, far from human disturbance.	**Unlikely to occur.** Although the project area is located within the migration corridor of this species, the project area does not contain suitable stopover habitat (Campbell 2003). However, lands adjacent to the project area may provide suitable foraging habitat during migration.
Mammals				
Tricolored bat	*Perimyotis subflavus*	PE	Occurs within a wide range of habitats and is known from Williamson County. This species may roost within caves, buildings, and culverts during winter and may utilize the same habitat plus a wide variety of trees for roosting during summer (USFWS 2021b).	**May occur** within nearby tree canopy. See Section 4.3.7.
Mollusks				
False spike	*Fusconaia mitchelli*	PE	Inhabits moderate to large streams in the Brazos and Colorado River basins (Randklev et al. 2017).	**None,** due to a lack of perennial drainages within the project area.
Plants				
Bracted twistflower	*Streptanthus bracteatus*	T	Occurs on rocky hillsides and slopes on the Edwards Plateau but is not known from Williamson County (Leonard and Van Auken 2014). The species prefers Tarrant, Brackett, or Speck soils over the Edwards, Glen Rose, and Walnut geologic formations (USFWS 2021c).	**Unlikely to occur** because although preferred soil types do occur within project area, this species is not currently known to occur in Williamson County.

Source: USFWS (2023).

* E = Endangered; T = Threatened; PE = Proposed Endangered; PT = Proposed Threatened; C = Candidate

None of the species identified in Table 2 are *known to occur* in the project area. The monarch butterfly (*Danaus plexippus*) and tricolored bat *may occur* in the project area. The golden-cheeked warbler (*Setophaga chrysoparia*), whooping crane (*Grus americana*), and bracted twistflower (*Streptanthus bracteatus*) are considered *unlikely to occur*. The Georgetown salamander (*Eurycea naufragia*), Salado salamander (*Eurycea chisholmensis*), Bone Cave harvestman (*Texella reyesi*), Inner Space Caverns mold beetle (syn. Coffin Cave mold beetle) (*Batrisodes texanus*), Tooth Cave ground beetle (*Rhadine persephone*), Tooth Cave spider (*Tayshaneta myopica*), False spike (*Fusconaia mitchelli*) have no likelihood of occurrence.

Species identified in Table 2 with potential for occurrence in the project area that were determined to be *unlikely to occur* and *none* are not addressed further in this assessment. Section 4.3 provides a discussion of the potential for the monarch butterfly and tricolored bat to occur in the project area.

Figure 6 shows recorded localities of federally listed species from the general vicinity of the project area as held in the TXNDD (2022). The TXNDD is a repository for records of federally listed, state-listed, and other rare species maintained by the TPWD (2022). As depicted in Figure 6, the TXNDD (2022) does not contain records of federally listed species from within or immediately adjacent to the project area.

4.3 Potential for Occurrence

4.3.1 *Monarch Butterfly*

The potential for monarch butterfly to occur in the project area met the definition of *may occur* as provided in Section 4.2. Monarch butterfly habitat includes grassland or shrubland habitats with native grasses and shrubs, including milkweed (*Asclepias* spp.), which serves as an obligate host plant for egg-deposition, and other flowering plants for nectar (Cardno 2020). The eastern migratory population of monarch butterfly funnels through Texas during the spring and fall migration periods (Cardno 2020), making this region of the country especially important for migrants.

Several records of monarch butterfly have been submitted within vicinity of the project area (iNaturalist 2022). The closest observation was approximately 1.2 miles southwest of the project area and was submitted in April 2020. The nearest milkweed species (antelopehorn milkweed [*Asclepias asperula*]) reported to iNaturalist (2022) was observed approximately 0.8 miles southwest of the southern extent of the project area in June 2023. SWCA field biologists did not observe any milkweed (*Asclepias* spp.) during the field reconnaissance within the project area. Therefore, SWCA has determined that this species *may occur* within the project area.

4.3.2 *Tricolored Bat*

Tricolored bats are woodland-dwelling bats that prefer riparian areas and forest edge habitats (Amelon 2006). This species is known to occur in Williamson County and is expected to be a common to abundant resident of the region (USFWS 2021b). Tricolored bats summer in a variety of landscapes, but they prefer to roost in open woodlands or within forest edges along waterways such as streams and ponds (Amelon 2006). These bats roost in live and dead leaf clusters of deciduous hardwood trees and hibernate during the winter in caves and mines (USFWS 2021b). Hein et al. (2009) found that the presence of roads adjacent to forested corridors positively influenced the abundance of the species using forest edges. The tricolored bat tends to forage within approximately 2.5 miles of their summer roosting sites (Veilleux et al. 2003). Within Texas, tricolored bats hibernate (overwinter) in caves or human-made structures such as large culverts instead (USFWS 2021b). This species exhibits high site fidelity with many individuals returning year after year to the same hibernaculum (USFWS 2021b). Migration from winter hibernacula to summer foraging grounds in the spring is not well studied, but the maximum migration distance recorded was 151 miles (Samoray et al. 2019). Breeding season for these small bats is between the middle of August and the middle of October with a long gestation where young are born roughly between May and July.

iNaturalist (2022) has many records of tricolored bat from within the vicinity of the project area, with the nearest observations from caves nearby Lake Georgetown. However, iNaturalist (2022) obscures location data for sensitive species, such as the tricolored bat, within a 15-mile radius of its original observation point; therefore, it is unknown where the exact locations of such observations have occurred. Although the great majority of tricolored bat records submitted to iNaturalist (2022) from Williamson County are audio recordings, the images submitted are all from caves, except for three records photographed on the

side of buildings in October 2019 (2) and October 2021 (1), and several audio observations scattered within 5 miles of these caves.

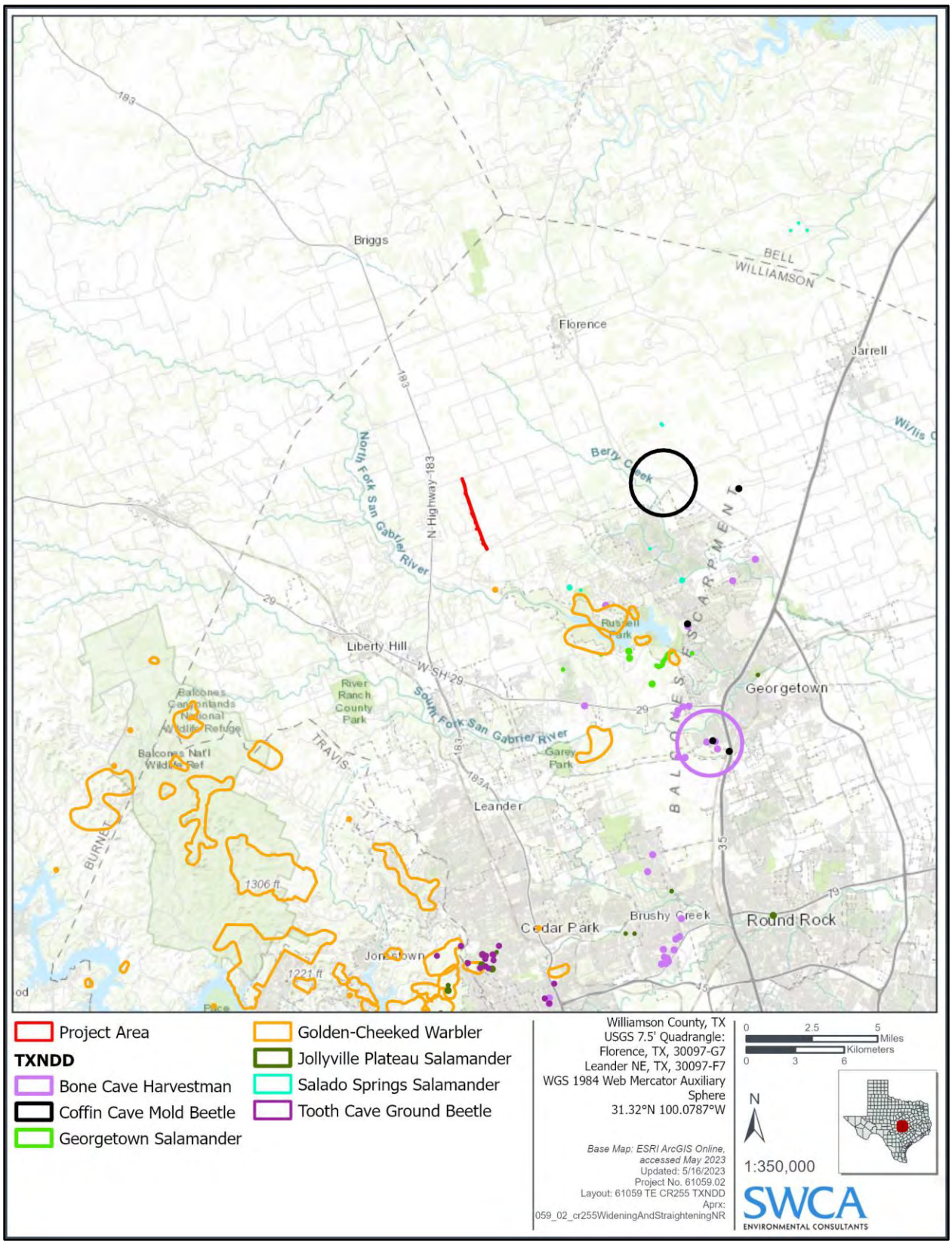

Figure 6. TXNDD (2022) showing federally protected species occurrences in the general vicinity of the project area.

Tricolored bats may forage around the trees and adjacent grasslands present within the project area, particularly those trees following watercourses. They could also roost in the trees of the project area during the summer months, but would not be expected to roost in some of the bridges or culverts present beneath the project area in the winter months. Given that the tricolored bat has an extensive range, is a habitat generalist, and the project area contains habitat such as deciduous hardwood trees along watercourses, it is possible that this species *may occur* within the project area.

5 CONCLUSIONS

The monarch butterfly and tricolored bat may occur in the project area. The remaining species listed in Table 2 are either *unlikely to occur* or have no likelihood of occurrence within the project area. Neither species is currently federally protected under the ESA; therefore, no consultation for either species is required at this time. However, if either species is protected under the ESA prior to or during construction, Williamson County may wish to perform presence surveys to determine extent of potential impacts that could occur to the either species, if any at all. Williamson County may also wish to confer with USFWS if the monarch butterfly or the tricolored bat are documented to utilize the project area. However, in-depth presence/absence studies are outside the scope of this report.

None of the other federally listed, federally proposed for listing, or federal candidate species identified by the USFWS (2023) as known or having potential to occur in Williamson County (see Table 2) are expected to occur in the project area or be impacted by the proposed project.

The conclusions provided in this report represent SWCA's professional opinion based on SWCA's knowledge and experience with the species discussed herein and with the USFWS.

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APPENDIX A

U.S. Fish and Wildlife Service
Information for Planning and Consultation (IPaC) List

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IPaC resource list

This report is an automatically generated list of species and other resources such as critical habitat (collectively referred to as *trust resources*) under the U.S. Fish and Wildlife Service's (USFWS) jurisdiction that are known or expected to be on or near the project area referenced below. The list may also include trust resources that occur outside of the project area, but that could potentially be directly or indirectly affected by activities in the project area. However, determining the likelihood and extent of effects a project may have on trust resources typically requires gathering additional site-specific (e.g., vegetation/species surveys) and project-specific (e.g., magnitude and timing of proposed activities) information.

Below is a summary of the project information you provided and contact information for the USFWS office(s) with jurisdiction in the defined project area. Please read the introduction to each section that follows (Endangered Species, Migratory Birds, USFWS Facilities, and NWI Wetlands) for additional information applicable to the trust resources addressed in that section.

Location

Williamson County, Texas

Local office

Austin Ecological Services Field Office

(512) 937-7371

1505 Ferguson Lane

Austin, TX 78754-4501

Endangered species

This resource list is for informational purposes only and does not constitute an analysis of project level impacts.

The primary information used to generate this list is the known or expected range of each species. Additional areas of influence (AOI) for species are also considered. An AOI includes areas outside of the species range if the species could be indirectly affected by activities in that area (e.g., placing a dam upstream of a fish population even if that fish does not occur at the dam site, may indirectly impact the species by reducing or eliminating water flow downstream). Because species can move, and site conditions can change, the species on this list are not guaranteed to be found on or near the project area. To fully determine any potential effects to species, additional site-specific and project-specific information is often required.

Section 7 of the Endangered Species Act **requires** Federal agencies to "request of the Secretary information whether any species which is listed or proposed to be listed may be present in the area of such proposed action" for any project that is conducted, permitted, funded, or licensed by any Federal agency. A letter from the local office and a species list which fulfills this requirement can **only** be obtained by requesting an official species list from either the Regulatory Review section in IPaC (see directions below) or from the local field office directly.

For project evaluations that require USFWS concurrence/review, please return to the IPaC website and request an official species list by doing the following:

1. Draw the project location and click CONTINUE.
2. Click DEFINE PROJECT.
3. Log in (if directed to do so).
4. Provide a name and description for your project.
5. Click REQUEST SPECIES LIST.

Listed species[1] and their critical habitats are managed by the Ecological Services Program of the U.S. Fish and Wildlife Service (USFWS) and the fisheries division of the National Oceanic and Atmospheric Administration (NOAA Fisheries[2]).

Species and critical habitats under the sole responsibility of NOAA Fisheries are **not** shown on this list. Please contact NOAA Fisheries for species under their jurisdiction.

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1. Species listed under the Endangered Species Act are threatened or endangered; IPaC also shows species that are candidates, or proposed, for listing. See the listing status page for more information. IPaC only shows species that are regulated by USFWS (see FAQ).

2. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

The following species are potentially affected by activities in this location:

Mammals

NAME	STATUS
Tricolored Bat Perimyotis subflavus Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

Birds

NAME	STATUS
Golden-cheeked Warbler Setophaga chrysoparia Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/33	Endangered
Piping Plover Charadrius melodus This species only needs to be considered if the following condition applies: • Wind Energy Projects There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/6039	Threatened
Red Knot Calidris canutus rufa Wherever found This species only needs to be considered if the following condition applies: • Wind Energy Projects There is **proposed** critical habitat for this species. https://ecos.fws.gov/ecp/species/1864	Threatened
Whooping Crane Grus americana There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/758	Endangered

Amphibians

NAME	STATUS
Georgetown Salamander *Eurycea naufragia* Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/7278	Threatened
Salado Salamander *Eurycea chisholmensis* Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/3411	Threatened

Clams

NAME	STATUS
False Spike *Fusconaia mitchelli* Wherever found There is **proposed** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/3963	Proposed Endangered

Insects

NAME	STATUS
Coffin Cave Mold Beetle *Batrisodes texanus* Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/6234	Endangered
Monarch Butterfly *Danaus plexippus* Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/9743	Candidate
Tooth Cave Ground Beetle *Rhadine persephone* Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5625	Endangered

Arachnids

NAME	STATUS
Bone Cave Harvestman *Texella reyesi* Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/5306	Endangered
Tooth Cave Spider *Tayshaneta myopica* Wherever found No critical habitat has been designated for this species. https://ecos.fws.gov/ecp/species/2360	Endangered

Flowering Plants

NAME	STATUS
Bracted Twistflower *Streptanthus bracteatus* Wherever found There is **final** critical habitat for this species. Your location does not overlap the critical habitat. https://ecos.fws.gov/ecp/species/2856	Threatened

Critical habitats

Potential effects to critical habitat(s) in this location must be analyzed along with the endangered species themselves.

There are no critical habitats at this location.

You are still required to determine if your project(s) may have effects on all above listed species.

Bald & Golden Eagles

Bald and golden eagles are protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act.

Any person or organization who plans or conducts activities that may result in impacts to bald or golden eagles, or their habitats, should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

Additional information can be found using the following links:

- Eagle Managment https://www.fws.gov/program/eagle-management
- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

There are bald and/or golden eagles in your project area.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list,click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Oct 15 to Jul 31

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.
3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

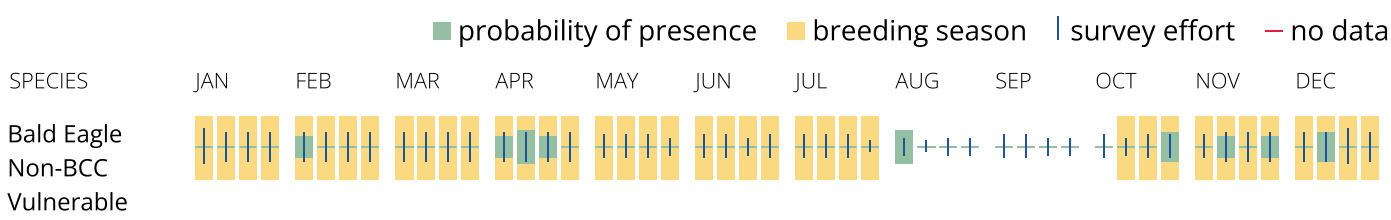
Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.



What does IPaC use to generate the potential presence of bald and golden eagles in my specified location?

The potential for eagle presence is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply). To see a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs of bald and golden eagles in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur. Please contact your local Fish and Wildlife Service Field Office if you have questions.

Migratory birds

Certain birds are protected under the Migratory Bird Treaty Act[1] and the Bald and Golden Eagle Protection Act[2].

Any person or organization who plans or conducts activities that may result in impacts to migratory birds, eagles, and their habitats should follow appropriate regulations and consider implementing appropriate conservation measures, as described below.

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1. The Migratory Birds Treaty Act of 1918.
2. The Bald and Golden Eagle Protection Act of 1940.

Additional information can be found using the following links:

- Birds of Conservation Concern https://www.fws.gov/program/migratory-birds/species

- Measures for avoiding and minimizing impacts to birds https://www.fws.gov/library/collections/avoiding-and-minimizing-incidental-take-migratory-birds
- Nationwide conservation measures for birds https://www.fws.gov/sites/default/files/documents/nationwide-standard-conservation-measures.pdf

The birds listed below are birds of particular concern either because they occur on the USFWS Birds of Conservation Concern (BCC) list or warrant special attention in your project location. To learn more about the levels of concern for birds on your list and how this list is generated, see the FAQ below. This is not a list of every bird you may find in this location, nor a guarantee that every bird on this list will be found in your project area. To see exact locations of where birders and the general public have sighted birds in and around your project area, visit the E-bird data mapping tool (Tip: enter your location, desired date range and a species on your list). For projects that occur off the Atlantic Coast, additional maps and models detailing the relative occurrence and abundance of bird species on your list are available. Links to additional information about Atlantic Coast birds, and other important information about your migratory bird list, including how to properly interpret and use your migratory bird report, can be found below.

For guidance on when to schedule activities or implement avoidance and minimization measures to reduce impacts to migratory birds on your list, click on the PROBABILITY OF PRESENCE SUMMARY at the top of your list to see when these birds are most likely to be present and breeding in your project area.

NAME	BREEDING SEASON
Bald Eagle Haliaeetus leucocephalus This is not a Bird of Conservation Concern (BCC) in this area, but warrants attention because of the Eagle Act or for potential susceptibilities in offshore areas from certain types of development or activities.	Breeds Oct 15 to Jul 31
Black-capped Vireo Vireo atricapilla This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/5716	Breeds Apr 1 to Sep 15
Chestnut-collared Longspur Calcarius ornatus This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds elsewhere
Chimney Swift Chaetura pelagica This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska.	Breeds Mar 15 to Aug 25

Eastern Meadowlark Sturnella magna This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Apr 25 to Aug 31
Field Sparrow Spizella pusilla This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Mar 1 to Aug 15
Lesser Yellowlegs Tringa flavipes This is a Bird of Conservation Concern (BCC) throughout its range in the continental USA and Alaska. https://ecos.fws.gov/ecp/species/9679	Breeds elsewhere
Painted Bunting Passerina ciris This is a Bird of Conservation Concern (BCC) only in particular Bird Conservation Regions (BCRs) in the continental USA	Breeds Apr 25 to Aug 15

Probability of Presence Summary

The graphs below provide our best understanding of when birds of concern are most likely to be present in your project area. This information can be used to tailor and schedule your project activities to avoid or minimize impacts to birds. Please make sure you read and understand the FAQ "Proper Interpretation and Use of Your Migratory Bird Report" before using or attempting to interpret this report.

Probability of Presence (■)

Each green bar represents the bird's relative probability of presence in the 10km grid cell(s) your project overlaps during a particular week of the year. (A year is represented as 12 4-week months.) A taller bar indicates a higher probability of species presence. The survey effort (see below) can be used to establish a level of confidence in the presence score. One can have higher confidence in the presence score if the corresponding survey effort is also high.

How is the probability of presence score calculated? The calculation is done in three steps:

1. The probability of presence for each week is calculated as the number of survey events in the week where the species was detected divided by the total number of survey events for that week. For example, if in week 12 there were 20 survey events and the Spotted Towhee was found in 5 of them, the probability of presence of the Spotted Towhee in week 12 is 0.25.
2. To properly present the pattern of presence across the year, the relative probability of presence is calculated. This is the probability of presence divided by the maximum probability of presence across all weeks. For example, imagine the probability of

presence in week 20 for the Spotted Towhee is 0.05, and that the probability of presence at week 12 (0.25) is the maximum of any week of the year. The relative probability of presence on week 12 is 0.25/0.25 = 1; at week 20 it is 0.05/0.25 = 0.2.

3. The relative probability of presence calculated in the previous step undergoes a statistical conversion so that all possible values fall between 0 and 10, inclusive. This is the probability of presence score.

To see a bar's probability of presence score, simply hover your mouse cursor over the bar.

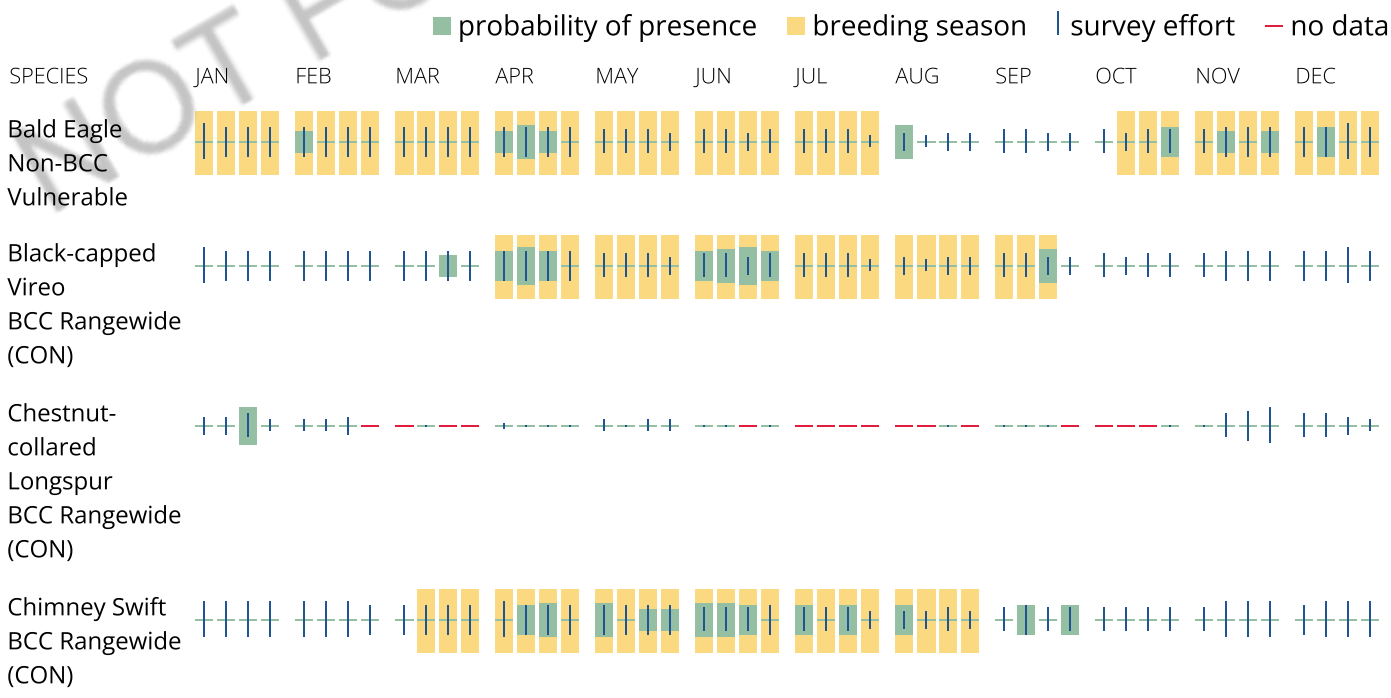
Breeding Season (▪)
Yellow bars denote a very liberal estimate of the time-frame inside which the bird breeds across its entire range. If there are no yellow bars shown for a bird, it does not breed in your project area.

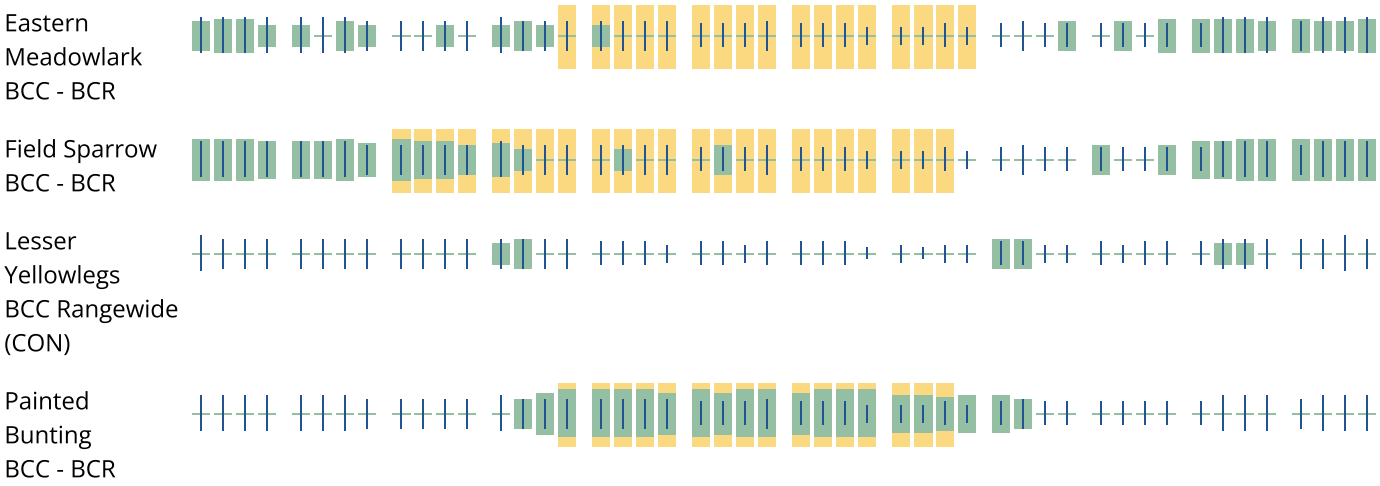
Survey Effort (|)
Vertical black lines superimposed on probability of presence bars indicate the number of surveys performed for that species in the 10km grid cell(s) your project area overlaps. The number of surveys is expressed as a range, for example, 33 to 64 surveys.

To see a bar's survey effort range, simply hover your mouse cursor over the bar.

No Data (–)
A week is marked as having no data if there were no survey events for that week.

Survey Timeframe
Surveys from only the last 10 years are used in order to ensure delivery of currently relevant information. The exception to this is areas off the Atlantic coast, where bird returns are based on all years of available data, since data in these areas is currently much more sparse.





Tell me more about conservation measures I can implement to avoid or minimize impacts to migratory birds.

Nationwide Conservation Measures describes measures that can help avoid and minimize impacts to all birds at any location year round. Implementation of these measures is particularly important when birds are most likely to occur in the project area. When birds may be breeding in the area, identifying the locations of any active nests and avoiding their destruction is a very helpful impact minimization measure. To see when birds are most likely to occur and be breeding in your project area, view the Probability of Presence Summary. Additional measures or permits may be advisable depending on the type of activity you are conducting and the type of infrastructure or bird species present on your project site.

What does IPaC use to generate the list of migratory birds that potentially occur in my specified location?

The Migratory Bird Resource List is comprised of USFWS Birds of Conservation Concern (BCC) and other species that may warrant special attention in your project location.

The migratory bird list generated for your project is derived from data provided by the Avian Knowledge Network (AKN). The AKN data is based on a growing collection of survey, banding, and citizen science datasets and is queried and filtered to return a list of those birds reported as occurring in the 10km grid cell(s) which your project intersects, and that have been identified as warranting special attention because they are a BCC species in that area, an eagle (Eagle Act requirements may apply), or a species that has a particular vulnerability to offshore activities or development.

Again, the Migratory Bird Resource list includes only a subset of birds that may occur in your project area. It is not representative of all birds that may occur in your project area. To get a list of all birds potentially present in your project area, please visit the Rapid Avian Information Locator (RAIL) Tool.

What does IPaC use to generate the probability of presence graphs for the migratory birds potentially occurring in my specified location?

The probability of presence graphs associated with your migratory bird list are based on data provided by the Avian Knowledge Network (AKN). This data is derived from a growing collection of survey, banding, and citizen science datasets.

Probability of presence data is continuously being updated as new and better information becomes available. To learn more about how the probability of presence graphs are produced and how to interpret them, go the Probability of Presence Summary and then click on the "Tell me about these graphs" link.

How do I know if a bird is breeding, wintering or migrating in my area?

To see what part of a particular bird's range your project area falls within (i.e. breeding, wintering, migrating or year-round), you may query your location using the RAIL Tool and look at the range maps provided for birds in your area at the bottom of the profiles provided for each bird in your results. If a bird on your migratory bird species list has a breeding season associated with it, if that bird does occur in your project area, there may be nests present at some point within the timeframe specified. If "Breeds elsewhere" is indicated, then the bird likely does not breed in your project area.

What are the levels of concern for migratory birds?

Migratory birds delivered through IPaC fall into the following distinct categories of concern:

1. "BCC Rangewide" birds are Birds of Conservation Concern (BCC) that are of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands);
2. "BCC - BCR" birds are BCCs that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; and
3. "Non-BCC - Vulnerable" birds are not BCC species in your project area, but appear on your list either because of the Eagle Act requirements (for eagles) or (for non-eagles) potential susceptibilities in offshore areas from certain types of development or activities (e.g. offshore energy development or longline fishing).

Although it is important to try to avoid and minimize impacts to all birds, efforts should be made, in particular, to avoid and minimize impacts to the birds on this list, especially eagles and BCC species of rangewide concern. For more information on conservation measures you can implement to help avoid and minimize migratory bird impacts and requirements for eagles, please see the FAQs for these topics.

Details about birds that are potentially affected by offshore projects

For additional details about the relative occurrence and abundance of both individual bird species and groups of bird species within your project area off the Atlantic Coast, please visit the Northeast Ocean Data Portal. The Portal also offers data and information about other taxa besides birds that may be helpful to you in your project review. Alternately, you may download the bird model results files underlying the portal maps through the NOAA NCCOS Integrative Statistical Modeling and Predictive Mapping of Marine Bird Distributions and Abundance on the Atlantic Outer Continental Shelf project webpage.

Bird tracking data can also provide additional details about occurrence and habitat use throughout the year, including migration. Models relying on survey data may not include this information. For additional information on marine bird tracking data, see the Diving Bird Study and the nanotag studies or contact Caleb Spiegel or Pam Loring.

What if I have eagles on my list?

If your project has the potential to disturb or kill eagles, you may need to obtain a permit to avoid violating the Eagle Act should such impacts occur.

Proper Interpretation and Use of Your Migratory Bird Report

The migratory bird list generated is not a list of all birds in your project area, only a subset of birds of priority concern. To learn more about how your list is generated, and see options for identifying what other birds may be in your project area, please see the FAQ "What does IPaC use to generate the migratory birds potentially occurring in my specified location". Please be aware this report provides the "probability of presence" of birds within the 10 km grid cell(s) that overlap your project; not your exact project footprint. On the graphs provided, please also look carefully at the survey effort (indicated by the black vertical bar) and for the existence of the "no data" indicator (a red horizontal bar). A high survey effort is the key component. If the survey effort is high, then the probability of presence score can be viewed as more dependable. In contrast, a low survey effort bar or no data bar means a lack of data and, therefore, a lack of certainty about presence of the species. This list is not perfect; it is simply a starting point for identifying what birds of concern have the potential to be in your project area, when they might be there, and if they might be breeding (which means nests might be present). The list helps you know what to look for to confirm presence, and helps guide you in knowing when to implement conservation measures to avoid or minimize potential impacts from your project activities, should presence be confirmed. To learn more about conservation measures, visit the FAQ "Tell me about conservation measures I can implement to avoid or minimize impacts to migratory birds" at the bottom of your migratory bird trust resources page.

Facilities

National Wildlife Refuge lands

Any activity proposed on lands managed by the National Wildlife Refuge system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

There are no refuge lands at this location.

Fish hatcheries

There are no fish hatcheries at this location.

Wetlands in the National Wetlands Inventory (NWI)

Impacts to NWI wetlands and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local U.S. Army Corps of Engineers District.

Wetland information is not available at this time

This can happen when the National Wetlands Inventory (NWI) map service is unavailable, or for very large projects that intersect many wetland areas. Try again, or visit the NWI map to view wetlands at this location.

Data limitations

The Service's objective of mapping wetlands and deepwater habitats is to produce reconnaissance level information on the location, type and size of these resources. The maps are prepared from the analysis of high altitude imagery. Wetlands are identified based on vegetation, visible hydrology and geography. A margin of error is inherent in the use of imagery; thus, detailed on-the-ground inspection of any particular site may result in revision of the wetland boundaries or classification established through image analysis.

The accuracy of image interpretation depends on the quality of the imagery, the experience of the image analysts, the amount and quality of the collateral data and the amount of ground truth verification work conducted. Metadata should be consulted to determine the date of the source imagery used and any mapping problems.

Wetlands or other mapped features may have changed since the date of the imagery or field work. There may be occasional differences in polygon boundaries or classifications between the information depicted on the map and the actual conditions on site.

Data exclusions

Certain wetland habitats are excluded from the National mapping program because of the limitations of aerial imagery as the primary data source used to detect wetlands. These habitats include seagrasses or submerged aquatic vegetation that are found in the intertidal and subtidal zones of estuaries and nearshore coastal waters. Some deepwater reef communities (coral or tuberficid worm reefs) have also been excluded from the inventory. These habitats, because of their depth, go undetected by aerial imagery.

Data precautions

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define the limits of proprietary jurisdiction of any Federal, state, or local government or to establish the geographical scope of the regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, state, or local agencies concerning specified agency regulatory programs and proprietary jurisdictions that may affect such activities.

APPENDIX B

Photograph Log

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Photograph B-1. Representative photograph of residential development, view facing west.

Photograph B-2. Representative photograph rural development, view facing southeast.

Photograph B-3. Representative photograph of rangeland vegetation community.

Photograph B-4. Representative photograph of rangeland vegetation community.

Photograph B-5. Representative photograph of mixed forest community along a riparian corridor.

Photograph B-6. Photograph of ephemeral stream, view facing southwest.

Photograph B-7. Photograph of an upland pond, view facing east.

County Road 255 Roadway Improvement Project, Williamson County, Texas

TEXAS ANTIQUITIES PERMIT NO. 30858

JANUARY 2024

PREPARED FOR

HNTB Corporation

PREPARED BY

SWCA Environmental Consultants

COUNTY ROAD 255 ROADWAY IMPROVEMENT PROJECT, WILLIAMSON COUNTY, TEXAS

Prepared for

HNTB Corporation
101 East Old Settlers Boulevard, Suite 100
Round Rock, Texas 78664

Prepared by

Abigail Riggle, B.A., Caila Giglio, B.A., and Mitch Ford, M.S.

Principal Investigator

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SWCA Project No. 61059.02

Texas Antiquities Permit No. 30858

SWCA Cultural Resources Report No. 23-140

January 2024

ABSTRACT

On behalf of HNTB Corporation (HNTB) and Williamson County, SWCA Environmental Consultants (SWCA) conducted a cultural resources investigation for the County Road 255 Roadway Improvement Project (project) located in the City of Georgetown in Williamson County, Texas. This project consists of the expansion of a two-lane rural asphalt road to a four-lane divided highway and would extend the existing road 0.5-mile (0.8-kilometers [km]) north-south to connect with Ronald Reagan Boulevard at the southern terminus of the project area. The current project area is approximately 2.9 miles (4.7 km) in length and encompasses 55.5 acres (22.5 hectares [ha]). The project is proposed to occur on an easement granted to Williamson County, a political subdivision of the State of Texas, and as such, the project will require review under the Antiquities Code of Texas (ACT). Therefore, all work for the project was conducted under Texas Antiquities Permit No. 30858, issued to John D. Lowe, M.A., RPA, and complied with the requirements of the ACT. Based on the current project understanding, no federal regulatory compliance is anticipated, therefore Section 106 of the National Historic Preservation Act of 1966 is not applicable at this time.

A background literature and records review indicated that two previous cultural resources surveys intersect the proposed project area. Three previously recorded archaeological sites and 27 potential historic-age structures are located within 0.6 mile (1.0 km) of the project area, none of which are located within the project area.

On February 10, April 20–21, May 5, and June 6, 2023, SWCA conducted an intensive pedestrian survey supplemented by shovel test excavations of the entire 55.5-acre (22.5-ha) project area, excluding several small areas where shovel testing was prohibited due to intensive disturbance, or lack of right of entry. SWCA excavated a total of 92 shovel tests within the project area, all of which were negative for buried cultural deposits. One new archaeological site 41WM1510, was recorded in the project area. This site consists of an isolated historic-aged ca. 1925 well feature with no associated cultural materials.

In August 2023, SWCA completed supplementary archival research for site 41WM1510 at the request of the THC (THC Tracking #202311692). A site history detailing the chronology and deed research was added (see **Site History**). A chain of title was also developed for the Williamson County Central Appraisal District (CAD) parcel R408127 historically associated with the site. Archival research confirmed the site does not possess significance and does not retain sufficient integrity to be eligible for the National Register of Historic Places (NRHP). Site 41WM1510 is recommended not eligible as a State Antiquities Landmark (SAL) due to lack of buried deposits, associated cultural materials, and temporally diagnostic elements (see **Eligibility and Management Recommendations**). SWCA requests concurrence from the THC on this recommendation.

In accordance with the ACT, SWCA made a reasonable and good faith effort to identify cultural resources within the project area. No properties were identified within the project area that may meet the criteria for designation as a SAL according to 13 Texas Administrative Code 26.10; therefore, SWCA recommends that no additional cultural resources investigations are warranted within the project area, as currently defined. All records and photographs generated during fieldwork will be curated at the University of Texas at San Antonio Center for Archaeological Research, per the requirements of the ACT.

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INTRODUCTION

On behalf of HNTB Corporation (HNTB) and Williamson County, SWCA Environmental Consultants (SWCA) conducted a cultural resources investigation for the County Road (CR) 255 Roadway Improvement Project (project) located in the City of Georgetown in Williamson County, Texas (Figure 1). The proposed project area is approximately 2.9 miles (4.7 kilometers [km]) in length and encompasses 55.5 acres (22.5 hectares [ha]) (Figure 2). Because the project occurs on an easement granted to Williamson County, a political subdivision of the State of Texas, it is subject to review and approval by the Texas Historical Commission (THC) under the Antiquities Code of Texas (ACT). No federal funding or involvement is anticipated at this time; therefore Section 106 of the National Historic Preservation Act (NHPA) is not applicable to this project.

Archaeological investigations were performed to comply with the ACT under Texas Antiquities Permit No. 30858. All investigations were conducted in accordance with THC and Council of Texas Archeologists (CTA) standards. SWCA conducted an intensive pedestrian survey augmented with shovel testing of the 55.5 acres (22.5-ha) project area. The goals of the survey were to: 1) identify prehistoric and historic archaeological sites in the project areas; 2) establish vertical and horizontal site boundaries, as appropriate, regarding the project areas; and 3) evaluate the significance and eligibility of any site according to eligibility criteria for the National Register of Historic Places (NRHP) and as a State Antiquities Landmark (SAL).

Project Personnel

John D. Lowe, M.A., RPA, served as Principal Investigator and Project Manager for the duration of the project, overseeing overall logistics and organization, as well as managing reporting and agency consultation. Pedestrian surveys were conducted by three crews of archaeologists over several days of fieldwork spanning from February through June of 2023. Fieldwork was conducted by Kyle Goles and Lori Decker on February 10, 2023, Benjamin Morton and Angela Yates on April 20–21, 2023, Caila Giglio and Brittany Bailey on May 5, 2023, and Caila Giglio on June 6, 2023. Abigail Riggle, B.A. and Caila Giglio B.A. co-authored the report, while Jayme Fontenot and Robert Fritz produced all field and report maps for the project. Neisa Smith provided technical editing and document preparation. Architectural historian Mitch Ford, M.S. completed archival research, developed a site history narrative for the report, and contributed to NRHP eligibility recommendations for the surveyed site (41WM1510).

Project Description

The CR 255 Roadway Improvement Project is located within the city limits of Georgetown and extends from CR 254 at the northern terminus to Ronald Reagan Boulevard at the southern terminus, for a length of approximately 2.9 miles (4.7 km) and a total footprint encompassing 55.5 acres (22.5 ha). The project consists of the expansion of a two-lane asphalt road to a four-lane divided highway and an extension of the pre-existing roadway 0.5 mile (0.8 km) south to connect with Ronald Reagan Boulevard. The width of the proposed right-of-way (ROW) is not expected to exceed 180 feet (54.9 meters [m]), and the construction impacts are mostly at or above ground surface, with limited areas where impacts will generally not exceed 5.0 feet (1.5 m) in depth. The project is proposed to occur on an easement acquired by Williamson County, a political subdivision of the State of Texas, and as such, the project will require review under the ACT. Aerial imagery shows the project area is currently comprised of agricultural fields and rural residential properties, and the existing CR 255 roadway and ROW occupy most of the project area. The project area is depicted on the *Florence and Leander NE Texas,* U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle maps (USGS 2023a) (see Figures 1 and 2).

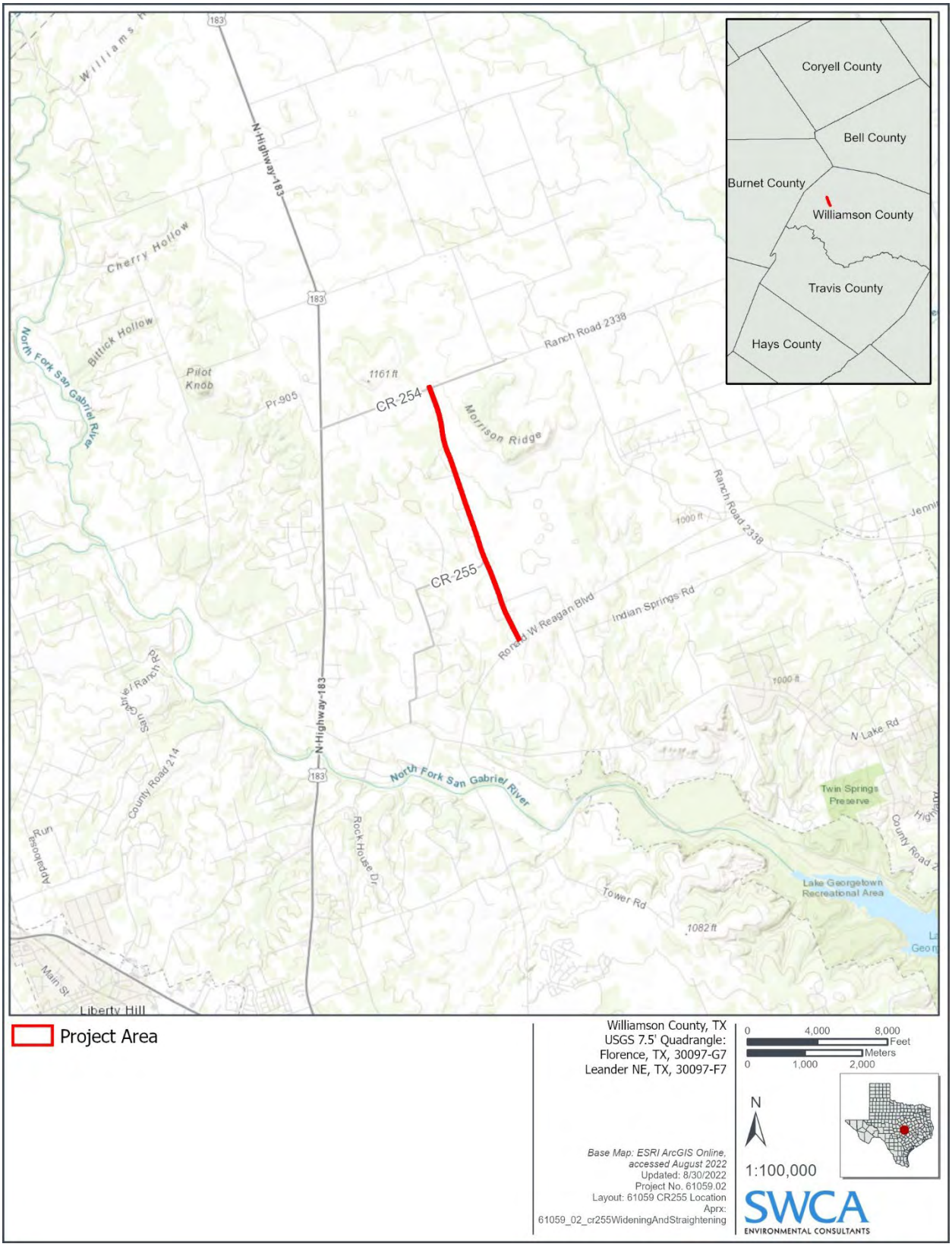

Figure 1. Project area map.

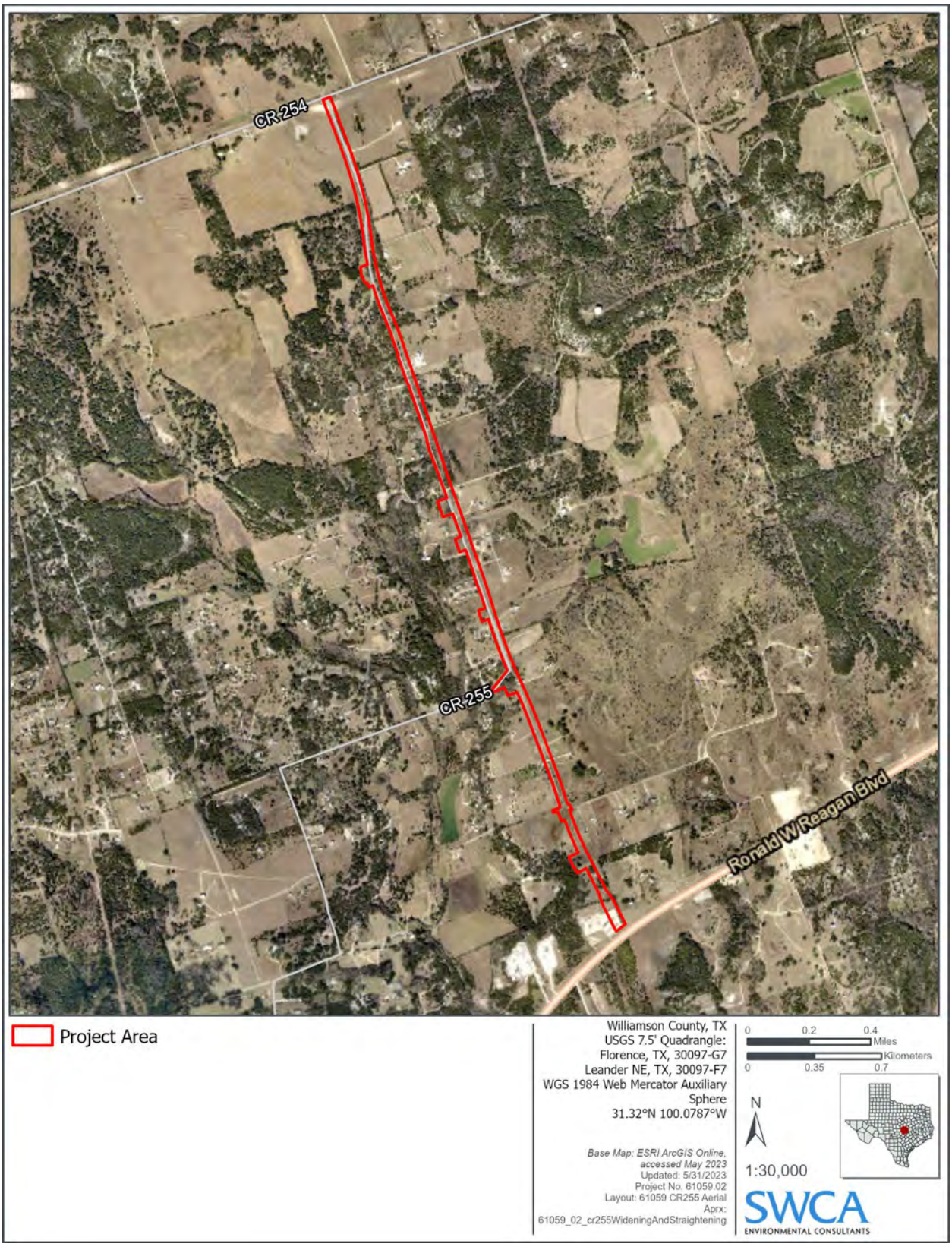

Figure 2. Project area aerial map.

ENVIRONMENTAL SETTING

The project area is situated within the Edwards Plateau ecoregion (Texas Parks and Wildlife Department 2023). The Edwards Plateau, also known as the Texas Hill Country, is formed by stony hills and steep canyons carved out by many springs that host an abundance of faunal and floral species. Soils of the Edwards Plateau are generally shallow, underlain by limestone formations honeycombed with thousands of karst geological formations, including large underground lakes known as aquifers. A healthy mixture of open grasslands and wooded savannah makes the Texas Hill Country ideal for the ranching industry.

Geology and Soils

The recorded surface geology within the project area predominantly consists of Cretaceous-age marl formations, including Cedar Park, Bee Cave Marl, Keys Valley Marl, and the Upper Glen Rose Limestone formation (Figure 3) (Barnes 1974; USGS 2023b). These formations typically consist of soft, white marl, an unconsolidated sedimentary rock or soil consisting of clay and lime, and often contain mega fossils. Five soil types were identified as underlying the proposed project area (Natural Resources Conservation Service [NRCS] 2023) (Table 1; see Figure 3).

Five soil types were identified as underlying the proposed project area (NRCS 2023) (see Table 1; Figure 4). None of these soils occupy a majority of the project area.

Table 1. Project Area Soils

Symbol	Soil Name	Acreage (Hectares)	Percentage of Project Area
FaB	Fairlie clay, 1 to 2 percent slopes	19.1 (7.7)	34.4
DoC	Doss silty clay, moist, 1 to 5 percent slopes	13.2 (5.3)	23.8
EaD	Eckrant cobbly clay, 1 to 8 percent slopes	12.0 (4.8)	21.6
DnB	Denton silty clay, 1 to 3 percent slopes	8.5 (3.4)	15.2
BktD	Brackett association, 1 to 8 percent slopes	2.7 (1.1)	5.0
	Total	**55.5 (22.3)**	**100%**

Source: USGS (2023b).

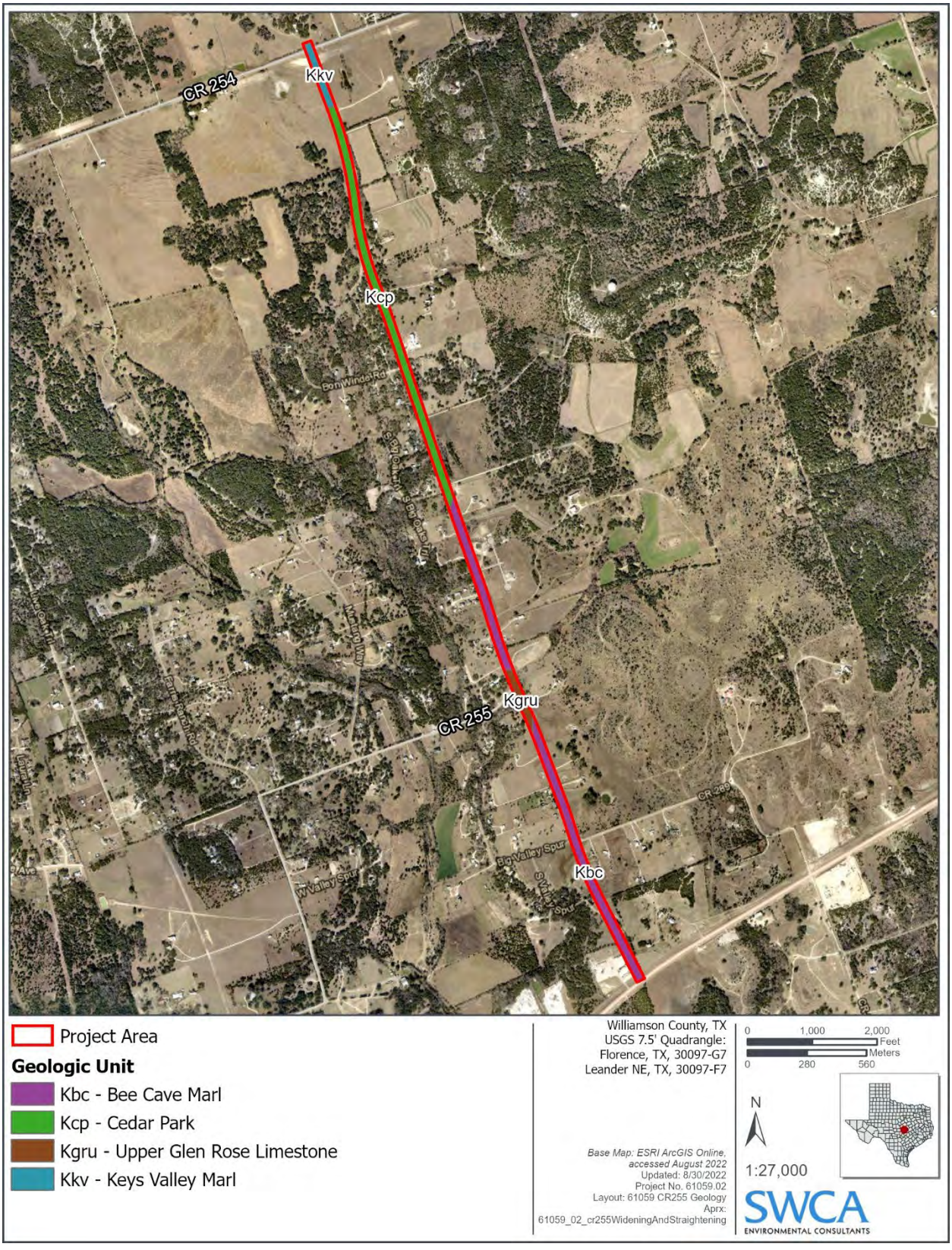

Figure 3. Project area geology map.

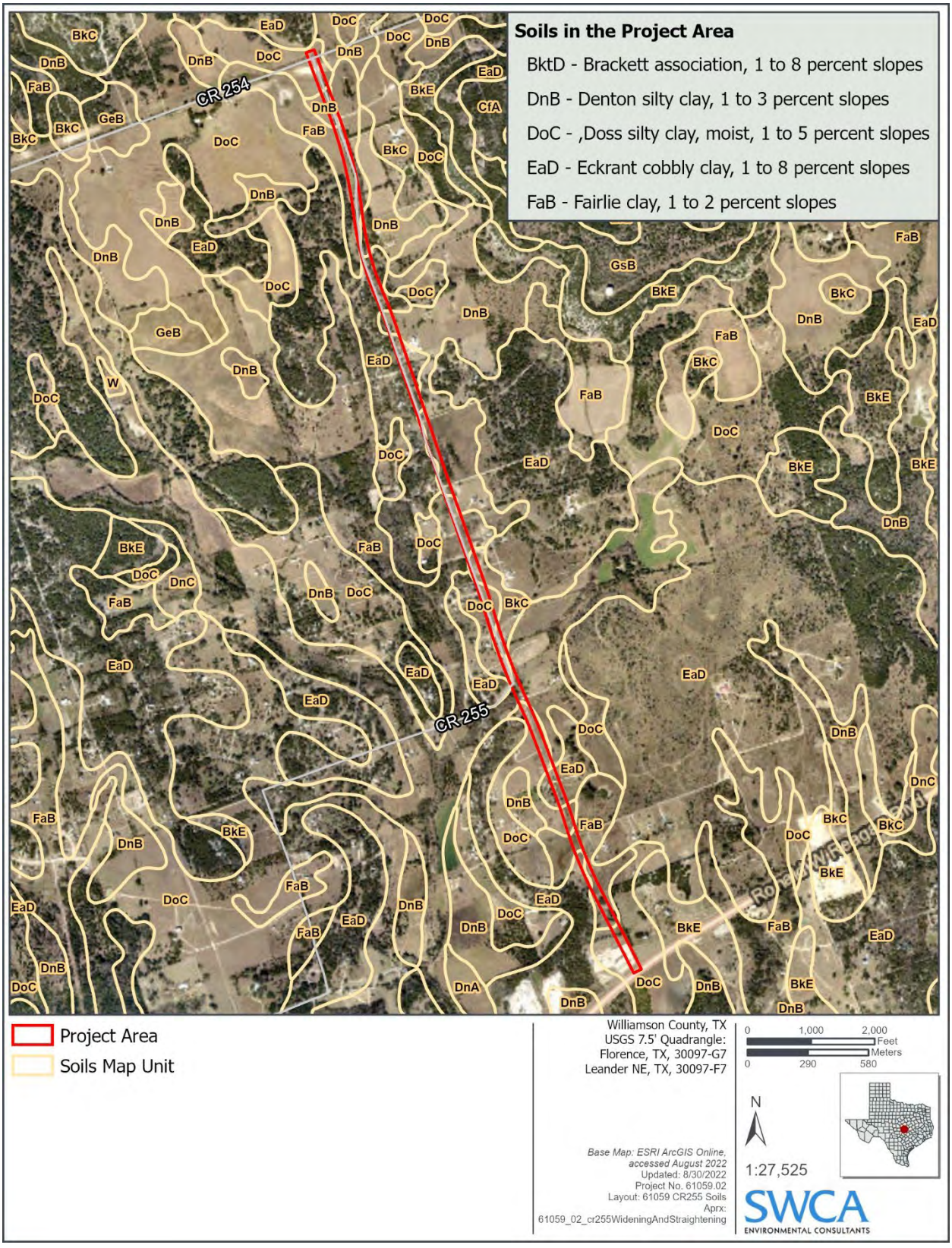

Figure 4. Project area soils map.

CULTURAL SETTING

Williamson County is on the eastern edge of the Edwards Plateau near the eastern margins of the Central Texas archaeological region, as defined by Collins (2004), Prewitt (1981, 1985), Suhm (1960), and other researchers. The Central Texas archaeological region is an artificial construct, and its boundaries are somewhat arbitrary (Collins 2004:102). As Collins (2004:103) points out, it is unlikely that any group in the past 11,000 years had their key resources, geographic range, or political sphere conform to these boundaries. It is worth noting that Perttula (2004) extends the boundaries of Central Texas much farther east than many researchers. Nevertheless, situated as it is on the Edwards Plateau's margins, the sites identified within the project area share many traits in common with "classic" Central Texas sites (i.e., those above the Balcones Escarpment).

As noted above, the project area is near the eastern edge of the Central Texas archaeological region. Its occupants likely ranged west, deeper into the Edwards Plateau, and east onto the rolling Blackland Prairie. Inhabitants of the area, therefore, were influenced by cultural developments taking place in Central Texas and in the east.

Regardless of the intensity or nature of influences from off the plateau, developed chronologies from Central Texas are relied upon to summarize the cultural history of the area. Following standard chronological divisions, the prehistoric cultural sequence is divided into three periods: Paleoindian, Archaic, and Late Prehistoric. The Archaic period is commonly subdivided into three subperiods (Early, Middle, and Late), although, as this report addresses, various labels have been applied to the last few centuries of the Archaic.

Paleoindian Period

The Paleoindian period, which includes the earliest known peoples in the area, began during the close of the Pleistocene. The presence of Paleoindian artifacts and sites, dating from about 11,500 to 8800 B.P., are not considered uncommon in Central Texas (Collins 2004). Two of the more important Paleoindian sites in Texas are near the project area: the Wilson-Leonard site (41WM235) on Brushy Creek in southern Williamson County and the Gault site (41BL323) in adjacent Bell County.

Diagnostic artifacts of the period include lanceolate-shaped and fluted projectile points such as Clovis, Folsom, and Plainview. These projectile points were hafted onto wooden spears and often used to hunt big game such as mammoth, mastodon, bison, camel, and horse (Black 1989; Bousman et al. 2004). Recent research has demonstrated that Paleoindian people relied on a more diverse subsistence base than previously thought, exploiting a variety of plants and small fauna in addition to the larger animals (Bousman et al. 2004). Paleoindian lifeways gradually transitioned to a more Archaic-style adaptation (increasing reliance on plants and smaller game, better-defined and smaller group territories, and regional diversification in projectile point styles) as the big game died off and the climate warmed following the end of the Pleistocene ice age (Bousman et al. 2004).

Archaic Period

As the Paleoindian period came to an end, humans began to harvest local floral and faunal resources more intensively. Material culture became more regionally diversified, and the use of burned rock middens and ovens became widespread. This period is known as the Archaic period and dates from approximately 8800 to 1200 B.P. in Central Texas (Collins 2004; Johnson and Goode 1994).

Early Archaic

The Early Archaic is commonly dated to ca. 8800 to 6000 B.P. (Collins 2004:119). Research suggests that Early Archaic people became increasingly reliant on local resources, and residential mobility decreased (Prewitt 1981:73; Suhm et al. 1954:18). Early Archaic populations utilized base camps for longer periods, perhaps seasonally, and hunted a diverse array of small (e.g., snakes, turtles, rodents, rabbits), medium (e.g., opossums and raccoons), and large (e.g., deer and antelope) game; fished local rivers; and cooked wild plant bulbs in earth ovens. It is likely that the reduction in residential mobility was related to a variety of factors, including diminished bison populations, population increase, tribal territoriality issues, and climatic change. By the start of the Early Archaic, well-established resident populations lived in every biogeographical region of Texas.

Collins (2004:120) and McKinney (1981) observe that a large number of Early Archaic sites are documented along the eastern and southern margins of the Edwards Plateau. They argue that if the current understanding of Early Archaic site distribution reflects prehistoric land use, then the Early Archaic was a time period when people were living in the better-watered parts of the Edwards Plateau. With very low population densities across the state at the beginning of the Archaic, it makes sense that the environmentally desirable zones, such as the well-watered ecotone along the margins of the Edwards Plateau, would be the first areas to have been more heavily settled.

During the Early Archaic, projectile points became more regionally diversified, and stemmed forms replaced the lanceolate points of the Paleoindian period. This technological shift may have been due, in part, to the development of a more localized, broad-based hunting and gathering economy that necessitated differing point types for different game (Johnson and Goode 1994; Story 1985). Early Archaic populations supplemented their hunting diet with a diverse assemblage of processed plant foods. This is most evident through the use of hot rock cooking technologies, which become commonplace at Early Archaic sites. Early Archaic burned rock features are most often small- to medium-sized hearths, with minimal evidence of reuse. However, at a few Early Archaic sites (e.g., Wilson-Leonard and Loeve), larger earth ovens have been documented (Collins et al. 1998; Prewitt 1982); these are believed to be the precursors to burned rock middens.

A burned rock midden is a large, dense feature of burned rocks and ash-stained soil that accumulates from use and reuse as a thermal cooking feature (Black et al. 1997; Mahoney et al. 2003; Suhm 1960). The number of burned rock middens increased throughout the Archaic period, and it seems clear that their technological roots lie in the first earth ovens of the Early Archaic (Black et al. 1997; Collins et al. 1998; Decker et al. 2000). Burned rock midden technology appears to have first developed in the eastern plateau around 8,500 to 8,000 years ago and gradually spread into the western plateau ca. 6,500 to 5,000 years ago (Decker et al. 2000:301). These large features vary greatly in size and form but share the common functional purpose of serving as an earth oven or similar cooking device (Black et al. 1997; Weir 1976).

Work completed on the Gatlin site, 41KR621, in southern Central Texas highlighted the complexity and diversity in the Early Archaic settlement system noted by previous researchers (Houk et al. 2008). As Johnson (1991:159) states, “people acquired different foods at different suitable places,” meaning that certain sites were visited repeatedly on a seasonal basis. Johnson (1991:160) speculated that people in the eastern part of Central Texas may not have had large base camps, instead traveling from site to site in small groups; the Gatlin site data for the Early Archaic period supports this hypothesis. In fact, based on a study conducted as part of the Gatlin site analysis, only the Wilson-Leonard site was classified as an Early Archaic base camp out of 16 well-documented Early Archaic components in Central Texas. The other sites all represent short-term, specialized activity sites (Houk et al. 2008).

Middle Archaic

The Middle Archaic is commonly dated to ca. 6000 to 4000 B.P. (Collins 2004:120). During the beginning of the Middle Archaic, from approximately 5750 to 5250 B.P., Johnson and Goode (1994:73) contend that a brief warm and dry period arose. Hudler (2000) also documents a major climatic shift towards warmer and drier conditions ca. 5300 B.P., followed by a very brief wet interval. Johnson and Goode (1994:73) also believe this dry period was followed by a short period of climatic amelioration between 5250 to 4600 B.P. with moderately wet and cool conditions.

The Middle Archaic is marked by a significant increase in archaeological sites on the Edwards Plateau. It is difficult to determine if this increase is due to a larger, denser population or an increase in residential mobility (Turpin 2004). In either case, there is abundant evidence that settlement and subsistence became more regionally specialized during this time. Burned rock hearths, scatters, and concentrations are common at Middle Archaic sites; however, none of these features is more pronounced than the burned rock midden, the use of which proliferated during the Middle Archaic (Black et al. 1997; Prewitt 1981; Shafer 1988). There is widespread evidence supporting an increased reliance on the processing of geophytes and succulent plant bulbs such as sotol, yucca, and lechuguilla in burned rock middens (Dering 1999). Three distinct types of burned rock middens documented during the Middle Archaic: 1) sheet middens, 2) dome middens, and 3) annular middens (Mahoney et al. 2003). Sheet middens are loose accumulations of displaced and mixed burned rocks, usually derived from several burned rock features. The rock displacement may be caused by natural or cultural processes, including erosion, flooding, feature maintenance, and/or reuse. Dome middens are round, dome-shaped accumulations of burned rock that can be several feet thick. Dome middens form through repeated feature use and maintenance, thus resulting in a massive, dense accumulation of burned rock. Annular middens (also called crescent, ring, or donut middens) are circular or semicircular-shaped accumulations of burned rock with a centralized depression. Like dome middens, they may be several feet thick.

Early Triangular dart points appear in the beginning of the Middle Archaic subperiod, around 5300 B.P. , at the Gatlin site (Houk et al. 2008). This unstemmed type co-occurs with Bell and Andice points, which are basally notched, stemmed point forms (Mahoney et al. 2003; Sorrow et al. 1967). Wyckoff's (1995) research suggests that Bell and Andice points (also known as Calf Creek points) are intrinsically linked to bison hunting. Their appearance at the beginning of the Middle Archaic is presumably related to the return of bison to the area ca. 5000 B.P. Nolan and La Jita points, which have square to rectangular stems with weak, rounded, or abrupt shoulders, appear in the Central Texas archaeological record ca. 4800 B.P. and persist into the beginning of the Late Archaic (Houk et al. 2008).

Late Archaic

The Late Archaic began around ca. 4000 B.P. and lasted until ca. 1200 B.P., ending when the bow and arrow were introduced into Central Texas (Collins 2004:121). Late Archaic sites are more numerous than earlier Archaic period sites (Black 1989; Collins 2004), and some researchers argue that population increased during the Late Archaic (Johnson and Goode 1994; Prewitt 1981; Weir 1976). Increasingly complex cultural manifestations are characterized in the Late Archaic archaeological record, and increased population size may have contributed to this complexity (Johnson and Goode 1994).

Territoriality issues may have also been more commonplace in the Late Archaic. This argument is somewhat supported by the development of more formal cemeteries in many areas of Texas (Hall 1981; Lukowski 1987; Taylor and Highley 1995). Burials from these cemeteries often contain grave goods such as marine shell ornaments (from the Texas coast), boatstones (from Arkansas), and corner tang knives (from the Edwards Plateau). The presence of these items ultimately suggests that plateau populations participated in some form of a trade system during the Late Archaic (Hall 1981).

Compared to previous subperiods, an extremely diverse assemblage of projectile point forms was utilized during the Late Archaic. Pedernales, Kinney, and Tortugas points appeared at the beginning of the period. Pedernales points have bifurcated stems and a narrow to broad, often leaf-shaped blade (Turner and Hester 1999). Montell, Lange, Marshall, Williams, Marcos, Castroville, and Shumla points appear slightly later and, for the most part, are all broad-bladed points that generally have expanding stems and prominent, barbed shoulders. Many of these early Late Archaic points were apparently used for bison hunting (Dibble and Lorrain 1968).

Hot rock cooking technologies developed in previous periods continued to be employed during the Late Archaic and burned rock middens are a very common Late Archaic site feature. Many of the burned rock middens that formed during the Middle Archaic continued to be used by Late Archaic peoples (Black et al. 1997).

The End of the Archaic and the Beginning of the Late Prehistoric

As Collins (2004:122) notes, "diverse and comparatively complex archaeological manifestations toward the end of the Late Archaic attest to the emergence of types of human conduct without precedent in Texas." Various labels, including Transitional Archaic (Johnson et al. 1962; Turner and Hester 1999), Terminal Archaic (Black 1989), and Late Archaic II (Johnson and Goode 1994), have been applied to the end of the Archaic period. While the names differ, these competing schemes generally begin after Marcos points appear in Central Texas, encompass the Fairland-Ensor-Frio point style intervals, and end with the Darl point type. The succeeding Late Prehistoric period began ca. 1200 B.P. with the introduction of the bow and arrow into Central Texas. The first widespread arrow point type was Scallorn, and it is commonly associated with the Austin phase/interval, or Late Prehistoric I (Collins 2004; Johnson and Goode 1994). Bone-tempered ceramics are also indicative of the Late Prehistoric period, specifically the Toyah phase/interval, as will subsequently be discussed.

By the early part of the Late Archaic period, Central Texas was occupied by broad-spectrum foragers specializing in the resources available within specific ranges or territories. Arnn (2007:274–275) argues that the stabilization of climatic patterns during the Late Archaic allowed area-specific cultural material to emerge throughout the region. For example, the intensification in plant processing, evidenced by increased accumulation of rock oven features and burned rock middens, suggests an increasing reliance on a resource that is essentially fixed on the landscape (Arnn 2007:277).

Late Archaic groups did not exist in isolation, and the eventual spread of most Late Archaic point styles, particularly the later style types, as well as exotic materials such as marine shell and perhaps religious ideas throughout the state, suggests their participating in a "vast web of social relations" (Arnn 2007:277). Decorated bone ornaments, Gulf whelk shells, and atlatl weights of exotic stone are among the new types of materials to appear during the Late Archaic (Johnson and Goode 1994). Exotic materials are recovered from domestic contexts and burials, suggesting they were a pervasive component in the life of Late Archaic peoples (Arnn 2007:277).

The end of the Archaic, then, was an interesting time in Central Texas, one that is difficult to understand. Arnn (2007:278–279) argues "that the Late Archaic Period may be viewed as a precursor (in terms of technology, subsistence, and settlement practices) to similar technologies and practices observed during the Late Prehistoric." Framing the research within that context, one of continuity rather than change, may be a useful approach for investigating the transition from the Archaic to the Late Prehistoric. As is discussed elsewhere, Johnson and Goode (1994:40) characterize the termination of the Late Archaic as

the most difficult and complex of all the period boundaries, noting that it may have ended either 400 years later with the Toyah phase or even 400 years earlier, when small dart point types like Darl appeared.

As noted above, the end of the Archaic period is chronologically marked by the appearance of a variety of small, side- and corner-notched dart point types, including Fairland, Frio, Ensor, Ellis, and Edgewood (Turner and Hester 1999). Johnson and Goode (1994:37) point to social interaction with the eastern United States as a possible source for these new point types. These projectiles may have been part of a package of new cultural items related to the spreading of Eastern religious ideas as far as the Edwards Plateau—these included the exotic items noted above, such as marine shells and atlatl weights (Johnson and Goode 1994:37).

An important cultural trait of the Late Archaic is the appearance of formal cemeteries off the Edwards Plateau—on the plateau, sinkholes continued to be used as repositories for the dead. Cemeteries, where many of the previously mentioned exotic items have been found, suggest that groups were tied to specific territories. Cemeteries were more common in the early Late Prehistoric, and many individuals buried in them show clear evidence of violent deaths (Johnson and Goode 1994:40). Prewitt (1982:Table 4) provides an exhaustive, if somewhat dated, list of cemeteries and burials in eastern Central Texas, and notes many incidences of Scallorn arrow points either with a skeleton or clearly imbedded in the skeleton. The Loeve-Fox site (41WM230) contained an Austin phase cemetery where warfare was "suggested by the direct association of Scallorn arrow points with fatal positions in several skeletons" (Prewitt 1982:12).

Late Prehistoric Period

Introduction of the bow and arrow and, later, ceramics into Central Texas, marked the Late Prehistoric period. Population densities dropped considerably from their Late Archaic peak (Prewitt 1985:217). Subsistence strategies did not differ greatly from the preceding period, although bison again became an important economic resource during the late part of the Late Prehistoric period (Prewitt 1981:74). Use of rock and earth ovens for plant food processing and the subsequent development of burned rock middens continued throughout the Late Prehistoric period (Black et al. 1997; Kleinbach et al. 1995:795). Horticulture came into play very late in the region but was of minor importance to overall subsistence strategies (Collins 2004:122).

In Central Texas, the Late Prehistoric period generally is associated with the Austin and Toyah phases (Jelks 1962; Prewitt 1981:82–84). Austin and Toyah phase horizon markers and Scallorn-Edwards and Perdiz arrow points, respectively, are distributed across most of the state. Violence and conflict often marked the introduction of Scallorn and Edwards arrow points into Central Texas—many excavated burials contain these point tips in contexts indicating they were the cause of death (Prewitt 1981:83). Subsistence strategies and technologies, other than arrow points, did not change much from the preceding Late Archaic period. Prewitt's (1981) use of the term "Neoarchaic" recognizes this continuity. In fact, Johnson and Goode (1994:39–40) and Collins (2004:122) state that the break between the Austin and Toyah phases could easily and appropriately represent the break between the Late Archaic and the Late Prehistoric.

Historic Period

By 1630, the Austin area was inhabited by the Jumano, Tonkawa, Lipan Apache, and Comanche during the beginning of the Spanish colonial period in Texas.[1] The Spanish established three missions at Barton Springs in 1730 (Webb 1952). During the 1740s, four missions were established northwest of Austin in

[1] See Newcomb (2002) for detailed discussions of Central Texas Native American groups.

Milam County, but no missions were established in Williamson County (Plocheck 2006). The lack of missions contributed to an endurance of Indigenous people in Greater Austin into the 1860s, although Anglo migration during the nineteenth century pressured Indigenous groups in the region throughout the nineteenth century.

After Mexico gained independence from Spain in 1821, the Mexican government issued land grants to attract Anglos from the United States to populate the northern Mexican state of Coahuila y Tejas. At this time, Virginia native Stephen Fuller Austin (1793–1836) established a colony along the lower Brazos and Colorado Rivers (Barker 2021; Webb 1952). Austin's colony, known as the "Old Three Hundred Colony," was home to 300 families (Barker 2021). The Central Texas colony was successful in advancing European settlement further west. Prior to the Texas Revolution, most of the settlement was south of Bastrop and the old La Bahía Road (Webb 1952).

During the Texas Revolution (1835–1836), the area continued to be inhabited by Tonkawa, Lipan Apache, and Comanche (Barker et al. 2021). After the war, new conflicts with the Indigenous groups ensued between the growing population of Texan settlers. One of these instances is the 1839 Battle of Brushy Creek between the Comanche and the Texas Rangers occurring near the town of Taylor. This battle resulted in numerous deaths and contributed in the displacement of Indigenous people in the area (Webb 1952).

In 1839, the town of Waterloo, south of present-day Williamson County on the Colorado River, was renamed Austin in honor of Stephen F. Austin, and was designated the capital of the Republic of Texas (Barker 2021; Webb 1952). Chartered in 1848**,** Williamson County was named in honor of Robert M. Williamson, a local leader and veteran of the decisive Battle of San Jacinto (Webb 1952).

During the mid-nineteenth century, Williamson County grew in population and economic prosperity largely because of agricultural production. Enslaved labor of people of color supported agricultural operations. In 1850, the enslaved population in the county totaled 127 (Campbell 1989; 266). By 1864, less than 15 years later, the number of enslaved people had multiplied almost ten-fold, with an enslaved population of 1,074 (Campbell 1989:266).

The county struggled during the Reconstruction era, but cattle drives along the Chisolm Trail and the advent of railroads contributed to economic growth (Odintz 2021). Like much of Texas, cattle ranching became a primary agricultural operation. Texas University, later named Southwestern University, was founded in Georgetown in 1873. This was the first successful Methodist College in Texas, and it brought several new facets to the county population. Following World War II, Williamson County experienced an increase in population growth. Due to its proximity to Austin, the county quickly became home to numerous large high-tech industries towards the end of the twentieth century. Suburban growth continues throughout the southern half of the county, whereas the northern half continues to rely on agribusiness.

BACKGROUND REVIEW AND SURVEY METHODS

Background Review

An SWCA archaeologist researched the Texas Archeological Sites Atlas (Atlas), a restricted, online database maintained by the THC and the Texas Archeological Research Laboratory, for any previously recorded surveys and historic or prehistoric archaeological sites located in or within 0.6 mile (1.0 km) of the project area. In addition to identifying previously recorded archeological sites, the Atlas review includes the following types of information: NRHP districts and properties, SALs, Official Texas Historical Markers (OTHMs), Registered Texas Historic Landmarks (RTHLs), cemeteries, and local neighborhood surveys. Listings in Atlas are limited to projects under the purview of the ACT or NHPA; therefore, all previous work conducted in an area may not be available. However, SWCA made a concerted effort to obtain reports for all previous cultural resources work conducted in the project area.

The review includes the 55.5 acres (22.5-ha) project area and an additional 0.6-mile (1.0-km) radius around the project components (i.e., study area) (Figure 5). The review used the Atlas online database (THC 2023a) to identify previously conducted surveys and known sites within the study area. The review also consulted historical topographic maps available through the USGS Historical Topographic Map Explorer (USGS 2023a), the Texas Historic Overlay (Foster et al. 2006), and modern aerial imagery to identify land use practices that may indicate the potential for or presence of cultural resources within the project area.

The background literature review determined that two previous cultural resources surveys intersect the proposed project area (see Figure 5). The survey intersecting the southern terminus of the project area was conducted in 2007 by SWCA under Texas Antiquities Permit No. 4381 for the purpose of widening and improving Ronald Reagan Boulevard; no new cultural materials were observed. The second survey is located near the northern terminus of the project area. This survey was conducted in 2015 by ACI Consultants under Texas Antiquities Permit No. 7495 for the purpose of constructing an elevated storage tank for potable water for the city of Georgetown. No cultural resources were observed during this investigation (see Figure 5; THC 2023a).

A review of the study area determined there are three archaeological sites (i.e., 41WM248, 41WM436, and 41WM1139) located within 0.6 mile (1.0 km) of the project area, none of which are immediately adjacent to the project area. Previously recorded site 41WM248 is located 0.3 mile (0.5 km) west of the southern terminus of the project area and 0.2 mile (0.3 km) north of Ronald Reagan Boulevard. This site appears to lie on the northern periphery of a modern cement plant and has likely been significantly impacted by the plant's activities. The site form for site 41WM248 on the Atlas is incomplete and does not include any detailed information about the site. No additional information is available regarding this site (THC 2023a).

Previously recorded site 41WM436 is located 1.4 miles (2.3 km) north of Ronald Reagan Boulevard and is situated in the central portion of the project area. The site was recorded in 1980 as a large prehistoric open campsite consisting of three burned rock middens and an associated artifact scatter of burned rock, chert flakes, cores, and bifacial implements. No temporally diagnostic material was noted; however, the site form indicated that the middens appeared to show signs of looting. No additional information is available regarding this site (THC 2023a).

Previously recorded site 41WM1139 is located 0.6 mile (1.0 km) east of the northern terminus of the project area and 0.2 mile (0.3 km) south of CR 254. Site 41WM1139 is a multi-component site consisting of both a prehistoric and historic-age component and was recorded in 2005 by Horizon Environmental

Services during a survey of a proposed Lower Colorado River Authority transmission line. The prehistoric component was described as a lithic quarry of unknown affiliation, while the historic-age component consisted of a diffuse, surficial twentieth century refuse scatter. Artifacts observed included biface fragments, lithic flakes, brown crockery, English transfer ware (turn of the twentieth century), green glass, and solarized purple glass. In 2005 the THC determined that site 41WM1139 was not eligible for listing on the NRHP (THC 2023a).

An SWCA Architectural Historian evaluated the study area for historic properties using the THC Texas Historic Sites Atlas and the Texas Department of Transportation (TxDOT) Historic Resources Aggregator (THC 2023b, TxDOT 2023). No properties or historic districts that are listed in or are eligible for the NRHP are within the study area. No SALs, RTHLs, OTHMs, or local landmarks are present within the study area. The historian also assessed historical resources and landscapes. No neighborhood surveys or other known historic resources surveys have taken place in the study area. No Texas Department of Agriculture Family Land Heritage Centennial Farms honorees were found in the study area (Texas Department of Agriculture 2023). There is one freedom colony, Rocky Hollow, approximately 2.5 miles east of the study area, but the historically Black community is not adjacent to the project location (Texas Freedom Colonies Project 2023). No other known communities are adjacent to the project location.

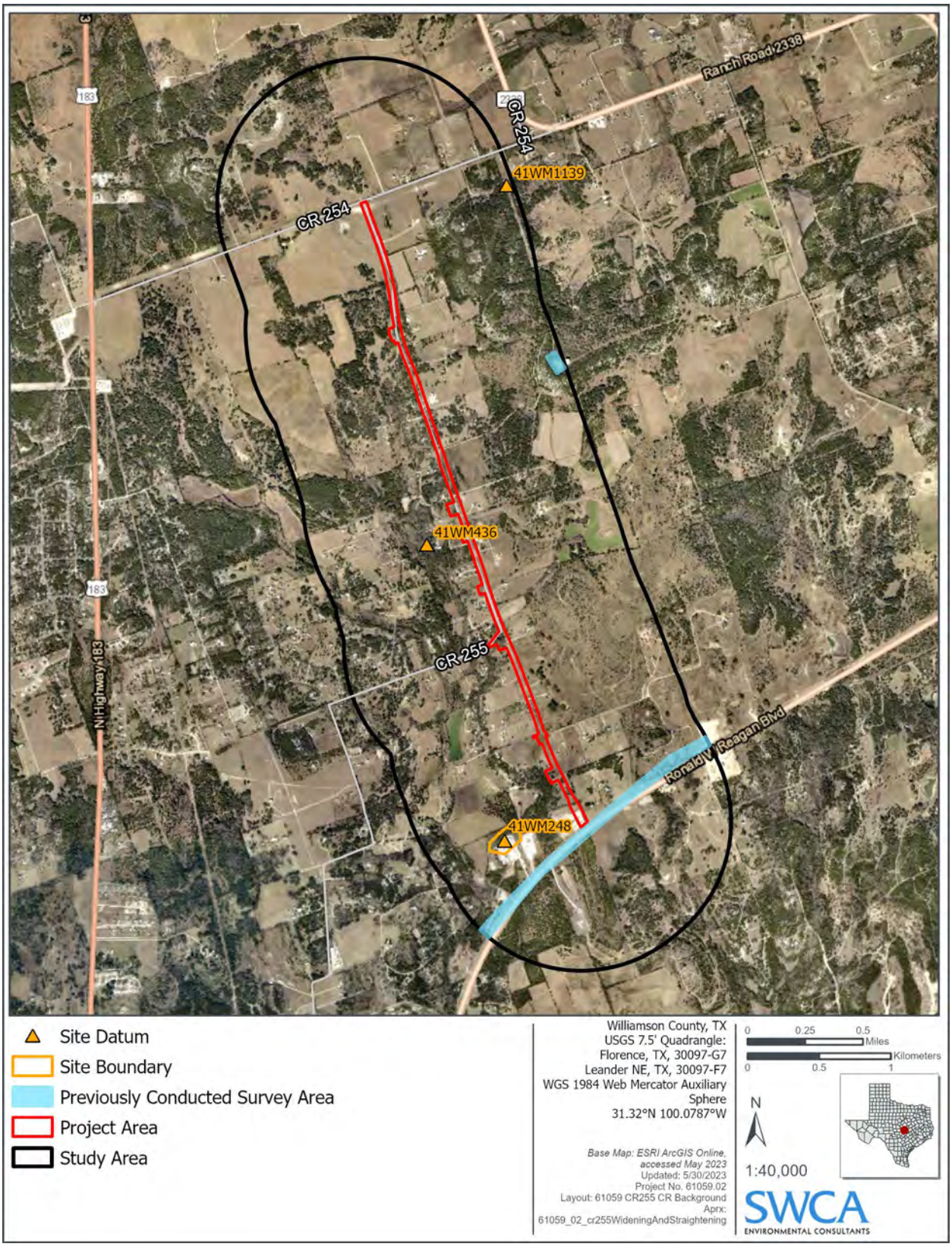

Figure 5. Previously recorded cultural resources within the study area.

Historical Map Review

The historical map review identified 27 potentially historic-age structures within the study area, none of which intersect within the project area. Five of these structures lie immediately adjacent to (within 300 feet [91.4 m]) the project area. All structures are depicted on the 1962 *Leander NE* and 1964 *Florence* USGS topographic quadrangle maps, most of which are restricted to the periphery of the cultural resources study area (Figure 6; Foster et al., 2006; USGS 2023a). Current aerial imagery indicates that some of these structures are extant, including four structures that are located within 300 feet (91.4 m) of the project area.

Field Methods

SWCA's investigations consisted of an intensive pedestrian survey augmented with shovel testing throughout the proposed project area. Archaeologists examined the ground surface and substantial exposures for cultural resources. SWCA did not conduct shovel testing in areas with impervious substrates (i.e., asphalt, concrete, compact gravel, and/or caliche), within 16 feet (5 m) of any paved/graveled road edges, within 16 feet (5 m) of any identified/marked buried utility markers, or where evidence of extensive ground surface disturbance was observed. Shovel tests typically consisted of an approximately 12-inch (30-centimeter [cm]) diameter hole excavated to a depth of 2.6 feet (80 cm) unless soil characteristics or bedrock precluded reaching that depth. Shovel tests were excavated in approximately 8-inch (20-cm) arbitrary levels to culturally sterile deposits, bedrock, water table, or impenetrable compact soils, whichever came first.

The THC and CTA standards for a cultural resources survey require a minimum of one shovel test for every 328 feet (100 m) of project length within a 100-foot (30-m) -wide corridor. Due to the proposed corridor extending to 150 feet (46 m) in width, as well as the addition of proposed driveways, the project area required a minimum of 94 shovel tests for a project of this size. SWCA ultimately excavated 92 shovel tests, due to extensive drainage ditches, a concrete plant in the southern terminus of the project area, and right of entry being denied for several parcels. Aboveground resources were photographed, measured, and explored as much as possible with consideration to land access constraints to make recommendations for proper resource management.

Archaeologists screened the matrix through ¼-inch mesh. The location of each shovel test was plotted using a handheld submeter-accurate GPS receiver and was recorded on appropriate project forms. SWCA conducted a non-collection survey; any artifacts encountered were tabulated, analyzed, and documented in the field, but not collected. Following the review and acceptance of the final cultural resources report, all records and photographs will be curated with the Center for Archaeological Research at the University of Texas at San Antonio, per requirements of the ACT, in accordance with the CTA guidelines. The cultural resources investigation was conducted under ACT Permit No. 30858.

SWCA explored archaeological sites as much as possible with consideration to land access constraints. All discovered sites were assessed regarding their potential significance in order that recommendations could be made for proper management (i.e., avoidance, non-avoidance, or further work). In compliance with the Texas Antiquities Code, sites were evaluated for eligibility as SALs. SWCA completed appropriate Texas Archaeological TexSite Forms for each site discovered during the investigations. Additionally, SWCA produced a detailed plan map of each site and plotted locations on USGS 7.5-minute quadrangle maps and relevant project maps.

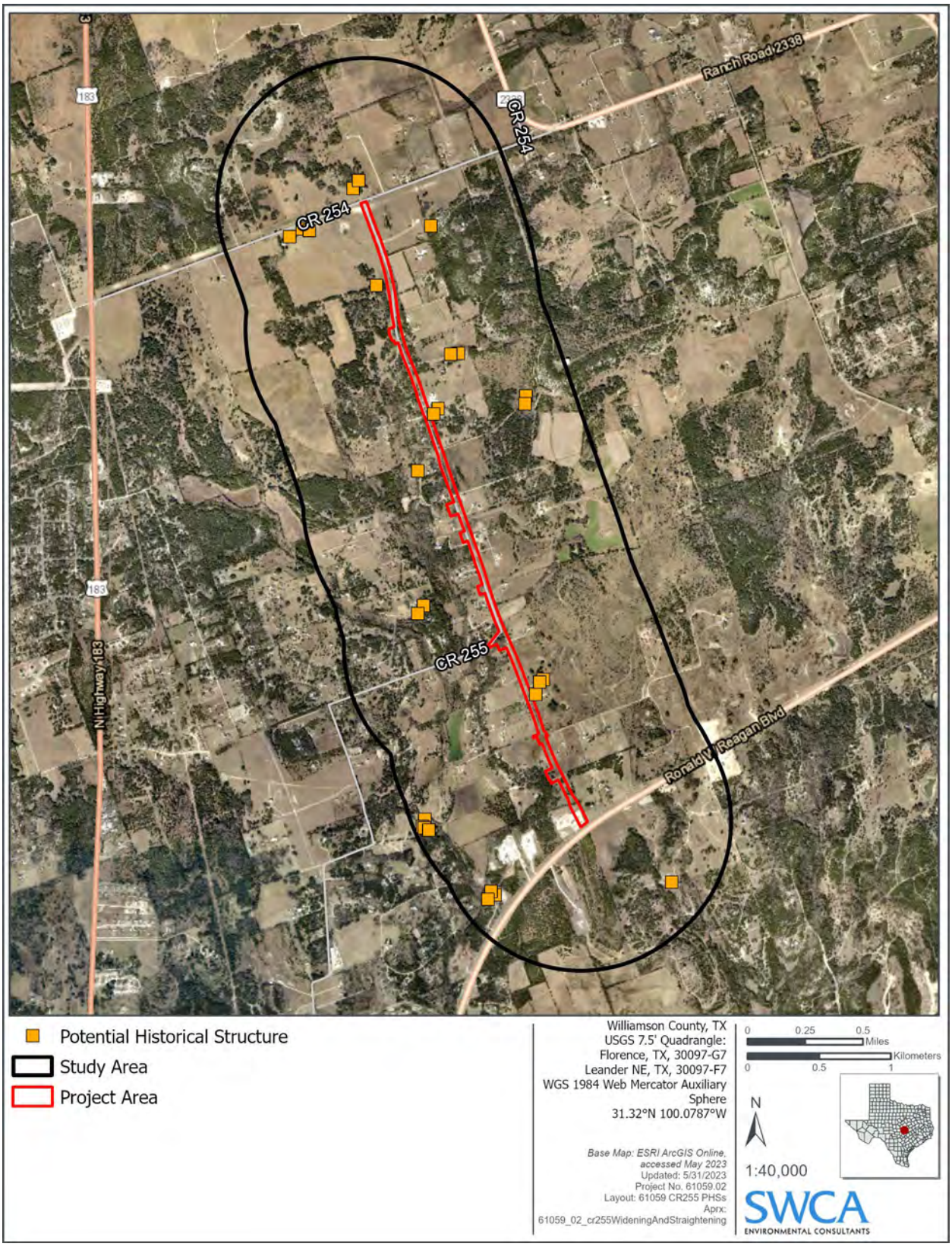

Figure 6. Location of potential historical structures within the study area.

SAL Criteria for Evaluation

Additional evaluations were made under the Texas Administrative Code (TAC) Title 13 Rule 26.10 to determine SAL eligibility. The Antiquities Code of Texas criteria are:

> The commission shall use one or more of the following criteria when assessing the appropriateness of official landmark designation and/or the need for further investigations under the permit process:
>
> A. the site has the potential to contribute to a better understanding of the prehistory and/or history of Texas by the addition of new and important information;
>
> B. the site's archeological deposits and the artifacts within the site are preserved and intact, thereby supporting the research potential or preservation interests of the site;
>
> C. the site possesses unique or rare attributes concerning Texas prehistory and/or history;
>
> D. the study of the site offers the opportunity to test theories and methods of preservation, thereby contributing to new scientific knowledge; and
>
> E. there is a high likelihood that vandalism and relic collecting has occurred or could occur, and official landmark designation is needed to ensure maximum legal protection, or alternatively, further investigations are needed to mitigate the effects of vandalism and relic collecting when the site cannot be protected.

Field Survey Results

On February 10, April 20–21, May 5, and June 6, 2023, SWCA archaeologists conducted an intensive archaeological survey of the 55.5-acre (22.5-ha) project area (Figures 7a–7c). The pedestrian survey consisted of walking the project area in systematic transects spaced no more than 98.4 feet (30 m) apart, and the subsurface explorations consisted of shovel tests excavated in 328-foot (100-m) intervals along the survey transects. The project area is located in a semi-rural setting, with multiple observed disturbances, including drainage features, paved areas, pipeline corridors, and transmission line corridors (Figures 8–9). One 0.2-mile-long (0.3 km) parcel in the center of the project area (i.e., R010299) was not shovel tested because a large drainage ditch extended throughout the parcel (see Figure 8). Other small areas were not tested due to access issues.

The subsurface investigations consisted of 92 shovel test excavations (i.e., ALY001–ALY018, BAB001–BAB007, BKM001–BKM022, CRG001–CRG004, CRG001a–CRG006a, KMG001–KMG016, and LSD001–LSD019) conducted throughout the project area (see Figures 7a–7c; Appendix A). The shovel test results varied widely throughout the project area and often encountered disturbed soils and fill (Figure 10; see Appendix A). Shovel tests were terminated due to bedrock, sterile subsoil, root impasses, or depth between 2–31 inches (5–80 cm) below surface. All shovel tests were negative for cultural materials.

During the survey, SWCA archaeologists recorded one new archaeological site, 41WM1510 (Figure 11). Site 41WM1510 consists of a historic-age bored well and is discussed in detail in the following section.

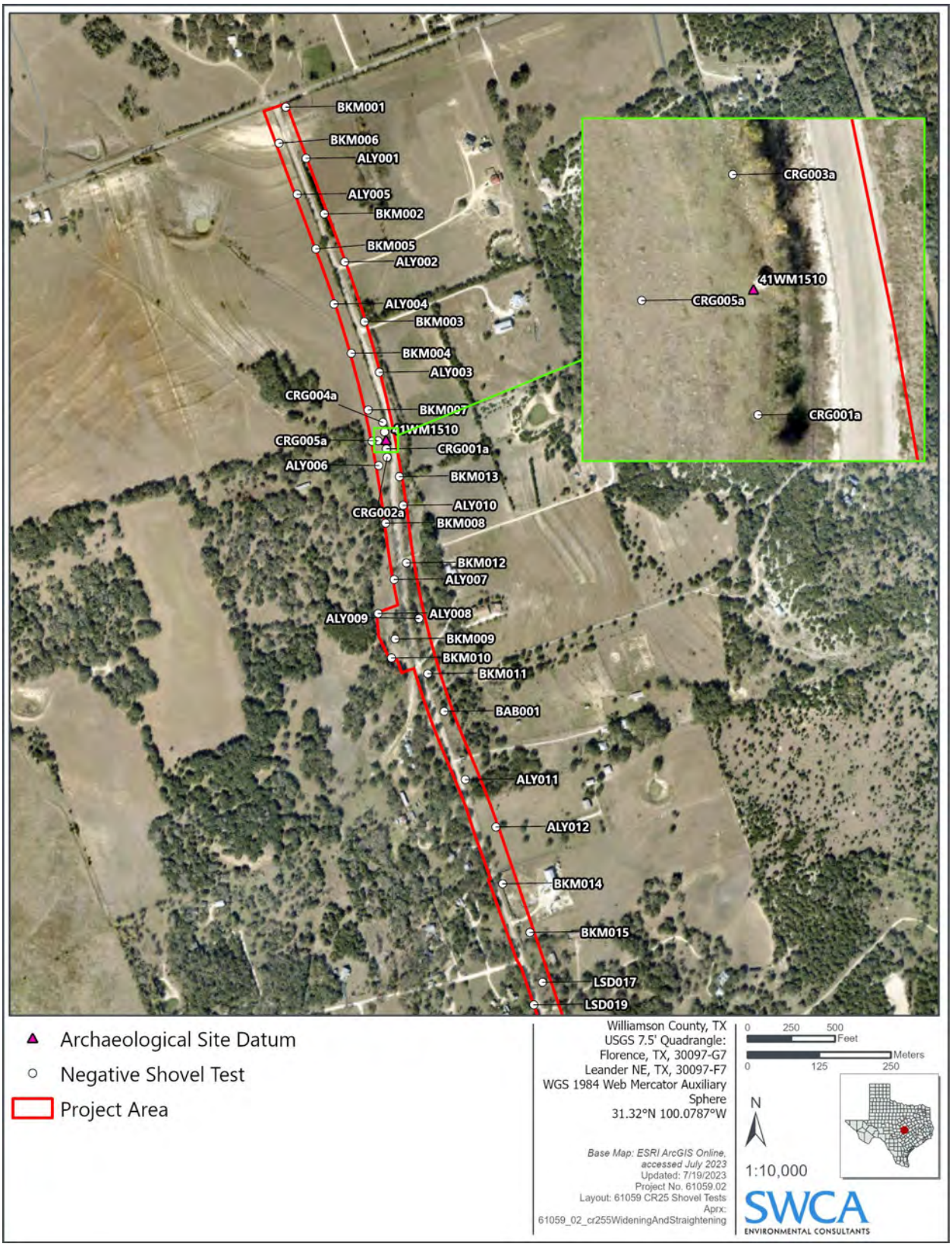

Figure 7a. Cultural resources survey results map, page 1.

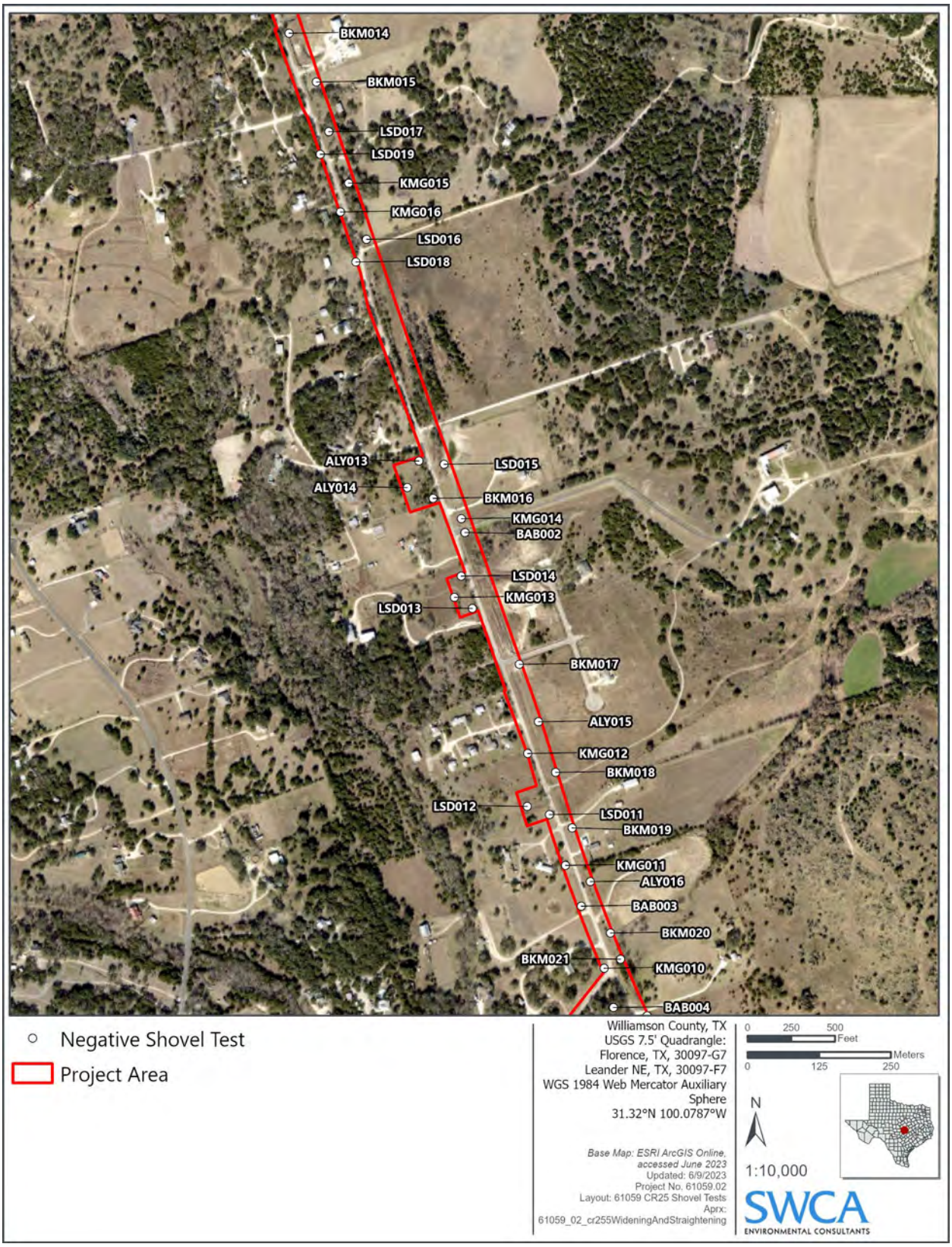

Figure 7b. Cultural resources survey results map, page 2.

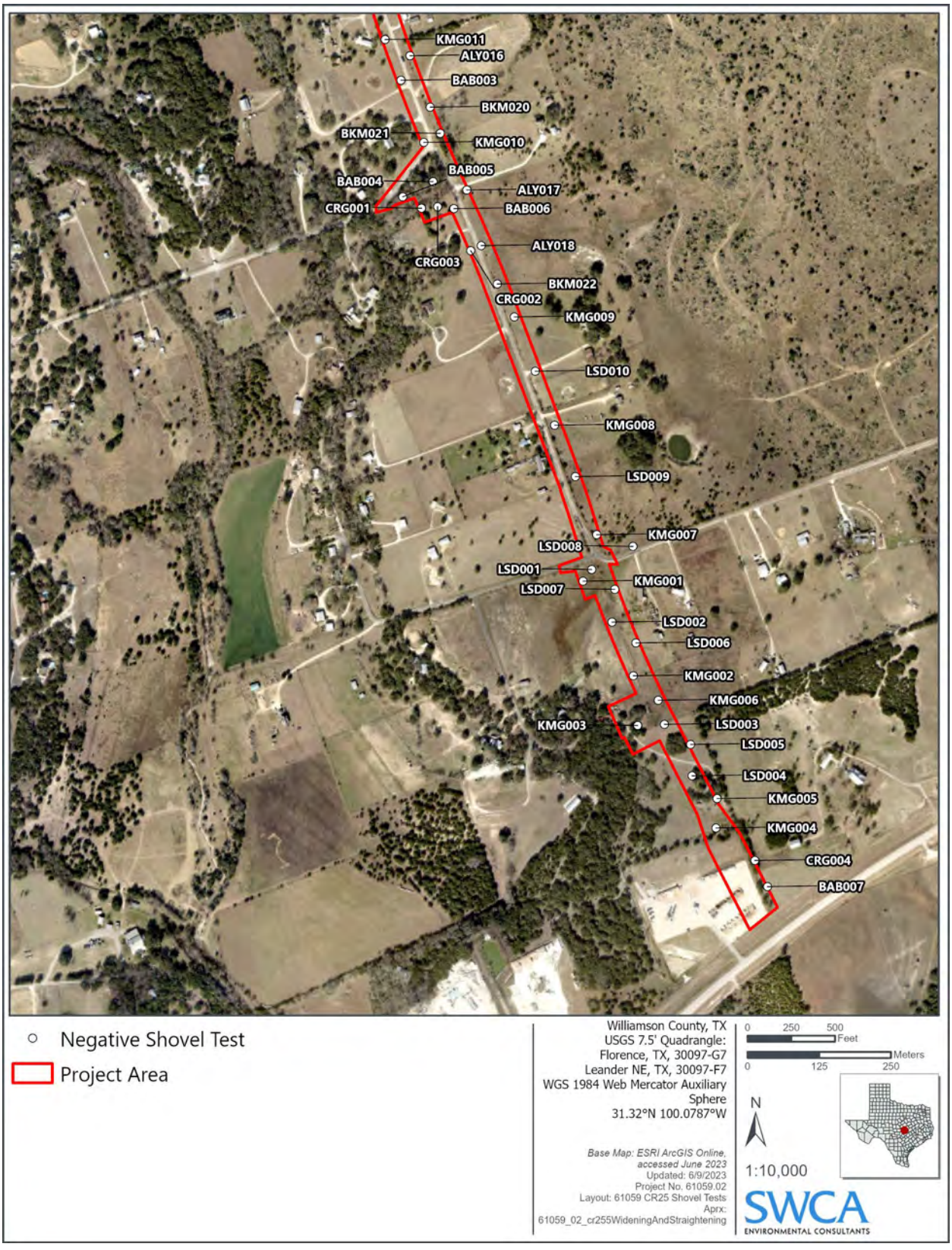

Figure 7c. Cultural resources survey results map, page 3.

Figure 8. Drainage ditch on parcel R010299, view facing south.

Figure 9. Concrete plant near the southern terminus of the project area, view facing south.

Figure 10. Shovel test BKM017 within the project area, plan view.

Figure 11. Overview of site 41WM1510 from edge of new road easement, view facing east.

Site 41WM1510 (Field ID: CR01-FS01)

County: Williamson County
Elevation: 1,018 feet (310 m)
Landowner: Williamson County
Cultural Affiliation and Age: Euro American (late nineteenth to mid-twentieth century)
Site Type: Historic-age Bored Well
NRHP Eligibility Recommendation: Not Eligible for the NRHP
Management Recommendations: No further work or avoidance

SITE DESCRIPTION

Site 41WM1510 is a historic-age bored well located 29 feet (9 m) west of CR 255. SWCA archaeologists recorded site 41WM1510 on July 6, 2023. The site consists of only a historic bored well and is situated within a rangeland in a setting that was formerly utilized as a pasture. The site boundary surrounding the well measures approximately 5 feet (1.5 m) north to south and 5 feet (1.4 m) east to west (Figure 12).

Vegetation throughout the site consisted of grass, weeds, and tall poison ivy (Figure 13). Ground surface visibility is poor across the site, ranging between 0–40 percent. Site 41WM1510 has been impacted by natural and artificial disturbances, including erosion, cattle grazing, ranching activities, and land clearing activities. The site is estimated to be less than 25 percent intact.

FEATURES

One historical structure (Feature 12) was identified at the site. The bored well measures approximately 70 inches (1.78 m) north-south by 60 inches (1.52 m) east-west. The well is constructed with limestone field stone with cement mortar and concrete finish (Figure 13). The arrangement of masonry on the well evokes a giraffe-pattern, reminiscent of the geometric shapes and warm colors on a giraffe pelt. The resource shows some signs of deterioration, especially on its east elevation which is collapsing (Figure 14). The well ranges from approximately 34 to 39 inches (0.86 to 0.99 m) above the ground surface. The top of the well is concrete, with walls averaging 11 inches (0.28 m) in thickness (Figure 15). The depth of the well is approximately 10 feet (3.05 m) from the top of the exterior walls to the bottom of the well (see Figure 15). No evidence of a supportive resource (i.e., wellhouse, pumphouse, windmill, etc.) was observed on the subject parcel.

MATERIAL IDENTIFIED

No artifacts were identified on site 41WM1510.

SUBSURFACE INVESTIGATIONS

SWCA excavated six shovel tests (i.e., shovel tests CRG001a–CRG006a) within and around the site to further delineate the vertical and horizontal boundaries of the site. No shovel tests were positive for buried cultural materials. Shovel tests featured soils with one stratum that was typically black (10YR 2/1) or a very dark brown (10YR 2/2), terminating in predominantly sterile subsoil (Table 2).

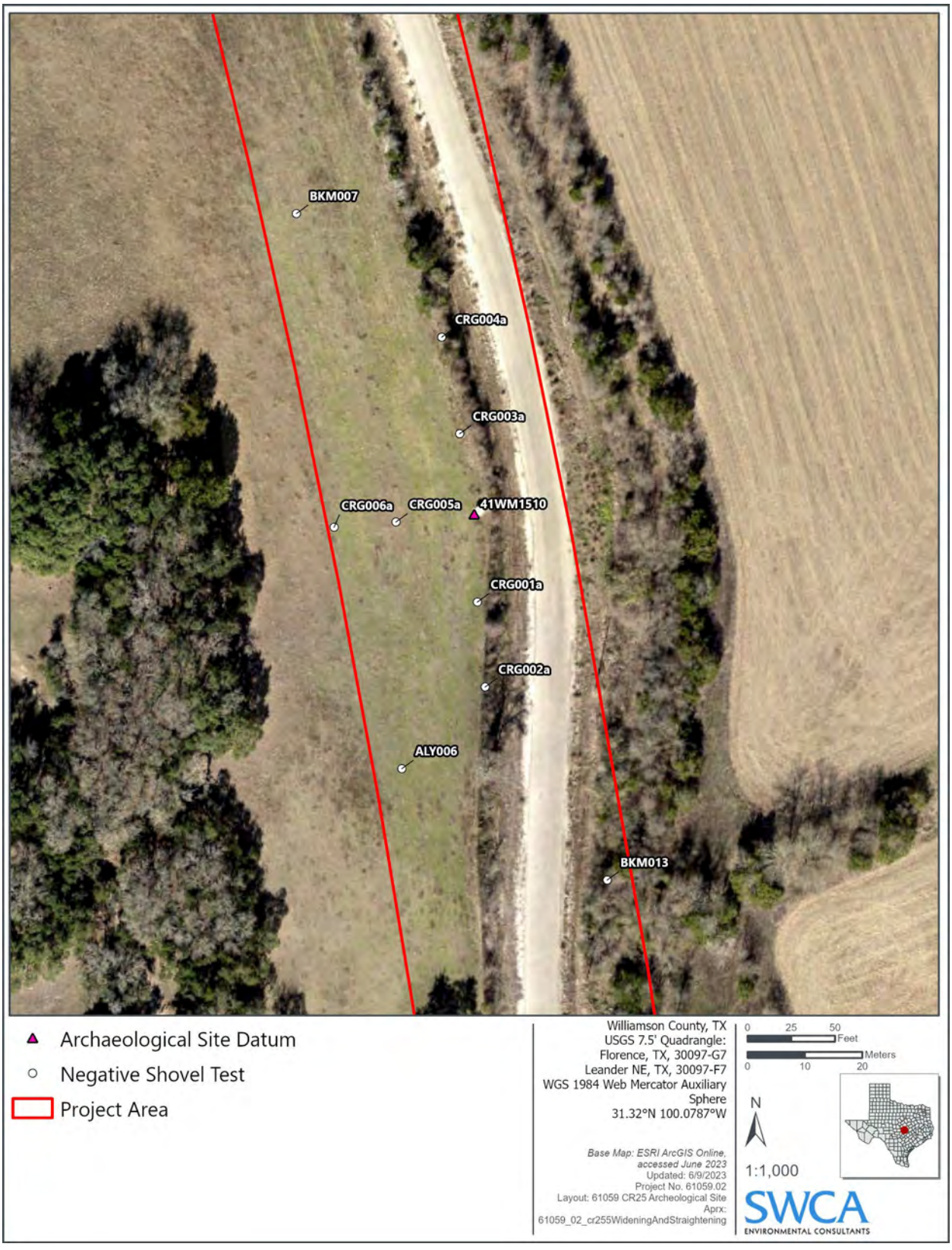

Figure 12. Map of site 41WM1510

Figure 13. West façade of well, view facing east.

Figure 14. Detail of eastern wall collapsing, view facing south.

Figure 15. Plan view of historic well interior.

Table 2. Shovel Tests at Site 41WM1510

ST No.	Level	Depth (cmbs)	Result*	Munsell	Soil Texture	Description/ Comments	Reason for Termination
CRG001a	1	0-40	N	10YR 2/1	Clay	10% conglomerate nodules (.1cm to 1cm in diameter) with CaCO3 and small pebbles	Sterile Subsoil
CRG002a	1	0-35	N	10YR 2/1	Clay	Very compact soil at 30cmbs. 10% conglomerate nodules (.5cm to 2cm in diameter) with CaCO3 and small pebbles	Sterile Subsoil
CRG003a	1	0-40	N	10YR 2/2	Clay	Small grass roots 0-10cmbs <2%, 5% small pebbles and CaCO3 nodules	Sterile Subsoil
CRG004a	1	0-35	N	10YR 2/2	Clay	Iron oxides are visible in soil. 10% small grass roots 0-5cmbs, soil is very compact at ending depth	Sterile Subsoil
CRG005a	1	0-30	N	7.5YR 4/1	Clay	Soil is very dry and compact, <2% small grass roots 0-5 cmbs	Basal Clay
CRG006a	1	0-40	N	10YR 2/1	Clay	<2% iron oxides observed throughout soil, small pebbles, and large rocks <2%	Basal Clay

* N=Negative

SITE CONTEXT

Built Environment

Site 41WM1510 sits in the ROW of CR 255 but is historically associated with the 258.72-acre Williamson CAD Parcel R408127 at 1223 CR 254 (Figure 16). The parcel is southwest of the intersection of CRs 255 and 254. The subject property is an agricultural complex with one historical domestic work zone (Figure 17), one historical agricultural work zone, and one nonhistoric-age domestic zone (Moore et al. 2013). The property has 20 resources (6 historic-age and 14 nonhistoric-age), including the historic-age well. A general historic-age cutoff date of 1978 was used (45 years from 2023). Evaluation of the NRHP eligibility was limited to the well (Resource 4) and associated agricultural complex.

Historic-age resources on the parcel include a farmhouse (Resource 1A) on a separate parcel (R462946) from the agricultural parcel (R408127), two agricultural outbuildings (Resources 2 and 3), a stone well (Resource 4), and two livestock tanks (Resources 5–6). Nonhistoric-age resources include a two-car garage (Resource 1B) associated with the main house, a side-gable roof dwelling of no particular style (Resource 1C) on a separate parcel (R010305) within the complex, a large outbuilding (Resource 1D), three agricultural outbuildings (Resources 1E, 1I–J), two metal loafing sheds (Resources 1G and 1M), two metal cisterns (Resources 1G and 1K), another side-gable roof dwelling of no particular style (Resource 1H) on a separate parcel (R539880) within the complex, and three livestock tanks (Resources 1L, 1N–O). The historic-age resources are described in detail below.

Farmhouse *(Resource 1A)*

The main farmhouse is a ca. 1945 Minimal Ranch style house (Figures 19–20). The tan brick dwelling is three bays wide by 2 ½ bays depth. It has a U-Plan with a central integrated porch within the U, flanked by one front-gable bay on either side.

Outbuildings *(Resources 2–3)*

The two historic-age ca. 1950 outbuildings have metal walls and roofs. Resource 2 is the larger of the two, featuring open stalls on its south elevation.

Well *(Resource 4)*

A historic-age ca. 1925 well stands in the southeast corner of the parcel adjacent to CR 255. The structure is away from the extant domestic and agricultural work zones. The well is a remnant of the former domestic work zone to the west of the structure (Figure 18).

Livestock Tanks *(Resources 5–6)*

Two historic-age ca. 1950 livestock tanks are present on the property. Resource 5 is a small livestock tank adjacent to CR 254. Resource 6 is a larger circular livestock tank with a berm along its south and east elevations. Resource 5 appears overgrown, whereas Resource 6 remains actively used.

Landscape features of the agricultural complex include two historic-age terraced fields. Woodland areas divide the terraced areas. Circulation networks are minimal, except for one remnant in the southeast corner of the parcel that serviced a former domestic work zone. Resources 1A and 1C have a nonhistoric-age kitchen garden in their respective domestic work zones.

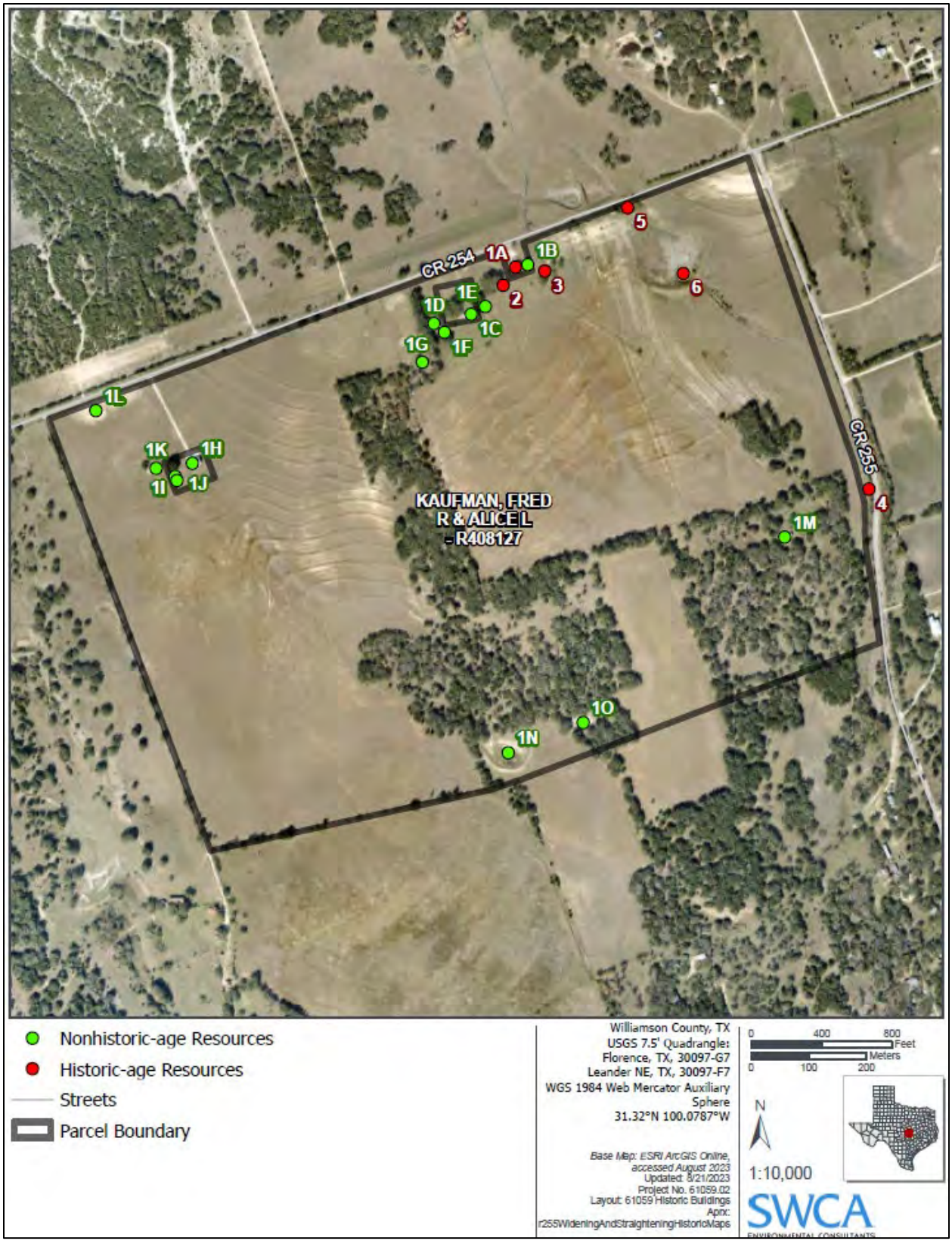

Figure 16. Map of agricultural complex associated with site 41WM1510.

Figure 17. Oblique view of the extant zones along CR 254; view facing southeast (Bing 2023). The main farmhouse is in the top left of the image.

Figure 18. Oblique view of the non-extant domestic work zone along CR 255; view facing north (Bing 2023). The subject well (Resource 4) is in the top right corner of the image.

Figure 19. Domestic working zone with main house (Resource 1A); view facing south (Google Street View 2011).

Figure 20. Main House (Resource 1A); view facing south from CR 254 (Google Street View 2011).

Historical Zones

The subject property originally had two domestic work zones: the extant zone accessed from CR 254 and a non-extant zone west of CR 255 which included the well feature (Figure 21) (USGS 1963). Wells are a common resource found in domestic work zones (Moore et al. 2013, pp. 5.2, 5.16). The structures are often accompanied with a pumphouse, wellhouse, or windmill. None of these associated resources are extant in the site area. By 1963, the farm had two terraced fields and one livestock tank (USGS 1963).

The placement of the well immediately next to CR 255 suggests the well was built prior to the construction of the county road. CR 255 first appears on topographic maps in 1954 (USGS 1954). Although wells are placed near a residence, they may be setback to avoid septic drainage fields (Moore et al. 2013, pp. 5.2, 5.16). In the 1963 aerial image, the well is difficult to see but is likely in the tree line along CR 255.

Figure 21. Historical aerial image of the Kaufman agricultural complex (USGS 1963). Domestic work zones are highlighted in blue and agricultural work zones are highlighted in red. The approximate subject parcel boundary is highlighted in yellow.

Site History

The earliest owners of the subject parcel likely did not live on the property. In 1849, the State of Texas grated a first-class headright certificate of a league amounting to 4,428 acres to Texas Revolutionary veteran and Methodist Reverend James B. Northcross (ca. 1802–1836) for his service to the Republic (Table 3) (Find A Grave 2004a; Texas General Land Office 1849; The Alamo 2023). First-class headrights were bestowed to early Texians who arrived prior to the signing of the Texas Declaration of Independence in 1836. Born in Virginia, Northcross moved to Texas around 1830 as a widower (The Alamo 2023). Northcross died in the 1836 Battle of the Alamo, leaving behind his wife of one year, Sarah Parrent Jenkins, one son named James C. Northcross, and three stepchildren bore by Jenkins (Ancestry 2023a). Sarah died in 1840, nine years prior to the issuance of the Northcross survey in Williamson County, making James C. Northcross as the primary heir to the land grant (Ancestry 2023a).

In 1878, an order was issued by the General Land Office to divide the Northcross league in half, allotting the western portion to the heirs of Bartholomew Manlove (1775–1855) and the eastern portion to the heirs of James B. Northcross (Williamson County Clerk 1878). Manlove, an owner of enslaved people, was the first mayor of Bastrop where he lived throughout the 1850s (Adams 2022; *The Austin American* 1962; U.S. Census Office 1850). Although the land was meant to be held for James C. Northcross as he was a minor, the heirship became complicated as he died in 1852 (Ancestry 2023a; Williamson County Clerk 1942). Most, if not all, of the subject parcel is in the western portion of the league, which was primarily owned by Manlove per the court order. Between 1851 and 1871, two large tracts of land totaling over 750 acres were sold by Manlove and John Holland Jenkins, the administrator of the Northcross estate (Williamson County Clerk 1851; 1871). William Morrison purchased both these tracts but did not make any improvements on the land.

In 1881, farmers Jesse T. and Susan (Morrison) Long purchased land from Morrison and an additional 32 acres from F.H. Wilson (U.S. Census Office 1880; Williamson County Clerk 1881). Improvements were likely made to the land at this time based on the sale price. Between 1887 and 1889, a "part of league" including the subject parcel was transacted four times. In 1887, the Longs sold to farmers Joseph S. and Fredona (Bullion) Morrison, who owned the property for a little over two years (Find A Grave 2010; Williamson County Clerk 1887). In 1889, the Morrisons sold the property to George Irvine, who sold it again a few months later to R.W. Smith (Williamson County Clerk 1889a–b). Smith owned the property for a little over two years until 1891 when he sold the land to William W. Dimmit (Williamson County Clerk 1891).

Five land transactions occurred during the 1890s. In 1891, the parcel amounted to 215 acres, when Dimmit sold the property to J.M. Stephens for $250 (Williamson County Clerk 1891). The low sales price suggests this vestige of the parcel did not have any improvements on it at this time. Stephens made some improvements to the land prior to selling the property in 1893 to Benjamin Levi Ray (Find A Grave 2006; Williamson County Clerk 1893). Ray sold the land the following year to John Wiley McQueen (Williamson County Clerk 1894a). McQueen sold the land a few months later to brothers Lafayette G. and David Preston Pool (Ancestry 2023b; Williamson County Clerk 1894b). The Pool brothers owned the property for the remainder of 1894, likely making improvements to the land given the increased sale price (Williamson County Clerk 1894c).

In late 1894, the Pool brothers sold the property to George Henry and Laura Farris (U.S. Census Bureau 1910; Williamson County Clerk 1894c). The Farris family were the first individuals to own the property for a substantial amount of time lasting almost a century. In 1937, the property was inherited by Clint Ruble Farris, son of George and Laura, and his wife Wilma Wright (Williamson County Clerk 1937). Wilma purchased an additional 99 acres in 1954, expanding the property to its current configuration (Williamson County Clerk 1954). Following the death of Wilma in 1991, Fred R. and Alice Kaufman,

descendants of the Farris family, inherited the property (Williamson County Clerk 1993). The Kaufmans subsequently subdivided the property twice with two residential lots in 2005 (Williamson County Clerk 2005a–b).

Table 3. Chain of Title for Parcel R408127

LEGAL DESCRIPTION: AW0478 JAMES NORTHCROSS SURVEY, 268.725 ACRES

Grantor	Grantee	Date	Instrument	Volume/Page or Number	Consideration	Acreage
Kaufman, Fred R. and Alice	Nuckels, Janice and Tom (R462946)	8/11/2005	Deed	2015071564	$0	-1.0
Kaufman, Fred R. and Alice	Haskin, Michael P. and Judy Lee (R462946)	1/30/2005	Deed	2005007548	$10.00	-0.5194
Est. of Farris, Wilma	Kaufman, Fred R. and Alice	6/11/1993	Deed	2319/884	$100,000.00	271.72
Wade, Neva J., Thomas T., Larry R.	Farris, Wilma	3/20/1954	Deed	394/600	$9,100.00	+99
Farris, Myrtle (Est. of C.R. Farris)	Farris, C.R.	3/24/1937	Deed	286/140	$1,200.00	230
Pool, Lafayette G., David Preston, and Jacoba	Farris, G.H.	12/6/1894	Deed	70/415	$2,000.00	215
McQueen, J.W.	Pool, Lafayette G., David Preston,	4/3/1894	Deed	71/184	$1,920.00	215
Ray, B.L.	McQueen, J.W.	2/5/1894	Deed	71/102	$1,200.00	215
Stephens, J.M.	Ray, B.L.	8/11/1893	Deed	66/14	$1,600.00	215
Dimmit, W.W.	Stephens, J.M.	3/30/1891	Deed	57/230	$250.00	215
Smith, R.W.	Dimmit, W.W.	11/23/1889	Deed	51/48	$2,000.00	“Part of League”
Irvine, George	Smith, R.W.	11/25/1889	Deed	51/57	$2,000.00	“Part of League”
Morrison, J.S. and Fredona	Irvine, George	3/25/1889	Deed	48/377	$2,500.00	“Part of League”
Long, J.T. and Susan	Morrison, J.S. and Fredona	1/11/1887	Deed	41/571	$2,800.00	“Part of League”
Wilson F.H.	Long, J.T. and Susan	2/16/1881	Deed	25/486	$275.00	+32
Morrison, William	Long, J.T. and Susan	1/5/1881	Deed	25/336	$1.00	60
Jenkins, John H.	Morrison, William	7/3/1871	Deed	13/198	$332.25	+333.25
Manlove, Bartholomew	Morrison, William	8/16/1851	Deed	2/391	$212.50	425
Northcross, James	Manlove, Bartholomew (West) / Heirs of James Northcross (East)	3/18/1878	Order	19/544	N/A	4,428
State of Texas	Northcross, James	7/5/1849	Certificate	No. 241 Ab478	N/A	4,428

Site Interpretation and Summary

Site 41WM1510 (Resource 4) is a ca. 1925 bored well made of limestone and concrete. The resource was recorded as an isolated feature; however, the well is approximately 350 feet (106 m) from the remains of a nonextant dwelling (see Figure 21). The ruins are in a clearing next to a nonhistoric-age loafing shed (Resource 1M), approximately 510 feet (155.5 m) southwest of the well. Both the ruins and the nonhistoric-age loafing shed are outside of the project area. The associated agricultural complex along CR 254 is also outside of the project area, 2,246 feet (685 m) northwest of the well.

The historical agricultural complex associated with the well feature dates to the early- to mid-twentieth century. Deed research determined the Farris family as the primary owners during this period, ranging from the 1894 Pool-Farris transaction to the death of Wilma Farris in 1991. The property value history also indicates the well did not exist on the property prior to 1891. Therefore, the domestic working zone that contained a nonextant dwelling and the extant well was built between ca. 1895 and ca. 1950. The construction of the well with smooth concrete void of stone aggregate supports the construction being towards the later end of this period (ca. 1925–1950).

The Farris family were farmers who depended on the property for their livelihood. George Farris (1858–1935) farmed the property from 1900 to his death in 1935 (U.S. Census Bureau 1900). Following the inheritance of the property by Clint Farris (1900–1973) in 1937, the family continued to expand the property and make improvements to the land (Ancestry 2023c). The common soil conservation practice of terracing was applied to the property during the mid-twentieth century. Livestock tanks were also constructed to provide a sustainable water source for lamb and cattle ranching activities. Clint Farris was active in the Williamson County farming community, participating in the Williamson County Agricultural Conservation Association, Williamson County Soil Conservation Board, and Farmers Home Administration (*The Austin American* 1930; 1940; 1949). Farris also participated in the Williamson County committees for AAA, defense bonds, and production marketing (*Austin American Statesman* 1942; *The Austin American* 1947; 1952b; *The Taylor Daily Press* 1942). Wilma Farris was a member of the Liberty Hill Elementary School staff, assisting with grades one through three (*The Austin American* 1952a; 1957). The couple never had children together (Find A Grave 2004b).

Eligibility and Management Recommendations

Although Section 106 of the NHPA is not applicable to this project at this time, the site was evaluated by an Architectural Historian who meets the Secretary of the Interior (SOI) Professional Qualifications (36 CFR Part 61) for its historical association with the adjacent agricultural complex. Although the well retains integrity of location, setting, feeling, design, and materials, the resource does not retain integrity of workmanship nor association. The well is in a deteriorated state and is no longer in use by the agricultural complex. The former dwelling associated with the well is also not extant, further diminishing associative value of the resource. Integrity of the agricultural complex is also hampered. Nonhistoric-age resources outnumber historic-age resources on the property. The historic-age resources of the main house and outbuildings (1A, 2–3) have undergone various material alterations that inhibit their architectural integrity. The overall design and systems of the agricultural complex (terracing, livestock tanks, arrangement of resources) follow common practices of Central Texas farms. Individuals associated with the property and its resources were not found to be significant. Early owners associated with the property, like the Northcross family and Manlove, did not reside on the property. Subsequent property owners were not found to be significant and did not make notable contributions to the land during their ownership. The Farris family were the primary occupants. The Farris family, including George, Laura, and Clint Farris, were common farmers who did not participate in innovative agricultural operations. Even though soil conservation was an important practice, the activity was common throughout the state by the middle of the twentieth century. Although Clint Farris participated in community organizations and governmental

committees, his contributions did not exceed the member level. Wilma Farris likely contributed to the development of the farm, evident through her role in the additional land purchase, however this alone is not enough to merit significance. Although not associated with the farm, Wilma's contributions to Liberty Hill Elementary School were not noteworthy. As a result, the agricultural complex does not retain sufficient significance and is recommended not eligible for the NRHP.

Site 41WM1510 is a ca. 1925 well of common construction type associated with the historical Farris farm. Shovel tests around the isolated feature resulted in no surficial or subsurface deposits. Therefore, the site is unlikely to yield information that will refine our understanding of past lifeways in this region. Therefore, SWCA recommends site 41WM1510 as not eligible for the SAL under all Criteria. The site is also recommended not eligible for the NRHP because of its lack of significance and diminished integrity. No further work or avoidance is recommended.

SUMMARY AND RECOMMENDATIONS

On behalf of HNTB and Williamson County, SWCA conducted a cultural resources survey for the CR 255 Roadway Improvement Project located within the city limits of Georgetown, Williamson County, Texas. The proposed project expansion is approximately 2.9 miles (4.7 km) in length and encompasses 55.5 acres (22.5 ha) of an easement granted to Williamson County, a political subdivision of the State of Texas. Work was conducted under Texas Antiquities Permit No. 30858 and complied with requirements of the ACT. Based on the current project understanding, no federal regulatory compliance is anticipated.

SWCA conducted pedestrian surveys, augmented with shovel testing, within the entire 55.5 acres (22.5 ha) project area over several days of fieldwork between February 10 and June 6, 2023. SWCA excavated a total of 92 shovel tests within the project area, all of which were negative for subsurface cultural deposits. During the survey, SWCA archaeologists recorded one new archaeological site, 41WM1510. Site 41WM1510 consists of a partially collapsing isolated fieldstone well, likely dating to the late nineteenth century to mid-twentieth century. No cultural materials were identified associated with the well. As such, the site is unlikely to yield information that will refine our understanding of past lifeways in this region. Therefore, SWCA recommends site 41WM1510 as not eligible for the SAL under all Criteria. SWCA also recommends the site not eligible for the NRHP. No further work or avoidance is recommended.

In accordance with the ACT, SWCA made a reasonable and good faith effort to identify cultural resources within the project area. No archaeological sites were identified that meet the criteria for designation as an SAL, per 13 Texas Administrative Code 26.12; therefore, SWCA recommends that no additional cultural resources investigations are warranted within the project area, as currently defined. All records and photographs generated during fieldwork will be curated at the University of Texas at San Antonio Center for Archaeological Research, per the requirements of the ACT.

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APPENDIX A

Shovel Test Data

Table A-1. Shovel Test Data

ST No.	Level	Depth (cmbs)	Soil Texture	Munsell	Result *	Description/Comments	Reason for Termination
ALY 001	1	0–22	Clay Loam	10YR 4/2	N	At least 25 percent gravel and pebbles-subangular, mostly limestone.	–
ALY 001	2	22–45	Clay Loam	10YR 5/4	N	Higher clay content than Level 1. 30 to 40 percent limestone gravels.	Sterile subsoil
ALY 002	1	0–30	Clay	10YR 2/1	N	Sticky clay with <1 percent limestone subangular pebbles. Root mat max depth about 10 cmbs.	–
ALY 002	2	0–45	Clay	10YR 3/1	N	Very sticky and compact.	Sterile subsoil
ALY 003	1	0–25	Clay Loam	10YR 3/2	N	At least 15 percent rootlets and roots. A few snail shells- <1 percent.	Root impasse
ALY 004	1	0–33	Clay	10YR 2/1	N	Sticky, friable to firm. Root mat to about 5 cmbs. About 2 to 3 percent subang/subround gravel and pebbles.	–
ALY 004	2	33–50	Clay	10YR 3/1	N	Very sticky and firmer than level 1. 1 –2 percent subangular limestone gravels and small pebbles.	Sterile subsoil
ALY 005	1	0–20	Clay Loam	10YR 3/2	N	5 percent or less limestone gravels. Root mat 0–5 cmbs.	–
ALY 005	2	20–35	Clay	10YR 4/3	N	10 percent limestone gravels and pebbles, mostly gravel.	Sterile subsoil
ALY 006	1	0–50	Clay	10YR 3/1	N	Moist (rained last night), very sticky clay, more compact with depth. One cobble and 1 to 2 percent gravels and pebbles - subround, subangular. Root mat base is 5 to 10 cmbs.	Root impasse
ALY 007	1	0–36	Clay Loam	10YR 3/1	N	15–20 percent rootlets and roots. 3–5 percent limestone gravel, pebble, cobbles. Sticky, moist slightly friable soil.	Root impasse
ALY 008	1	0–25	Clay Loam	10YR 3/1	N	20 percent rootlets and roots, including 5 cm thick root mat.	–
ALY 008	2	25–45	Clay	10YR 3/1	N	Increased stickiness and more compact with depth.	Sterile subsoil
ALY 009	1	0–22	Clay	10YR 2/1	N	5 percent rootlets, 5 percent limestone cobbles and pebbles, limestone bedrock at depth.	Bedrock
ALY 010	1	0–20	Clay Loam	10YR 3/1	N	10 percent rootlets and 1 percent limestone pebbles. Moist, sticky soil.	–
ALY 010	2	20–36	Clay	10YR 3/1	N	Moist, very sticky soil with pockets of degraded limestone (bedrock)	Sterile subsoil
ALY 011	1	0–26	Clay Loam	10YR 3/2	N	5 percent rootlets. 10 to 20 percent limestone cobbles and pebbles, subangular.	Bedrock
ALY 012	1	0–22	Clay Loam	7.5YR 3/2	N	5 percent limestone gravel, pebbles, cobble-subangular.	–
ALY 012	2	22–40	Clay Loam	10YR 3/1	N	15 percent rootlets, 1–2 percent pebbles and cobble- chert and limestone, subrounded and subangular.	Bedrock
ALY 013	1	0–20	Clay Loam	10YR 2/1	N	10 percent rootlets and small roots, including 5 cm thick root mat.	–
ALY 013	2	20–40	Clay	10YR 3/1	N	Very sticky. 5 percent rootlets.	Sterile subsoil
ALY 014	1	0–23	Clay Loam	10YR 2/1	N	Root mat down to 7 cmbs.	–
ALY 014	2	23–44	Clay	10YR 4/1	N	Sticky, compact soil.	Sterile subsoil
ALY 015	1	0–20	Clay Loam	10YR 2/1	N	Root mat to 8 cmbs. A few limestone cobbles, small to large.	–
ALY 015	2	20–40	Clay	10YR 3/1	N	Sticky, compact.	Sterile subsoil
ALY 016	1	0–21	Clay Loam	10YR 3/2	N	Root mat max depth is about 10 cmbs, a few limestone pebbles.	–
ALY 016	2	21–33	Clay Loam	10YR 4/3	N	2 percent limestone pebbles, subangular.	Bedrock

ST No.	Level	Depth (cmbs)	Soil Texture	Munsell	Result *	Description/Comments	Reason for Termination
ALY 017	1	0–26	Clay Loam	10YR 2/1	N	Root mat 0–8 cmbs.	–
ALY 017	2	26–41	Clay	10YR 2/2	N	Sticky, more compact than level 1.	Sterile subsoil
ALY 018	1	0–20	Clay Loam	2.5Y 4/2	N	Over 75 percent limestone gravels mostly with a few limestone pebbles and small cobbles, subangular and angular.	Bedrock
BAB 001	1	0–30	Silty Clay	10YR 5/3	N	10% gravels terminated at limestone bedrock, some 3% shell.	–
BAB 001	2	30–45	Clay Loam	10YR 3/4	N	Soil is loamy with soft consistency, some 3% shell and shell fragments, insect burrows present.	Bedrock
BAB 002	1	0–50	Silty Clay	10YR 3/4	N	Soil is water saturated with high clay content, 20% roots, 10% rootlets.	–
BAB 002	2	50–80	Sandy Clay	10YR 4/1	N	Mottling of light brown 10YR 7/3. Mussel shells and small roots observed.	Depth
BAB 003	1	0–40	Clay	10YR 5/1	N	Few gravels.	–
BAB 003	2	40–50	Clay Loam	7.5YR 4/1	N	Common rootlets, few gravels.	Sterile subsoil
BAB 004	1	0–26	Clay Loam	10YR 2/1	N	Root mat 0–8 cmbs.	–
BAB 004	2	26–41	Clay	10YR 2/2	N	Sticky, more compact than level 1.	Sterile subsoil
BAB 005	1	0–25	Sandy Clay	10YR 4/4	N	Limestone bedrock. <2%s mall rocks, <2% small roots.	Bedrock
BAB 006	1	0–40	Sandy Clay	10YR 4/4	N	Limestone bedrock. <5% small roots.	Bedrock
BAB 007	1	0–20	Sandy Clay	10YR 4/4	N	<2% rootlets, limestone observed throughout.	Bedrock
BKM 001	1	0–30	Clay Loam	10YR 6/2	N	Few gravels.	–
BKM 001	2	30–40	Clay Loam	10YR 6/6	N	Few gravels.	Sterile subsoil
BKM 002	1	0–30	Clay	10YR 3/2	N	Few rootlets.	–
BKM 002	2	30–40	Clay	10YR 2/2	N	Few rootlets and roots.	Sterile subsoil
BKM 003	1	0–40	Clay Loam	10YR 5/3	N	Moderate roots.	–
BKM 003	2	40–45	Clay	10YR 4/2	N	Common roots, impasse at 45 cmbs.	Root impasse
BKM 004	1	0–30	Clay	7.5YR 4/1	N	Few rootlets and pebbles.	–
BKM 004	2	30–40	Clay	10YR 5/3	N	Few pebbles.	Sterile subsoil
BKM 005	1	0–30	Clay	7.5YR 4/1	N	Few rootlets and pebbles.	–
BKM 005	2	30–40	Clay	10YR 5/3	N	Few pebbles.	Sterile subsoil
BKM 006	1	0–35	Clay Loam	7.5YR 6/4	N	Common gravels and pebbles. Impasse at 35 cmbs.	Rock impasse
BKM 007	1	0–35	Clay	10YR 5/3	N	Common pebbles.	–
BKM 007	2	35–45	Clay	7.5YR 4/1	N	Common rootlets, pebbles, reddish mottles at depth.	Sterile subsoil
BKM 008	1	0–30	Clay	10YR 5/3	N	Common pebbles.	–
BKM 008	2	30–40	Clay	7.5YR 4/1	N	Common rootlets, pebbles, reddish mottle at depth.	Sterile subsoil
BKM 009	1	0–35	Clay	7.5YR 4/1	N	Abundant rootlets and roots. Impasse at 35 cmbs.	Root impasse
BKM 010	1	0–35	Clay	10YR 5/3	N	Common pebbles.	–

ST No.	Level	Depth (cmbs)	Soil Texture	Munsell	Result *	Description/Comments	Reason for Termination
BKM 010	2	35–40	Clay	7.5YR 4/1	N	Common rootlets, pebbles, reddish mottle at depth.	Sterile subsoil
BKM 011	1	0–20	Clay	7.5YR 4/2	N	Common roots and gravels, large rocks. Impasse at 20 cmbs.	Rock impasse
BKM 012	1	0–30	Clay	7.5YR 4/2	N	Moderate roots and pebbles.	–
BKM 012	2	30–40	Clay	10YR 4/1	N	Few rootlets and pebbles.	Sterile subsoil
BKM 013	1	0–40	Clay Loam	7.5YR 4/2	N	Abundant roots, few pebbles. Impasse at 40 cmbs.	Root impasse
BKM 014	1	0–20	Clay Loam	7.5YR 5/3	N	Abundant gravels, large rocks. Impasse at 20 cmbs.	Rock impasse
BKM 015	1	0–30	Clay Loam	7.5YR 5/2	N	Common rootlets and gravels, pebbles.	–
BKM 015	2	30–35	Clay	10YR 5/2	N	Common pebbles.	Sterile subsoil
BKM 016	1	0–40	Clay Loam	7.5YR 4/1	N	Common roots, gravels, pebbles. Large root impasse at 40 cmbs.	Root impasse
BKM 017	1	0–20	Clay Loam	7.5YR 4/2	N	Abundant white and orange mottles, common gravels and pebbles, disturbed soil.	Disturbance
BKM 018	1	0–35	Clay Loam	7.5YR 6/6	N	Abundant gravels and pebbles, possible fill soil.	–
BKM 018	2	35–45	Clay	10YR 4/1	N	Common gravels and pebbles.	Sterile subsoil
BKM 019	1	0–30	Clay	10YR 4/1	N	Common gravels and pebbles.	–
BKM 019	2	30–40	Clay Loam	7.5YR 6/6	N	Abundant gravels and pebbles, possible fill soil.	Sterile subsoil
BKM 020	1	0–40	Clay	10YR 5/1	N	Few gravels.	–
BKM 020	2	40–50	Clay Loam	7.5YR 4/1	N	Common rootlets, few gravels.	Sterile subsoil
BKM 021	1	0–30	Clay Loam	7.5YR 4/1	N	Common rootlets, few gravels.	–
BKM 021	2	0–40	Clay	10YR 5/1	N	Few gravels.	Sterile subsoil
BKM 022	1	0–30	Clay Loam	7.5YR 4/1	N	Common rootlets, few gravels.	–
BKM 022	2	30–40	Clay	10YR 5/1	N	Few gravels.	Sterile subsoil
CRG 001	1	0–25	Sandy Clay	10YR 4/4	N	Limestone bedrock. <2%s mall rocks, <2% small roots.	Bedrock
CRG 002	1	0–50	Sandy Clay	10YR 4/4	N	10% small roots, limestone at bottom depth.	Bedrock
CRG 003	1	0–40	Sandy Clay	10YR 4/4	N	Limestone bedrock. <5% small roots.	Bedrock
CRG 004	1	0–20	Sandy Clay	10YR 4/4	N	<2% rootlets, limestone observed throughout.	Bedrock
CRG 001a	1	0-40	Clay	10YR 2/1	N	10% conglomerate nodules (.1cm to 1cm in diameter) with CaCO3 and small pebbles	Sterile Subsoil
CRG 002a	1	0-35	Clay	10YR 2/1	N	Very compact soil at 30cmbs. 10% conglomerate nodules (.5cm to 2cm in diameter) with CaCO3 and small pebbles	Sterile Subsoil
CRG 003a	1	0-40	Clay	10YR 2/2	N	Small grass roots 0-10cmbs <2%, 5% small pebbles and CaCO3 nodules	Sterile Subsoil
CRG 004a	1	0-35	Clay	10YR 2/2	N	Iron oxides are visible in soil. 10% small grass roots 0-5cmbs, soil is very compact at ending depth	Sterile Subsoil
CRG 005a	1	0-30	Clay	7.5YR 4/1	N	Soil is very dry and compact, <2% small grass roots 0-5 cmbs	Basal Clay
CRG 006a	1	0-40	Clay	10YR 2/1	N	<2% iron oxides observed throughout soil, small pebbles, and large rocks <2%	Basal Clay

ST No.	Level	Depth (cmbs)	Soil Texture	Munsell	Result *	Description/Comments	Reason for Termination
KMG 001	1	0–25	Clay Loam	10YR 2/2	N	Dense moist clay loam. Very sticky. 2% rootlets. 20% limestone gravels.	Bedrock
KMG 002	1	0–15	Clay Loam	10YR 2/2	N	Dense moist clay loam. Very sticky. 2% rootlets. 25% limestone gravels.	Bedrock
KMG 003	1	0–25	Clay Loam	10YR 2/1	N	Dense moist clay loam. Very sticky. 2% rootlets. 5% limestone gravels.	Bedrock
KMG 004	1	0–45	Clay Loam	10YR 2/1	N	Dense moist clay loam. Very sticky. 2% rootlets. 2% limestone gravels.	Bedrock
KMG 005	1	0–15	Clay Loam	10YR 2/2	N	Dense moist clay loam. Very sticky. 2% rootlets. 20% limestone gravels.	Bedrock
KMG 006	1	0–35	Clay Loam	10YR 2/2	N	Dense moist clay loam. Very sticky. 2% rootlets. 2% limestone gravels.	Bedrock
KMG 007	1	0–25	Clay Loam	10YR 2/1	N	Dense moist clay loam. Very sticky. <5% rootlets. 2% limestone gravels.	–
KMG 007	2	25–35	Clay Loam	5YR 6/2	N	Dense moist clay loam. Very sticky. <5% rootlets. 1% limestone gravels.	Root impasse
KMG 008	1	0–10	Clay Loam	10YR 3/2	N	Dense moist clay loam. Very sticky. 1% rootlets. 10% limestone gravels.	Bedrock
KMG 009	1	0–45	Clay Loam	10YR 2/1	N	Dense moist clay loam. Very sticky. 1% rootlets. 2% limestone gravels. Small fragments of shell.	Bedrock
KMG 010	1	0–10	Clay Loam	10YR 2/1	N	Dense moist clay loam. Very sticky. 2% rootlets. 10% limestone gravels.	Bedrock
KMG 011	1	0–25	Clay Loam	10YR 2/1	N	Dense moist clay loam. Very sticky. 2% rootlets. 10% limestone gravels.	Bedrock
KMG 012	1	0–35	Clay Loam	10YR 2/1	N	Dense moist clay loam. Very sticky. 2% rootlets. 5% limestone gravels.	Bedrock
KMG 013	1	0–30	Clay Loam	10YR 2/1	N	Dense moist clay loam. Very sticky. 2% rootlets. <5% limestone gravels.	Bedrock
KMG 014	1	0–20	Clay Loam	10YR 2/1	N	Dense moist clay loam. Very sticky. 2% rootlets. 10% limestone gravels.	Bedrock
KMG 015	1	0–20	Clay Loam	10YR 2/1	N	Dense moist clay loam. Very sticky. 2% rootlets. 5% limestone gravels.	Bedrock
KMG 016	1	0–10	Clay Loam	10YR 2/1	N	Dense moist clay loam. Very sticky. 2% rootlets. 20% limestone gravels.	Bedrock
LSD 001	1	0–25	Silty Clay	10YR 2/1	N	2 cobbles. Grass surface.	Bedrock
LSD 002	1	0–10	Silty Clay	10YR 2/1	N	None.	Bedrock
LSD 003	1	0–10	Silty Clay	10YR 2/1	N	None.	Bedrock
LSD 004	1	0–10	Silty Clay	10YR 2/1	N	None.	Bedrock
LSD 005	1	0–10	Silty Clay	10YR 2/1	N	Gravel surface.	Bedrock
LSD 006	1	0–15	Silty Clay	10YR 2/1	N	Cultivated yard.	Bedrock
LSD 007	1	0–10	Silty Clay	10YR 2/1	N	Bedrock visible on surface.	Bedrock
LSD 008	1	0–25	Silty Clay	10YR 2/1	N	Mottled with 10YR 5/4.	Bedrock
LSD 009	1	0–10	Silty Clay	10YR 2/1	N	None.	Bedrock
LSD 010	1	0–10	Silty Clay	10YR 2/1	N	None.	Bedrock
LSD 011	1	0–15	Silty Clay	10YR 2/1	N	None.	Bedrock
LSD 012	1	0–10	Silty Clay	10YR 2/1	N	None.	Bedrock
LSD 013	1	0–30	Silty Clay	10YR 2/1	N	Roots within top 5 cmbs.	Bedrock
LSD 014	1	0–30	Silty Clay	10YR 2/1	N	None.	Bedrock

ST No.	Level	Depth (cmbs)	Soil Texture	Munsell	Result *	Description/Comments	Reason for Termination
LSD 015	1	0–5	Silty Clay	10YR 2/1	N	None.	Water table
LSD 016	1	0–10	Silty Clay	10YR 2/1	N	None.	Bedrock
LSD 017	1	0–15	Silty Clay	10YR 2/2	N	None.	Bedrock
LSD 018	1	0–5	Silty Clay	10YR 2/1	N	Exposed bedrock area, gravels.	Bedrock
LSD 019	1	0–30	Silty Clay	10YR 2/1	N	Biomass mix in top 5 cmbs. Grass surface.	Bedrock

* N = Negative; cmbs = centimeters below surface