



# Federal Environmental Review

Environmental Information Document

To be used for projects receiving funding from the Clean Water State Revolving Fund or the Drinking Water State Revolving Fund

**TWDB-0801**  
**5/22/2015**

# Introduction: Full Environmental Review

When federal loan program funds are spent on a construction project, the project must be assessed for environmental impacts. The Environmental Information Document (EID) allows the Water Supply and Infrastructure Division, as well as other review agencies, to make determinations about the degree of impacts that can reasonably be expected to occur as a result of construction of a proposed project. For additional information about different types of impacts, see the scope of impacts section on the following page. Each sheet in the following template is intended to address a specific requirement needed to comply with the National Environmental Policy Act (NEPA). Information included in this template represents baseline information pertinent to the majority of projects. This template does not replace the necessity to submit a regulatory permit application to the U.S. Army Corps of Engineers (when applicable). Regulatory agencies and the TWDB may require additional information to determine project specific mitigation and permitting requirements as well as issue an environmental finding. Projects seeking funding through the Clean Water State Revolving Fund (CWSRF) or the Drinking Water State Revolving Fund (DWSRF) are subject to NEPA requirements. A full explanation of TWDB environmental requirements is provided in 31 TAC §375, Subchapter E (CWSRF), and 31 TAC §371, Subchapter E (DWSRF).

## **Timing**

Preparation of the EID is conducted during the planning phase of the project after a loan commitment has been secured. Please note that issuance of an environmental determination by TWDB environmental staff is required prior to TWDB approval of the Engineering Feasibility Report and release of design and/or construction funds. From beginning to end, this process can be completed in as few as 4 months but typically takes 8 to 10 months for most projects.

Example timeline for the preparation of an EID:

- Variable: Preparation of the base document (time varies by consultant).
- 2-3 months: Agency coordination & public meeting (agency coordination does not need to be complete prior to the public meeting).
- 1 month: Preliminary review of the EID by TWDB staff. After review, the TWDB will send a list of deficiencies to the consultant identifying any additional information required.
- Variable: Submission of supplemental information by the consultant as required by TWDB comments (time varies by consultant).
- 1 month: TWDB approval of the EID and issuance of an environmental determination.
- 1 month: 30-day public comment period.
- Board: Next available Board date for an affirmation of the original loan commitment.

## **Report Structure**

The structure of the EID is crucial in allowing for an efficient review of the document. Adhering to the provided structure will allow for ease of use by the project reviewer and others who may be unfamiliar with the project. For projects that contain multiple components, the EID must be prepared in a manner that addresses each component in an orderly fashion.

## **Submission**

Once completed, the EID, as well as any questions regarding the preparation of the document or review process, should be submitted to:

**Environmental Reviewer**  
**Texas Water Development Board, Regional Water Planning & Development**  
**P.O. Box 13231, Austin, Texas 78711-3231**  
**Telephone: (512) 936-0938**

# Scope of Impacts

When constructing a project, three types of impacts must be documented in the EID. These impacts are as follows:

- Direct impacts
- Secondary impacts
- Cumulative impacts

Benefits – Environmental impacts that result in a positive outcome

Secondary and cumulative impacts are often assessed jointly. Environmental impacts can be both positive (hereafter known as benefits) and negative (hereafter known as impacts). The EID should include a discussion of both impacts and benefits. When considering cumulative impacts under NEPA, review and implement the information in *Considering Cumulative Effects Under the National Environmental Policy Act*, which is published by the Council of Environmental Quality.

## **Direct Impacts**

Direct impacts are effects on the environment that occur at the same time and place as the project. They are the most certain and predictable of the impacts and are typically the easiest to identify. Direct impacts include impacts from construction-related activities as well as impacts related to operation of a newly constructed or modified facility upon completion of construction. Construction impacts include such things as air emissions from construction vehicle traffic, soil disturbance, sedimentation and erosion, and land clearing activities. Operational impacts include such things as increased noise from generators or other equipment in use after construction is completed, odors associated with pump stations, and increased effluent discharge to a stream from a plant expansion.

Direct Impacts – Effects on the environment that occur at the same time and place as the project.

Examples of direct impacts include the following:

- Displacement of wildlife due to vegetation clearing associated with construction projects
- Air emissions from open burning during construction
- Aquatic habitat degradation from installation of a sewer pipe crossing a stream
- Increased nutrient loading in a river from a wastewater treatment plant discharge
- Odors from a wastewater treatment plant

## **Secondary Impacts**

Secondary impacts are effects to the environment and natural resources that are removed in time and distance from a project's construction and operation activities. Secondary impacts are also called "indirect impacts" and are often thought of as chain reaction processes where one action or result leads to another action or result. Guidelines for implementing NEPA (40 CFR §1508.8) broadly define secondary impacts as:

Secondary impacts (indirect impacts) – Effects to the environment and natural resources that are more removed in time and distance from a project's construction and operation activities.

*...indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.*

Secondary impacts associated with infrastructure projects are often related to residential, commercial, and industrial growth that the infrastructure project supports. For example, after sewer service is extended into

an unsewered area, a subdivision might be built. The paved roads and other impervious services in the new subdivision may increase the level of pollutants in a nearby stream due to runoff. The decreased water quality that results in the stream is not directly related to the construction or operation of the sewer system, but it is indirectly related to the project because the expanded sewer system supported development of the new subdivision.

### **Cumulative Impacts**

Cumulative impacts are effects that result from the project's direct impacts when added together with impacts from other past, present, and future projects that can be reasonably predicted. NEPA regulations define cumulative impacts as "environmental impacts which result from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."

Cumulative impacts – Effects that result from the project's direct impacts added together with impacts from other past, present, and future projects that can be reasonably predicted.

Evaluating cumulative impacts requires analysis of the "big picture" in terms of time and space. Consider the following example: run-off from parking areas surrounding a single shopping center might not be a significant stressor to the receiving stream, but the combined run-off from multiple shopping centers located in the same watershed can become a significant stressor. Another example would be where a combination of wastewater infrastructure projects in the same river basin could create nutrient issues downstream. Note: In some cases, cumulative impacts may be positive. For example, if, in a watershed, several stream and wetland restorations are implemented in the headwaters of the watershed, then nutrient loadings and siltation may be reduced downstream. Cumulative impacts are an issue that must be considered any time that growth is anticipated in the project area, even if that growth is not facilitated by or connected to the proposed project. If impacts from a proposed project are minor and limited to construction only, they are less likely to contribute to cumulative impacts in the broader project area.

Cumulative impacts must be considered and discussed for any project that takes place in an area experiencing growth and development, even if the proposed project is not an expansion project.

## **Environmental Information Document**

The following pages, beginning with the Table of Contents, contain the template EID. The following nine (9) sections should be completed to the maximum extent practicable. To expedite the review of this document, please provide all requested information in a clear and concise manner. If a section does not apply to the project, please indicate that it does not apply by writing "Not Applicable" in the space provided.

Sections 1, 3, 4, and 5 request specific information regarding the proposed project; alternatives considered; the environmental setting of the project; potential direct, secondary, and cumulative impacts; and proposed mitigation. Section 2 provides a list of attachments that should be included in Section 9 of the EID. As noted in Section 2, documents lacking required attachments will not be accepted. Section 6 describes the public participation process and the materials that must be submitted by the applicant after a public meeting has occurred. In order to facilitate agency coordination, Section 7 provides a rubric for the applicant to determine whether agency coordination is required. Example coordination and notification letters are conveniently provided within the document. Section 8 contains a certification statement whereby the applicant confirms that the information contained in this document is accurate and complete to the applicant's knowledge, and that this document describes the complete project.

**\*To update the Table of Contents: (1) Click on Table, (2) Choose Update Table, (3) Select Update Entire Table**

## Table of Contents

Section 1: General Information .....	5
Section 2: List of Attachments.....	6
Section 3: Project Description .....	8
Preferred Action Alternative .....	8
Section 4: Alternative Analysis .....	12
No-Action Alternative.....	12
Alternative Not Selected .....	15
Selection of the Preferred Action Alternative .....	18
Section 5: Environmental Settings, Impacts and Mitigation .....	19
5.1: Land Use .....	19
5.2: Geology.....	20
5.3: Soils & Prime and Important Farmland .....	21
5.4: Water Resources .....	22
5.5: Topography and Floodplains .....	24
5.6: Wetlands, Streams, and Waters of the United States.....	26
5.7: Biological Elements.....	29
5.8: Cultural Resources.....	31
5.9: Hazardous Materials.....	33
5.10: Social Implications & Environmental Justice .....	34
5.11: Other Potential Impacts or Requirements .....	35
5.12: Secondary and Cumulative Impacts .....	36
5.13: Standard Mitigation, Precautionary Measures and Best Management Practices .....	37
5.14: Mitigation Measures .....	38
5.15: References .....	39
Section 6: Public Participation.....	40
Section 7: Agency Coordination .....	42
Sample Agency Notification Letter.....	45
Sample Agency Coordination Letter.....	46
Relevant Sections by Agency .....	47
Section 8: Certification .....	50
Section 9: Appendices .....	51

## Section 1: General Information

**Authority (Loan Applicant):** New Braunfels  
**TWDB Project No:** 1307840 (OLA ID)/ PIF 13269  
**Project Name:** NBU Surface Water Treatment Plant Expansion  
**Counties where project activities will occur:** Comal

Funding Source/ Loan Number:	Drinking Water State Revolving Fund / 1307840 (OLA ID) / PIF 13269 (DWSRF Non-Equivalency)  /	
Total Estimated Project Costs:	40M	
TWDB Funded Phases:	<input checked="" type="checkbox"/> Planning <input type="checkbox"/> Acquisition <input checked="" type="checkbox"/> Design <input checked="" type="checkbox"/> Construction	
Other Funding Source(s):	N/A	
Consultant Project Name/Number (if applicable):	NBU Surface Water Treatment Plant Expansion	
Primary Contact for questions concerning the EID:	Company:	Arcadis U.S., Inc.
	Contact Person:	Jeremy Henson, CE
	Mailing Address:	1717 West 6 <sup>th</sup> Street, Suite 210, Austin, Texas 78703
	Phone:	512-527-6111
	Email:	Jeremy.henson@arcadis.com
Project Engineer:	Company:	Arcadis U.S., Inc.
	Contact Person:	Krishna Praveen
	Mailing Address:	1717 West 6 <sup>th</sup> Street, Suite 210, Austin, Texas 78703
	Phone:	512-527-6084
	Email:	Praveen.krishna@arcadis.com
List of Preparers:	<ol style="list-style-type: none"> <li>1. Jeremy Henson, CE</li> <li>2. Elizabeth Hingle</li> <li>3. Branson Mauck, PWS</li> <li>4. Lindsey Drum</li> <li>5. Danielle Clemons</li> </ol>	

## Section 2: List of Attachments

### Documents lacking required attachments will not be accepted

**Identify the project footprint on all maps.**

**Maps must have adequate resolution and be at an appropriate scale.**

Example project maps are provided online at:

<http://www.twdb.texas.gov/financial/instructions/doc/TWDB-1800.pdf>

Many of the resources required by the following list of attachments can be acquired for free online. If you are unfamiliar with the resources identified below or are not sure where to find them, please contact your environmental reviewer for assistance.

Map(s): Show existing structures, potential location(s) of new or upgraded structure(s), and areas(s) that will be disturbed by the project, including construction staging area(s). Provide a scale bar, north arrow, and legend.

Label and Describe: Potentially-impacted environment(s) and site feature(s) (e.g., public/private property, developed or landscaped areas, roads, historic properties, wetlands, forested areas, rivers, streams, 100-year floodplain, prime farmland, wild and scenic rivers, protected areas, above and below-ground utilities, U.S. EPA designated sole source aquifer areas, etc.)

#### Appendix A: Standard Maps

Regional Location Map	Page: A-1
USGS Topographic Map(s) for Preferred Alternative	Page: A-2
Project footprint or plans/plats	Page: A-3-1 and A-3-2
Geologic Map	Page: A-4
FEMA Floodplain Map(s)	Page: A-5
National Wetlands Inventory Map(s)	Page: A-6

#### Appendix B: Environmental Setting, Impacts and Mitigation Attachments

<b>Appendix B1</b> Soils & Prime and Important Farmland (Section 5.3)  Page: B-1-12	<u>NRCS Soil Survey for Proposed Project Area of Interest</u> (Required)	
	<input checked="" type="checkbox"/> Map + Table of Soils (Series level) <input checked="" type="checkbox"/> Map + Table of Hydric Soils <input checked="" type="checkbox"/> Map + Table of Prime & Important Farmlands	
	<u>NRCS Farm Impact Rating</u> (If Applicable) Farm Impact Rating Form	Attached <input type="checkbox"/> N/A <input checked="" type="checkbox"/>
<b>Appendix B2</b> Wetlands, Streams & Waters of the U.S (Section 5.6)  Page: B-N/A	<u>Wetland &amp; Streams Impacts Map</u> (If Applicable)	
	Wetland & Streams Impacts Map	Attached <input type="checkbox"/> N/A <input checked="" type="checkbox"/>
	<u>Wetland Delineation Report</u> (If Applicable)	
Wetland Delineation Report	Attached <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	

## Section 2: List of Attachments

### Documents lacking required attachments will not be accepted

<b>Appendix B3</b> Biological Resources (Section 5.7)  Page: B-15-51	<u>County List of Rare, Candidate, Threatened and Endangered Species</u> (Required) <input checked="" type="checkbox"/> USFWS: County List of Federal Candidate, Threatened and Endangered Species <input checked="" type="checkbox"/> TPWD: County List of State and Federal Rare, Threatened and Endangered Species <input checked="" type="checkbox"/> Potential Impacts Table
<b>Appendix B4</b> Cultural Resources (Section 5.8)  Page: B-53-62	<u>Cultural Resources Report</u> (If Applicable) Cultural Resources Report Attached <input checked="" type="checkbox"/> N/A <input type="checkbox"/>
<b>Appendix B5</b> Hazardous Materials (Section 5.9)  Page: B-N/A	<u>Hazardous Materials</u> (If Applicable) Formal Site Assessment Attached <input type="checkbox"/> N/A <input checked="" type="checkbox"/>
<b>Appendix B6</b> Social Implications & Environmental Justice (Section 5.10)  Page: B-65-76	<u>All maps &amp; reports should be generated through the EPA's EJ View Website</u> (Required) <input checked="" type="checkbox"/> EJ View Map (add a 0.5 mile buffer around the construction area) <input checked="" type="checkbox"/> ACS Summary Report <input checked="" type="checkbox"/> Census Summary Report <input checked="" type="checkbox"/> Environmental Report  <u>Census QuickFacts Summary</u> (Required) <input checked="" type="checkbox"/> City vs. State <input checked="" type="checkbox"/> County vs. State
<b>Appendix B7</b> Public Meeting (Section 6)  Page: B-	<u>Public Meeting Documentation</u> <input type="checkbox"/> Publisher's affidavit and a copy of the Public Meeting Notice <input type="checkbox"/> Statement signed by applicant - meeting was held in conformance with the Public Meeting Notice. <input type="checkbox"/> List of witnesses <input type="checkbox"/> Written summary of the meeting



## Section 3: Project Description

### Preferred Action Alternative

For the purposes of this document the project site includes all areas that will be disturbed by the project, including construction staging area(s). The project area includes surrounding areas which may, directly or indirectly, be impacted by the project.

**1. Background:** Briefly describe the existing system (e.g., treatment processes, capacity of treatment plant, annual average and peak demand flows, etc.).

NBU's current, and only, Surface Water Treatment Plant (SWTP) was designed by Hunter Associates, Inc. in 1990 and employs conventional water treatment techniques. Raw water from the Guadalupe River is treated using coagulation, flocculation, clarification, filtration, and disinfection. The SWTP uses aluminum sulfate (i.e., alum) as a primary coagulant. As needed, bentonite clay and copper sulfate are added during rapid mix to increase the turbidity to establish and/or maintain a sludge blanket in the clarifier and prevent algal growth, respectively. The SWTP also has the capacity to feed chlorine ahead of clarification (i.e., Disinfection Zone 1, D1) but only currently feeds chlorine at a low dose for additional algae control; current practice is to feed chlorine downstream of clarification for disinfection (i.e., in Disinfection Zone 2, D2). Following filtration, the chlorine residual is boosted and liquid ammonium sulfate (LAS) is added to form chloramines (i.e., Disinfection Zone 3, D3). Finally, fluoride is also added prior to distribution.

The SWTP was designed to produce a daily flow of 8.0 MGD. On average, roughly 6.6 MGD of raw water is pumped to the SWTP (i.e., 82 percent of design flow). The maximum flow pumped to the SWTP was 9.8 MGD, on May 3, 2014. Raw water intake during summer months (i.e., May, June, July, August, and September) was higher than during winter months (i.e., November, December, January, and February). The average influent flow seen during summer was roughly 7.0 MGD, which exceeds the average winter flow of 6.1 MGD by almost one MGD. Note that flow data listed above comes from the flow meter on the raw water line; thus, it does not reflect actual water production to the distribution system. As of late 2020, a new flow meter was installed on the finished water line, which will allow for characterizing water use through the treatment processes.

**2. Project Location:** Briefly describe the project location (e.g., new undeveloped site, existing treatment plant site, undeveloped portion of an existing site, site adjacent to existing facilities, currently owned, acquisition required, etc.).

The existing SWTP is located toward the center of NBU's service area (**A-1**) at 2356 Gruene Road, approximately one-quarter mile from the banks of the Guadalupe River. The SWTP property is owned by NBU. The Raw Water Pump Station (RWPS) property access is provided to NBU through a 30-foot wide electrical line, water line, and roadway/access easement (**A-3**). Proposed project activities/improvements will occur within the existing, developed facility.

Latitude/Longitude: 29.718720°, -98.118560°

Project Address (if applicable): 2356 Gruene Road, New Braunfels, Texas 78130

## Section 3: Project Description Preferred Action Alternative

**3. Project Need & Purpose:** What need does the project address? (e.g., improve water quality, increase capacity, inadequate system or system components, increase treatment due to more stringent effluent limits, linear work, etc.)

In response to increasing demand for potable water in the City of New Braunfels (the City), New Braunfels Utilities (NBU) has secured the water rights to a firm yield supply of 16 million gallons per day (MGD) of surface water through Guadalupe River run-of-river (ROR) water permits and Guadalupe-Blanco River Authority (GBRA) Canyon Reservoir water. This SWTP Expansion project will double the current treatment capacity of the SWTP to allow for treating these additional water rights. Additionally, the new treatment processes and equipment will be more robust and flexible allowing for improved water quality, better safety for the operators and community, and more resilience during flooding.

Is the proposed project being pursued in response to a compliance order? No

**4. Project Description:** Description should include project costs, design year and design population.

NBU's current Surface Water Treatment Plant (SWTP) only has the capacity to treat 8 MGD, thus the full volume of firm yield surface water cannot be treated and distributed. Therefore, in order to utilize the newly acquired surface water, the treatment capacity of the SWTP must be increased by 8 MGD. Additionally, the project will improve water quality, safety, and resiliency of the facility.

- Project costs are projected to be \$40M, including planning, design, construction, and financial services.
- Design year 2042
- Population projected to increase to approximately 211,100 in the next 20 years.

Is the proposed project part of a larger project?  Yes  No

If the proposed project is one phase of a larger project, describe the duration and purpose of the larger project.

**5. Waste Disposal:** Does the project require sludge/soil/waste disposal?  Yes  No

If yes, identify the location(s) and method(s) of disposal:

Drying beds are located on-site; liquids are drained to the NBU sewer system and dried solids are hauled to a landfill.

**6. Project Components:** Provide a bulleted list (e.g. install 1,000 linear feet of new 6-8 inch pipeline in existing ROW and easements from the outfall structure in Lake X to the WTP, install new 300,000 gallon ground storage tank at the WTP, demolish existing chemical storage building, etc.).

Expanded SWTP Design Elements will include:

- New raw water pump
- New raw water meter vault
- New rapid mix basin with mechanical mixers
- New rectangular multi-stage flocculation basins
- New rectangular clarification basins with plate settlers and sludge collectors
- Expanded chemical storage and feed systems; optimized chemical storage layout
- New chlorine building with a dry scrubber

### Section 3: Project Description Preferred Action Alternative

- New filters, a new pumped backwash system, and filter-to-waste capability
- New clearwell
- Additional high service pump(s)
- Expanded residuals handling facilities
- Cathodic protection and corrosion-resistant coatings

Site-Wide Improvements will include:

- Additional instrumentation to improve process control
- Connection of new equipment to a SWTP-wide SCADA platform with a redundant Historian and upgraded automation and controls, including new control panels and PLCs with redundant processors.
- Electrical upgrades including a dual power feed, new MCCs, a new high service pump station electrical building, and a new electrical room in the maintenance building
- Flood resiliency improvements, including elevation and floodproofing of new assets
- Safety improvements
- Additional lighting
- Structural repairs
- Administration building HVAC upgrades
- Continuous sample sink in the laboratory
- New building for predictive maintenance staff offices, storage and workshop

#### 7. Project Magnitude:

- i. Current population of service area: 102,900
- ii. Anticipated population of service area in 20 years: 200,300
- iii. Will the proposed project service the entire population increase?  Yes  No

#### 8. Project Schedule:

Anticipated Completion of Environmental Review: 2021

Completion of Acquisition: Not Applicable

Completion of Permitting: 2023

Completion of Design: 2021

Start of Construction: November 2021

Construction Completion: 2023

### Section 3: Project Description Preferred Action Alternative

- |  |       |
|--|-------|
| 9. <b>Project Costs:</b> Provide an estimate of the cost of the project.   | \$40M |
| 10. <b>Other Projects:</b> Provide a description of any other projects in progress that may be affected by the proposed project (e.g., TxDOT plans for Road Construction, etc.). |       |
| This project will need to be coordinated with other NBU projects, such as distribution system improvements to allow for distributing and storing the water produced.             |       |

## Section 4: Alternative Analysis

### No-Action Alternative

#### Environmental Impact Description

Provide a qualitative description of the environmental impacts of the no-action alternative and compare the impacts to that of the preferred alternative. (e.g., WTP would remain out of compliance with TCEQ primary drinking water standards, leaky on-site septic systems would continue to contaminate surface water, etc.)

Under the no-action alternative, the project area would remain in its current state and NBU would have continue to operate the SWTP at its current capacity, which would ultimately underserve the growing community. Although there would be no ground disturbing activities associated with site development and there would be no impacts to local natural resources, cultural resources, or socioeconomic resources, the project would not contribute to an increase in water treatment capacity or support the growth of the community over time. Ultimately, this would not meet the purpose and need of the project.

## Section 4: Alternative Analysis

### No-Action Alternative

#### Environmental Impact Analysis

Please indicate whether the direct impacts of the no-action alternative on the following resources are greater than, less than or the same as the direct impacts of the preferred alternative on the same resource.

#### Land Use

Change in land use and land cover is:  Greater  Less  Same

#### Prime and Important Farmland

Impacts to prime and important farmland are:  Greater  Less  Same

#### Water Resources

Impacts to surface water quality are:  Greater  Less  Same

Impacts to groundwater quality and quantity are:  Greater  Less  Same

Impacts to floodways or floodplains are:  Greater  Less  Same

Impacts to wetlands are:  Greater  Less  Same

#### Vegetation and Habitat

Impacts to trust resources are:  Greater  Less  Same

Impacts to wildlife are:  Greater  Less  Same

Impacts to native vegetation is:  Greater  Less  Same

Impacts to endangered species habitat are:  Greater  Less  Same

#### Cultural Resources

Impacts to cultural resources or historic properties are:  Greater  Less  Same

#### Air Quality

Effects on air quality are:  Greater  Less  Same

#### Environmental Justice

Impacts to Low-income or Minority Populations are:  Greater  Less  Same

## Section 4: Alternative Analysis

### No-Action Alternative

**Secondary and Cumulative Impacts:** Considering resources that the no-action alternative will impact, identify any past, present or reasonably foreseeable future projects which impact these same resources. This answer will provide important contextual information.

The no-action alternative is not likely to have any secondary or cumulative impacts on land use, conversion of farm land, induced development, environmental justice populations, noise, air quality, floodplains, jurisdictional Waters of the U.S., vegetation communities, or wildlife habitat within the project area. However, the no-action alternative would likely lead to the New Braunfels Service Area having continued and worsening water shortages. The construction of alternative surface water treatment plants would likely have to be completed, which could present potentially greater environmental impacts than the expansion of the existing facility.

#### Acceptance/Rejection

**Alternative:**     Accepted             Rejected

#### Rationale for Acceptance/Rejection

Discuss the rationale for acceptance/rejection of the no-action alternative, including financial, engineering and environmental considerations (e.g. cost comparison, reliability of alternative, complexity of alternative, significant environmental effects, legal or institutional constraints, etc.):

Under the no-action alternative, the project area would remain in its current state and NBU would have continue to operate the SWTP at its current capacity, which would ultimately underserve the growing community. Expanding the existing SWTP under the preferred alternative allows for cost-efficiency due to leveraging the existing infrastructure and facilities. The preferred alternative maximizes the potential of an existing facility to aid in water supply demands for the New Braunfels Service Area with minimal and temporary environmental impacts.

## Section 4: Alternatives Analysis

### Alternative Not Selected

*\*Attach additional alternative sheets as necessary\**

#### Description

Please provide a description of this alternative:

NBU considered constructing on a new site outside of the 100-year floodplain and has proactively procured a property on Hueco Springs Loop Road. However, additional study is needed to determine the best point of diversion, evaluate treatment capabilities, procure the raw water pump station site, and acquire pipeline alignments. Additionally, source water contract changes are needed, a design is required, and additional infrastructure would be needed to connect the new SWTP site to NBU's distribution system. There is not sufficient time to complete these activities prior to NBU's need for additional water supply in 2023.

Further, expanding the existing SWTP allows for cost-efficiency due to leveraging the existing infrastructure and facilities. The cost-efficiency of constructing a new SWTP on Hueco Springs Road will increase as growth and demand continues to expand toward the location of the SWTP site.

Alternative still in consideration?       \*Yes       No

*\*If yes, please note that the level of detail provided for this alternative should be commensurate with the level of detail provided for the preferred alternative presented in this document. Please work with your Environmental Reviewer to scope this document appropriately in order to prevent project delays.*

#### Environmental Impact Description

Provide a qualitative description of the environmental impacts (adverse and beneficial) of this alternative and compare the impacts to that of the preferred alternative. Specify temporary versus permanent impacts.

Under the alternative not selected, the proposed project may involve minor stream or wetland impacts depending on the location of the source water intake pump station and pipeline alignments. Under this alternative, impacts to potential federally listed threatened or endangered species may occur, but further analysis may be needed depending on the final design. Further review and analysis of impacts to cultural resources may also be needed. Construction activities would also impact localized soils, but permanent structures would add impervious cover. The impacts to soils during construction could be mitigated with the use of best management practices to decrease the potential for sediment loading during rain events, and impacts would be short-term. The increase of impervious cover would increase stormwater runoff, but the impacts would likely be negligible.



## Section 4: Alternatives Analysis

### Alternative Not Selected

*\*Attach additional alternative sheets as necessary\**

#### Environmental Impact Analysis

Please indicate whether the direct impacts of the alternative not selected on the following resources are greater than, less than or the same as the direct impacts of the preferred alternative on the same resource.

#### **Land Use**

Change in land use and land cover is:  Greater  Less  Same

#### **Prime and Important Farmland**

Impacts to prime and important farmland are:  Greater  Less  Same

#### **Water Resources**

Impacts to surface water quality are:  Greater  Less  Same

Impacts to groundwater quality and quantity are:  Greater  Less  Same

Impacts to floodways or floodplains are:  Greater  Less  Same

Impacts to wetlands are:  Greater  Less  Same

#### **Vegetation and Habitat**

Impacts to trust resources are:  Greater  Less  Same

Impacts to wildlife are:  Greater  Less  Same

Impacts to native vegetation is:  Greater  Less  Same

Impacts to endangered species habitat are:  Greater  Less  Same

#### **Cultural Resources**

Impacts to cultural resources or historic properties are:  Greater  Less  Same

#### **Air Quality**

Effects on air quality are:  Greater  Less  Same

#### **Environmental Justice**

Impacts to Low-income or Minority Populations are:  Greater  Less  Same

## Section 4: Alternatives Analysis

### Alternative Not Selected

*\*Attach additional alternative sheets as necessary\**

**Secondary and Cumulative Impacts:** Considering resources that this alternative will impact, identify any past, present or reasonably foreseeable future projects which impact these same resources. This answer will provide important contextual information.

The alternative not selected is not likely to have any secondary or cumulative impacts on land use, conversion of farm land, environmental justice populations, noise, air quality, floodplains, jurisdictional Waters of the U.S., vegetation communities, or wildlife habitat within the project area.

#### Acceptance/Rejection

**Alternative:**     Accepted             Rejected

#### Rationale for Acceptance/Rejection

Discuss the rationale for acceptance/rejection of this alternative, including financial, engineering and environmental considerations:

Under the alternative not selected, short term construction impacts would occur, as well as a negligible loss vegetation, wildlife habitat, and increase in impervious cover. However, additional study would be needed to determine the best point of diversion, evaluate treatment capabilities, procure the raw water pump station site, and acquire pipeline alignments. Additionally, source water contract changes are needed, a design is required, and additional infrastructure would be needed to connect the new SWTP site to NBU's distribution system. There is not sufficient time to complete these activities prior to NBU's need for additional water supply in 2023.

**Section 4: Alternatives Analysis**  
**Alternative Not Selected**

*\*Attach additional alternative sheets as necessary\**

**Section 4: Alternatives Analysis**  
**Selection of the Preferred Action Alternative**

Discuss the rationale for why the proposed project was chosen as the preferred alternative:

Expanding the existing SWTP under the preferred alternative allows for cost-efficiency due to leveraging the existing infrastructure and facilities. The preferred alternative maximizes the potential of an existing facility to aid in water supply demands for the New Braunfels Service Area with minimal and temporary environmental impacts.

## Section 5: Environmental Settings, Impacts and Mitigation

### 5.1: Land Use

#### Existing Conditions

Will the project require land use conversion?  Yes  No

If yes, explain:

The existing SWTP is secured by a perimeter fence and the grounds within the perimeter fence consist of mowed grass (lawn) with few scattered trees. Although the expansion of the current facility will replace some of the maintained lawn with impervious cover, the overall land use of an active SWTP will remain unchanged.

Describe current and recent past land use and development on the site and on adjacent lands. Discuss project compatibility with adjacent and nearby land uses.

Current land use is flat, maintained grassland adjacent to existing surface water treatment facilities, including a rapid mix flocculation and clarification structure, filter structure, chemical building, ground storage tank, raw water pump station, decant basin, drying beds, and an administration building. Woodlands exist within project boundary (outside of the security perimeter fence, but construction is expected to occur within the perimeter fence (near the existing facility) and within maintained, cleared areas.

Will new or expanded utilities, roads, other infrastructure or public services be required to serve the project?

Yes  No

If yes, describe additional services needed:

NBU will have to expand their distribution system piping leaving the plant in order to distribute the additional water that is produced. Electrical upgrades may also be required, including providing dual-power feed to the SWTP to serve as an emergency backup during a power outage (an additional electrical service line is available nearby). However, these upgrades are not a component of the TWDB loan package, and they will be conducted throughout the NBU water supply system, as needed, to manage the increased water treatment capacity and delivery demands.

#### Impacts

Describe direct impacts of the project (adverse and beneficial) on land use. Specify temporary versus permanent impacts.

Under the preferred alternative, there would be no adverse impacts to land use from the project. The open, maintained lawn within the project boundary will be permanently converted to accommodate the new structures previously discussed. However, this conversion will match the existing land use within the project area.

#### Mitigation Measures

Mitigation Measures for Project Environmental Impacts?  Yes  Not applicable

If yes, list all mitigation measures in Section 5.14.

## Section 5: Environmental Settings, Impacts and Mitigation

### 5.2: Geology

#### Existing Conditions

Physiographic Province:	<input checked="" type="checkbox"/> Gulf Coast Plains	<input type="checkbox"/> Central Texas Uplift	<input type="checkbox"/> Grand Prairie
	<input checked="" type="checkbox"/> Edwards Plateau	<input type="checkbox"/> North-Central Plains	<input type="checkbox"/> High Plains
	<input type="checkbox"/> Basin and Range		

Are there faults within the project's area of interest?  Yes  
 No

Is the project located in a Karst or Pseudo-Karst Zone?  Yes  
 No

Include the names and brief descriptions of the geologic formations in the project's area of interest.

Per the U.S. Geological Survey's Texas Geology Web Map Viewer (accessed December 2020), the project area is underlain by fluvial terrace deposits (Qt). The deposits are composed of silt, clay, sand, and gravel in proportions, with gravel more prominent in areas with older deposits. Increasing amounts of silt, clay, and sand are present in the vicinity of Tertiary rocks; south of the Edwards Plateau and low terrace deposits are mostly above flood level along entrenched streams.

Discuss any relevant topographical and geological features (e.g. salt domes, sink holes, shallow limestone formations, karst conditions, cave systems, etc.).

There are no relevant topographical or geological features within the project area.

#### Impacts

Describe direct impacts of geology on the proposed project. Please elaborate on all items checked "Yes" above:

Under the proposed action, there will be no adverse direct impacts to geology with the proposed project. Comal County is located in the Balcones Fault Zone, which is a karst region of Texas. However, the project area is east of the major faults and associated lithology. All impacts will occur within fluvial terrace deposits.

#### Mitigation Measures

Mitigation Measures for Project Environmental Impacts?  Yes  Not applicable  
If yes, list all mitigation measures in Section 5.14.

## Section 5: Environmental Settings, Impacts and Mitigation

### 5.3: Soils & Prime and Important Farmland

<b>Soils</b>	
Is soil contamination present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Does soil type present any constraints to the project?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If yes to either above, explain (if redundant with information provided in the Hazardous Materials section reference that section): N/A	
Will soil be moved offsite? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If yes, how will it be disposed of? TBD
Will soil become contaminated as a result of the proposed project? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If yes, explain:
<b>Prime and Important Farmland</b>	
Does the project area contain prime and important farmlands?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If yes, does either of the following exemptions apply? <input type="checkbox"/> Exempt – corridor subsurface project (e.g., buried water, sewage, and/or electric lines). <input checked="" type="checkbox"/> Exempt – previously converted site (e.g., existing water and wastewater treatment plant sites).	
If the project area contains prime and important farmlands and does not qualify for the exemptions listed above, include a completed version of the NRCS' Farmland Conversion Impact Rating Form AD-1006 <input type="checkbox"/> Attach Form AD-1006 to Appendix B1	
<b>Impacts</b>	
Will prime and important farmland be directly impacted by the project?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Describe direct impacts of the project on prime and important farmland: Prime farmland is not present within project area.	
<b>Mitigation Measures</b>	
Mitigation Measures for Project Environmental Impacts? If yes, list all mitigation measures in Section 5.14.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable

## Section 5: Environmental Settings, Impacts and Mitigation

### 5.4: Water Resources

#### Existing Conditions

What river basin(s) is the proposed project located in?

Guadalupe

What major/minor aquifers are located in the greater project area?

Two major aquifers: Edwards & Trinity

Are any of these a sole source aquifer?



Yes



No

Water supply(ies):

Surface water(s):

Guadalupe River

Groundwater(s):

Edwards & Trinity Aquifers

#### Water Well Projects

Does the project involve the installation of any water wells?



Yes



No

If yes, provide the depth to ground water, duration and quantity of water to be extracted, and potential affects to the public water supply:

N/A

Will the project require test wells?



Yes



No

Will any existing water well(s) be abandoned?



Yes



No

If yes, discuss best management practices that will be used to abandon the existing well(s):

N/A

#### Impacts to Water Resources

Will water resources be directly impacted by the project?



Yes



No

Describe direct impacts (adverse and beneficial) to surface water quality and groundwater quality/quantity (surface water runoff, erosion, sedimentation, temporary loss of vegetation cover, etc.). Specify temporary versus permanent impacts.

Temporary impacts to the project area are anticipated during the construction process. The impacts have the potential to include erosion of topsoil, sedimentation during rainfall events, and temporary loss of vegetation cover during construction. The project area will be restored to pre-construction conditions, where applicable, upon completion of construction activities. No permanent impacts to surface water or ground water quality are anticipated as a result of this project.

The ground disturbed would be greater than one acre and coverage under the Texas Pollutant Discharge Elimination System Construction General Permit, TXR150000, would be required. Prior to construction, a Stormwater Pollution Prevention Plan (SWPPP) would be prepared and implemented, including best management practices to reduce erosion and sediment loading of stormwater runoff from the project area to reduce temporary impacts associated with ground disturbance.

## Section 5: Environmental Settings, Impacts and Mitigation

### 5.4: Water Resources

Will the project include new or relocated discharge site(s)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Will the project require an amendment to an existing TCEQ discharge permit?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
<p>If yes, discuss the nature of the permit changes:</p> <p>Expansion of the SWTP will trigger two TCEQ permitting requirements: a stormwater general permit for construction activities (TXR150000), which is regulated under the Texas Pollutant Discharge Elimination System (TPDES) program; and a plan review for public water systems modifications (RG-346 and 30 TAC Chapter 290 Subchapter D). As the SWTP is located within New Braunfels City Limits, the New Braunfels Building Division will require a building permit application to verify that the work complies with floodplain, building, electrical, mechanical, and plumbing codes required by the City.</p>			
<p><b>If the project requires a new permit or a permit amendment, list all stream segment(s) found at and immediately downstream of the proposed discharge sites.</b> Source: TCEQ list of stream segments and water quality data.</p>			
Stream Segment ID	Classification	Impaired?	Reason for Impairment
1812	Classified; Freshwater Stream	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
		<input type="checkbox"/> Yes <input type="checkbox"/> No	
<b>Mitigation Measures</b>			
Mitigation Measures for Project Environmental Impacts?		<input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable	
If yes, list all mitigation measures in Section 5.14.			



## Section 5: Environmental Settings, Impacts and Mitigation

### 5.5: Topography and Floodplains

<b>Topography</b>		
Minimum Elevation in Project Area (MSL):	Maximum Elevation in Project Area (MSL):	
620	638	
Briefly describe the topography in the project area (e.g., gently rolling hills, dominant drainage to the west via tributaries to the Brazos River):		
Relatively flat, maintained property with existing surface water treatment plant facilities and road access. The project area is bordered by a 400-foot strip of deciduous oak woodland to the north and west. An adjacent, potentially intermittent tributary (German Creek) runs to the west and south towards the Guadalupe River.		
Discuss any relevant topographical features (e.g. playa lakes).		
The Guadalupe River runs approximately one-quarter mile southeast of the project area.		
<b>Floodplains &amp; Floodways</b>		
Is the project site located in a 100-year floodplain?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial
If yes, list all streams with floodplains in project area. Specify whether the project will be located within the 100-year floodplain and/or floodway(s) of these streams.		
Stream	Project in 100-year floodplain?	Project in floodway?
Guadalupe River	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Intermittent tributary (German Creek)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Do the communities (cities and/or counties) in which the project will be constructed participate in the National Flood Insurance Program?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Partial
List all participating cities and counties		List all non-participating cities and counties
The City of New Braunfels		
Comal County		
<b>Impacts</b>		
Will floodplains or floodways be directly impacted by the project?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Describe direct impacts of the project (adverse and beneficial) on floodplains and floodways. Specify temporary versus permanent impacts:		
Under the proposed action, short-term temporary impacts will occur during the construction process, but they will be minimal and mitigated through effective construction techniques and surface water management practices. However, the project will require permanent stormwater and floodplain mitigation due to construction within the floodplain. The design process will include a mitigation / stormwater detention pond ( <b>Figure A-3-2</b> ) to mitigate these impacts. Upon completion of the construction, disturbed areas would be returned to pre-construction condition and the ground would be re-leveled, where possible.		
<b>Mitigation Measures</b>		
Mitigation Measures for Project Environmental Impacts?		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> Not applicable

**Section 5: Environmental Settings, Impacts and Mitigation**  
**5.5: Topography and Floodplains**

If yes, list all mitigation measures in Section 5.14.

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## Section 5: Environmental Settings, Impacts and Mitigation

### 5.6: Wetlands, Streams, and Waters of the United States

*Information included in this template represents baseline information pertinent to the majority of projects. Regulatory agencies, including the USACE, may require additional information to determine permitting or mitigation requirements.*

List all applicable U.S. Army Corps of Engineers permits for the project (general and/or individual):

N/A

Will any of the applicable permits require pre-construction notification?  Yes  No

If yes, which one(s):

N/A

Are streams present on the project site or in the project area (perennial, ephemeral, intermittent)?

Yes  No

If yes, list all streams in the project area.

One potentially intermittent tributary (German Creek) follows the western boundary of the project area and flows towards the Guadalupe River. The tributary is located outside of the facility perimeter fence and will not be impacted by the project.

Are wetlands present on the project site or in the project area?  Yes  No

If yes, discuss the type and quality of wetlands (e.g., forested palustrine, emergent riverine):

N/A

## Section 5: Environmental Settings, Impacts and Mitigation

### 5.6: Wetlands, Streams, and Waters of the United States

Has a site wetlands/waters delineation or jurisdictional determination been performed using the applicable USACE Wetland Delineation Manual\*, including regional supplements\*\*?

Yes: If Yes, has it been verified by the USACE?  Yes  No  
 No

\*Environmental Laboratory. (1987). "Corps of Engineers Wetlands Delineation Manual". Technical Report Y-87-1. U.S. Army Engineers Waterways Experimental Station, Vicksburg, MS.

\*\*The manual is to be used with the appropriate regional supplement. These supplements and the manual can be found on the following website:

[http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits/reg\\_supp.aspx](http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits/reg_supp.aspx)

If yes, summarize the findings below and attach a copy of the field survey to Appendix B2. **If no**, describe the basis for above statements regarding presence or absence of wetlands and waters of the U.S..

A desktop review of the U.S. Fish & Wildlife Service's national wetland inventory (NWI) was completed to determine possible wetland occurrence in the project area. Based on review of the NWI and aerial photography, no wetlands occur in or near the project area. One potentially intermittent tributary (German Creek) follows the western boundary of the project area and flows towards the Guadalupe River. Arcadis biologists also conducted a field wetland survey in accordance with the USACE wetland delineation manual and regional supplement on May 7, 2020. No wetlands or streams were identified within the current facility and proposed construction footprint. German Creek is located outside of the facility perimeter fence and will not be impacted by the proposed project.

#### Impacts

Will wetlands be impacted?  Yes  No | Will streams be impacted?  Yes  No

Are any of the impacted wetlands/streams in the project area tidally influenced?  Yes  No

Describe direct impacts of the project (adverse & beneficial) on streams and wetlands (e.g., fill, dredging, dewatering, surface water runoff, other pollutants, etc.). Specify temporary versus permanent impacts.

Under the preferred alternative, no impacts to streams or wetlands are anticipated to occur because the project scope intends to limit construction to the existing, maintained open grassland adjacent to existing facilities.

## Section 5: Environmental Settings, Impacts and Mitigation

### 5.6: Wetlands, Streams, and Waters of the United States

#### Stream/Wetland Impacts (if applicable) \*add rows if needed

**This section must be accompanied by a Stream/Wetland Impact Map:**

The map must include a topographic background with footprint of the project overlain. Assign a number to each stream/wetland in the project footprint and label each on the map (e.g., S1, S2, W1, W2).

Attach the map to Appendix B2

#### Stream Impacts:

Include all streams in project footprint even if impact is zero feet

# Keyed to Map (S1, S2,...)	Temporarily impacted		Permanently impacted	
	All Streams [linear ft]	Potential Waters of U.S. (streams only) [linear ft]	All Streams [linear ft]	Potential Waters of U.S. (streams only) [linear ft]
<b>Total Stream Impacts (feet):</b>				

#### Wetland Impacts:

Include all wetlands in project footprint even if impact is zero acres.

# Keyed to Map (W1, W2,...)	Temporarily impacted		Permanently impacted	
	All Wetlands [ac]	Potential Waters of U.S. (wetlands only) [ac]	All Wetlands [ac]	Potential Waters of U.S. (wetlands only) [ac]
<b>Total Wetland Impacts (acres):</b>				

#### Mitigation Measures

Mitigation Measures for Project Environmental Impacts?

 Yes

 Not applicable

If yes, list all mitigation measures in Section 5.14.

## Section 5: Environmental Settings, Impacts and Mitigation

### 5.7: Biological Elements

Ecoregion:	<input type="checkbox"/> Arizona/New Mexico Mtns. <input type="checkbox"/> Chihuahuan Deserts <input type="checkbox"/> High Plains <input type="checkbox"/> Southwestern Tablelands	<input type="checkbox"/> Central Great Plains <input type="checkbox"/> Cross Timbers <input checked="" type="checkbox"/> Edwards Plateau <input type="checkbox"/> Southern Texas Plains	<input checked="" type="checkbox"/> Texas Blackland Prairies <input type="checkbox"/> East Central Texas Plains <input type="checkbox"/> Western Gulf Coastal Plain <input type="checkbox"/> South Central Plains
<p><b>Using USFWS and TPWD County Lists of Rare, Candidate, Threatened and Endangered Species, create a table of potential impacts with the following columns:</b></p> <p>(1) Species (common and scientific names), (2) State/federal protection status, (3) Habitat, (4) Presence of Critical Habitat, (5) Project Site Suitability, and (6) Potential Impacts of Project</p> <p>Attach the Potential Impacts Table to Appendix B3</p>			
Has a biological field survey been performed?			<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<p>If yes, summarize the finding below. Attach report to Appendix B3, if applicable – exclude report from publicly available documents to protect location sensitive information.</p> <p>Arcadis biologists conducted a biological field survey on May 7, 2020, concurrent with the field wetland delineation. The project area consists of an existing SWTP and associated disturbed or maintained (e.g., mowed) environments. No suitable T&amp;E habitat was observed within the project area.</p>			
Are any parks, recreational areas, forest preserves, grassland preserves, wildlife refuges, wild or scenic rivers, karst faunal regions or zones, or nature preserves (federal, state or local; public or private) in or near the project area?			<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<p>If yes, list and describe proximity to project site:</p> <p>Torrey Park (public) is located approximately 950 feet northeast of project site. Comal County Fairgrounds (public) is located approximately 700 feet south of project site.</p>			
<p>Briefly describe the vegetation and wildlife, including aquatic species, present in the project site and project area.</p> <p>* Do not include protected species addressed in the potential impacts table.</p>			
<p>Woodlands adjacent to project area consist of tree species such as sugarberry (<i>Celtis laevigata</i>), cedar elm (<i>Ulmus crassifolia</i>), live oak (<i>Quercus virginiana</i>), pecan (<i>Carya illinoensis</i>) and Ashe juniper (<i>Juniperus ashei</i>), which have the potential to provide habitat for nesting migratory bird species. Within the SWTP, the vegetation consists mostly of mowed grass and scattered pecan trees. Deer may also utilize the area. No aquatic species are likely to utilize the area due to the lack of flowing streams or perennial aquatic habitat. Aquatic species, including those found within the potential impacts table (Appendix B3) may be found in the Guadalupe River, but outside the area of direct impact associated with the project.</p>			

## Section 5: Environmental Settings, Impacts and Mitigation

### 5.7: Biological Elements

#### Impacts

Discuss potential impacts (adverse and beneficial) to trust resources, wildlife and natural vegetation, including habitat. Provide information about the nature, extent, duration and location of the impacts. Specify temporary versus permanent impacts.

\* Do not include protected species already addressed in the potential impacts table.

Under the proposed action, potential temporary impacts to wildlife include noise from construction activities, which may affect nesting migratory bird species or local deer populations. However, no permanent impacts are expected to wildlife or natural vegetation.

If present in or near the project area, discuss potential impacts to any parks, recreational areas, forests preserves, grasslands preserves, wildlife refuges, wild or scenic rivers, karst faunal regions or zones, or nature preserves (federal, state or local; public or private):

Under the proposed action, no impacts to the resources described above are anticipated.

#### Mitigation Measures

Mitigation Measures for Project Environmental Impacts?  Yes  Not applicable

If yes, list all mitigation measures in Section 5.14.

## Section 5: Environmental Settings, Impacts and Mitigation

### 5.8: Cultural Resources

<p>Have you notified the State Historic Preservation Officer (SHPO) at the Texas Historical Commission that you intend to use the NEPA process to comply with Section 106 of the National Historic Preservation Act?</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<p>Identify parties that were consulted regarding cultural resources, including Tribal Historic Preservation Officers (THPO), the federal Advisory Council on Historic Preservation (ACHP), local governments, or any other interested parties.</p> <p>At this stage in the project, only the Texas Historical Commission has been consulted. The project is still waiting on comments from the Public Scoping effort.</p>	
<p>Has an archeologist and/or an architectural historian performed a desktop review of the proposed project?</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<p>Identify cultural resources/historic properties (included in or eligible for inclusion in the National Register of Historic Places) within the proposed project's area of impact.</p> <p>One archeological site (41CM182) was identified as a result of a previous cultural resources survey (ATLAS# 8500002899), which covers the entire existing SWTP. Site 41CM182 is located on the northeastern edge of the SWTP parcel and consists of a small, unassigned prehistoric lithic scatter. It was recommended as not eligible for listing in the National Register of Historic Places (NRHP) and has likely been destroyed by the construction of the existing SWTP.</p>	
<p>Has an archeological and/or architectural survey been conducted?</p>	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<p>If Yes, briefly summarize the results of the report(s) and attach them to Appendix B4, if applicable – exclude report from publicly available documents to protect location sensitive information.</p> <p>A cultural resources desktop study was conducted for the project. The cultural resources desktop study was submitted to the Texas Historic Commission on December 4, 2020; within this document it was recommended that the current project design not affect historic properties and no further cultural resources work was required. Currently awaiting a response from The Texas Historical Commission.</p>	
<p>Does the project have the potential to affect significant cultural resources/historic properties?</p>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<p>If you have determined that historic properties will not be impacted, explain how this conclusion was reached. Based on the cultural resources desktop study, it was determined that historic properties will not be impacted given the following:</p> <ul style="list-style-type: none"> <li>- The current project design and proposed ground disturbance are occurring within the existing, previously disturbed SWTP.</li> <li>- The existing SWTP has been previously surveyed for cultural resources, and</li> <li>- There was only one not eligible archeological site identified as part of this survey.</li> </ul>	
<p>Describe direct impacts (adverse and beneficial) of the project on cultural resources/historic properties. Specify temporary versus permanent impacts.</p> <p>Under the preferred action, no direct impacts to cultural resources/historic properties are anticipated to occur.</p>	



**Section 5: Environmental Settings, Impacts and Mitigation**  
**5.8: Cultural Resources**

**Mitigation Measures**

Mitigation Measures for Project Environmental Impacts?

Yes

Not applicable

If yes, list all mitigation measures in Section 5.14.

## Section 5: Environmental Settings, Impacts and Mitigation

### 5.9: Hazardous Materials

The TWDB does not fund the testing, remediation, removal, disposal, or related work for contaminated or potentially contaminated material.

Is there a Superfund Site in the project area or in an area associated with the proposed work (e.g., Superfund site upstream of project activities in a floodplain)?

No

Was a site assessment conducted?

Yes  No

If a formal site assessment was conducted please attach the report and/or data search to Appendix B5.

Attached  
 Not Applicable

If an informal site assessment was conducted, please briefly describe methods and results. Make sure to identify any potential environmental hazards located on the site due to past site uses (e.g. soil contamination or proximity to nearby hazardous liquid or gas pipelines) :

N/A

#### Mitigation Measures

Mitigation Measures for Project Environmental Impacts?

Yes  Not applicable

If yes, list all mitigation measures in Section 5.14.

## Section 5: Environmental Settings, Impacts and Mitigation

### 5.10: Social Implications & Environmental Justice

#### Social Implications

Will land acquisition for the project require the use of eminent domain?  Yes  No

If yes, describe:

N/A

Will people or businesses be relocated as a result of this project?  Yes  No

If yes, describe the extent and nature of the relocations.

N/A

Will the project cause an increase in resident's monthly service rates?  Yes  No

If yes, provide an estimate of an average monthly residential bill and the anticipated monthly residential increase required to finance the debt.

Average Monthly User Rate: \$N/A  
Anticipated Increase: \$N/A

Will the project require an increase in taxes to finance the debt?  Yes  No

If yes, provide an estimate of the increase required:

N/A

#### Environmental Justice

Area	Population	% Minority	% Below the Poverty Level/ Per Capita Income
State	28,995,881	60.9%	13.6% / 31,277
County: Comall	156,209	35.2%	6.7% / 38,991
City: New Braunfels	90,209	40.4%	8.6% / 33,405
Project Area (0.5 mile buffer)			

Does the project area have a portion of the population, greater than the city, county or state average, who are members of a racial/ethnic minority category or who have incomes less than or equal to the state's official poverty level?  Yes  No

#### Impacts

Will the project disproportionately impact low-income or minority populations?  Yes  No

Please explain: N/A

#### Mitigation Measures

Mitigation Measures for Project Environmental Impacts?  Yes  Not applicable

If yes, list all mitigation measures in Section 5.14.

## Section 5: Environmental Settings, Impacts and Mitigation

### 5.11: Other Potential Impacts or Requirements

1. <b>Air Quality:</b> Is the project in a maintenance or non-attainment area for any priority air pollutant under the federal Clean Air Act?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If yes, describe the impact the project will have on ambient air quality. N/A	
2. <b>Scenic Views:</b> Will the project impact scenic views or vistas during construction or operation?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If yes, indicate which scenic views or vistas will be impacted and discuss adverse impacts. Specify temporary versus permanent impacts. N/A	
3. <b>Traffic:</b> Will construction of this project involve rerouting or controlling traffic?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
If yes, describe traffic changes and how long traffic will be disrupted: N/A	
4. <b>Other Potential Impacts:</b> If the project may cause any adverse impacts not addressed by items 1-3, identify and discuss them here (e.g., odor, prevailing winds, noise, blasting, night work, etc.):	
Under the preferred action, no other potential impacts are anticipated to occur.	
<b>Mitigation Measures</b>	
Mitigation Measures for Project Environmental Impacts? If yes, list all mitigation measures in Section 5.14.	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable

## Section 5: Environmental Settings, Impacts and Mitigation

### 5.12: Secondary and Cumulative Impacts

Considering resources that your project will impact, identify any past, present or reasonably foreseeable future projects which impact these same resources. This answer will provide important contextual information.

The preferred alternative is intended to support existing and anticipated regional development. Therefore, the SWTP expansion will not directly increase regional development. However, secondary impacts associated with the preferred alternative could include the potential for a more rapid rate of increase in development due to more reliable water availability. The increase in development could require modification to existing land use and requiring zoning outside of the project area. The increase in development has the potential to increase employment opportunities, increase regional soil disturbance, and increase impervious cover. The increase in employment also as the potential to increase the per capita income within the project area, beneficially impacting the project area. No indirect impact to environmental justice populations, or demographics changes of the project area, would be expected as a result of the preferred action. No impact to surface water would be anticipated.

#### Mitigation Measures

Mitigation Measures for Project Environmental Impacts?

Yes

Not applicable

If yes, list all mitigation measures in Section 5.14.

**Section 5: Environmental Settings, Impacts and Mitigation****5.13: Standard Mitigation, Precautionary Measures and Best Management Practices**

Describe any standard mitigation, precautionary measures and best management practices to be used during project construction (e.g., storm water pollution prevention plan, re-vegetation, dust and siltation control, establish original grades in floodplains, etc.).

A Stormwater Pollution Prevention Plan (SWPPP) would be developed for the project and the project area will be restored to pre-construction conditions, where possible.



## Section 5: Environmental Settings, Impacts and Mitigation

### 5.15: References

Center for Biological Diversity. 2014. Endangered Species Act Protection Sought for Seven Rare Amphibians and Reptiles in Arizona, New Mexico and Texas. Accessed 12/1/2020.

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## Section 6: Public Participation

### PUBLIC MEETING

1. Does the project or activities involve a probable or known public controversy?  Yes  No  
If yes, please contact your TWDB environmental reviewer for the public hearing guidance.
2. **Notify the Public:** Public participation is required to inform the public of potential social, economic or environmental impacts of the proposed project. The applicant must notify the public of the meeting by advertisement in a newspaper of general circulation within the project area at least thirty (30) days prior to the date of the meeting. The 30-day period may count either the day of the advertisement or the day of the meeting, but not both.
3. **Notify requisite agencies and interested parties:** A written notice of the meeting should be sent to any state, federal or local agency, government, organization or individual that has an interest in the proposed project.
4. **Floodplain/Wetland:** If the proposed action is located in a wetland and/or the 100-year floodplain (500-yr floodplain for critical actions), you are required to notify the public and involve the affected and interested public in the decision making process. Incorporate a discussion of alternatives to construction in the floodplain/wetlands, potential impacts and proposed mitigation measures into the public meeting.
5. **Public Meeting Notice Includes:**
  - Published 30 days in advance of meeting
  - Date, time and place of meeting
  - Brief description of project & floodplain/wetland notice (if applicable)
  - Cost, including estimated monthly bill and any connection fee, tax or surcharge
  - Convenient local source for EID (available at least 30 days prior to meeting)
  - Statement of Purpose: "One of the purposes of this meeting is to discuss the potential environmental impacts of the project and alternatives to it."

#### **Example Public Meeting Notice:**

A public meeting is being held on \_\_\_\_\_ (day, date) \_\_\_\_\_ at \_\_\_\_\_ (time) \_\_\_\_\_ at \_\_\_\_\_ (location, address) \_\_\_\_\_ to discuss the \_\_\_\_\_ city/district \_\_\_\_\_'s proposed project to \_\_\_\_\_ (project description) \_\_\_\_\_ at \_\_\_\_\_ (project location) \_\_\_\_\_. One of the purposes of this hearing is to discuss the potential environmental impacts of the project and alternatives to it. The total estimated cost of the project is \$\_\_\_\_\_. The estimated monthly bill for a typical resident is currently \_\_\_\_\_. A user rate increase of \_\_\_\_\_ will be required to finance this project. *In addition, a connection fee/tax/surcharge/other fee of \$\_\_\_\_\_ will be required.* An application for financial assistance for the project has been (*will be*) filed with the Texas Water Development Board, P.O. Box 13231, Austin, Texas, 78711-3231. An Environmental Information Document for the project has been prepared which will be available for public review at \_\_\_\_\_ (city hall/district offices) \_\_\_\_\_ at \_\_\_\_\_ (address) \_\_\_\_\_ between the hours of \_\_\_\_\_ (hours) \_\_\_\_\_ for 30 days following the date of this notice. Written comments on the proposed project may be sent to \_\_\_\_\_ (address) \_\_\_\_\_ or to the Texas Water Development Board.

#### **Floodplain/Wetland: Incorporate into Public Meeting Notice for projects in a floodplain or wetland**

This project involves construction (a) of a critical facility in the 500-year floodplain, (b) in the 100-year floodplain, or (c) construction located in a wetland. Alternatives to construction in a floodplain/wetland, potential impacts on floodplains/wetlands and proposed mitigation measures will be addressed during the public meeting.

**6. Public Meeting Documentation**

- Publisher's affidavit and a copy of the notice
- Statement signed by applicant: meeting was held in conformance with the Public Meeting Notice.
- List of witnesses
- Written summary of the meeting

**7. Were adverse comments about any aspect of the project received?**

Yes

No

If yes, describe how they were resolved:

---

## Section 7: Agency Coordination

When coordinating with an agency, send hard copies by public carrier with delivery confirmation requested. Retain copies of those confirmations. When a response is not received from an agency, documentation of the delivery must be included with the coordination materials submitted to the TWDB. All agency coordination should be included in Appendix C and should be presented in the same order as the following table.

Mailing addresses for the following agencies are provided online at:

<http://www.twdb.texas.gov/financial/instructions/doc/addresses.pdf>

### Uniform Project Notification Requirements

Bureau of Reclamation	<input type="checkbox"/> Sent	<input type="checkbox"/> <i>Response</i> (Not required)	Page: C-
Bureau of Land Management	<input type="checkbox"/> Sent	<input type="checkbox"/> <i>Response</i> (Not required)	Page: C-
Intergovernmental Review: Depending on the nature and location of the proposed project, notification should be sent to the City Mayor, County Judge or both.	<input type="checkbox"/> Sent	<input type="checkbox"/> <i>Response</i> (Not required)	Page: C-

### Uniform Agency Coordination Requirements

Texas Historical Commission	<input checked="" type="checkbox"/> Sent	<input type="checkbox"/> Response	Page: C-1
U.S. Army Corps of Engineers	<input type="checkbox"/> Sent <input type="checkbox"/> Response		Page: C-
Texas Parks and Wildlife Department Wildlife Habitat Assessment Program	<input checked="" type="checkbox"/> Sent <input type="checkbox"/> Response <input type="checkbox"/> Response to TPWD recommendations indicating which recommendations will be implemented.		Page: C-2-5

### Circumstantial Requirements

Use the following questions to determine if coordination is required regarding potential impacts to the resource identified. If Yes, provide the page number for coordination materials.

<p>Will the project adversely affect federally listed threatened or endangered species or their critical habitat?</p> <p><input checked="" type="checkbox"/> No effect (no coordination required)</p> <p><input type="checkbox"/> Not likely to adversely affect</p> <p><input type="checkbox"/> Likely to adversely affect</p>	<p>U.S. Fish and Wildlife Service Division of Ecological Services</p> <p><u>If not likely</u>, concurrence that adverse effects have been adequately mitigated <b>recommended</b></p> <p><u>If likely</u>, formal Section 7 consultation <b>required</b></p> <p>Page: C-</p>
<p>Will the project impact prime and important farmlands?</p> <p><input type="checkbox"/> Yes    <input type="checkbox"/> No    <input checked="" type="checkbox"/> Exempt (pipeline project, existing site)</p>	<p>U.S. Department of Agriculture Natural Resources Conservation Service</p> <p>If Yes, Page: C-</p>

## Section 7: Agency Coordination

<p>Is the project located within or directly adjacent to a national forest or grasslands? Does the project share a surface water connection that may impact these resources?</p> <p><input type="checkbox"/> Yes    <input checked="" type="checkbox"/> No</p>	<p>U.S. Forest Service National Forest or Grasslands If Yes, Page: C-</p>
<p>Is the project located within or directly adjacent to National Park Service Lands? Does the project share a surface water connection that may impact these resources? Does the proposed project have the potential to impact view sheds, natural sounds, night skies, or air quality of any NPS units or National Historic Landmarks?</p> <p><input type="checkbox"/> Yes    <input checked="" type="checkbox"/> No</p>	<p>National Park Service Environmental Quality Division If Yes, Page: C-</p>
<p>Wild and Scenic Rivers: coordination is required for all projects located in one of the following counties: El Paso, Brewster, Crane, Crocket, Culberson, Edwards, Hudspeth, Jeff Davis, Loving, Pecos, Presidio, Reeves, Schleicher, Sutton, Terrell, Upton, Val Verde, Ward and Winkler.</p> <p><input type="checkbox"/> Yes    <input checked="" type="checkbox"/> No</p>	<p>National Park Service Big Bend National Park, Rio Grande Wild &amp; Scenic River If Yes, Page: C-</p>
<p>Is the project site within the floodplain or adjacent to the channel of the Rio Grande River OR located in, or directly adjacent to, the IBWC's flood control projects in Texas?</p> <p><input type="checkbox"/> Yes    <input checked="" type="checkbox"/> No</p>	<p>International Boundary and Water Commission (U.S. Section) Environmental Management Division If Yes, Page: C-</p>
<p>Is the project located within the contributing zone (stream flow source) or recharge zone of the Edwards Aquifer?</p> <p><input type="checkbox"/> Yes    <input checked="" type="checkbox"/> No</p>	<p>Environmental Protection Agency Groundwater/UIC Section (6WQ-SG) If Yes, Page: C-</p>
<p>Is the project located in, or directly adjacent to, tidal waters or tidally influenced wetlands?</p> <p><input type="checkbox"/> Yes    <input checked="" type="checkbox"/> No</p>	<p>National Marine Fisheries Service Habitat Conservation Division If Yes, Page: C-</p>
<p>Is the project located in a coastal management zone?</p> <p><input type="checkbox"/> Yes    <input checked="" type="checkbox"/> No</p>	<p>General Land Office If Yes, Page: C-</p>
<p>Will the proposed project affect any known organizations or private entities?</p> <p><input type="checkbox"/> Yes    <input checked="" type="checkbox"/> No</p>	<p>Coordination with the affected party(s) is required. If Yes, Page: C-</p>

## Section 7: Agency Coordination

<p><u>For communities that participate in the NFIP:</u></p> <p>Is the project is located in the 100-year floodplain (1% chance of flooding)?</p> <p><input checked="" type="checkbox"/> Yes      <input type="checkbox"/> No</p> <p>Does the project involve construction of a critical facility (WTP, WWTP, etc.) in the 500-year floodplain (0.2% chance of flooding)?</p> <p><input checked="" type="checkbox"/> Yes      <input type="checkbox"/> No</p> <p><b>**Any construction in the 100-year floodplain and construction of critical facilities in the 500-year floodplain requires a Floodplain Development Permit. Floodplain Development Permits must be acquired prior to TWDB approval of engineering plans and specifications and release of construction funds.</b></p>	<p>National Flood Insurance Program Local Floodplain Administrator</p> <p>If Yes, Page: C-</p>
<p><u>For communities that DO NOT participate in the NFIP:</u></p> <p>Does the project involve construction in the 100-year floodplain or construction of a critical facility in the 500-year floodplain?</p> <p><input type="checkbox"/> Yes                      <input type="checkbox"/> Exempt: strictly pipeline installation</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Undetermined: no maps available to make determination</p> <p><b>**If the project is not exempt and is (a) located in the 100 year floodplain, (b) involves construction of a critical facility in the 500-year floodplain or (c) no floodplain maps are available for the project area, a Flood Risk Assessment must be prepared.</b></p>	<p><u>Flood Risk Assessment</u></p> <p>The assessment should include an elevation study, risk of flooding determination, and recommendation (build, no build, special accommodations). The assessment must be sealed by a licensed engineer.</p> <p>If Yes, Page: C-</p>

---

## Section 7: Agency Coordination Sample Agency Notification Letter

DATE

CONTACT NAME

ADDRESS

See section 7 for agency contact information

RE: Project Notification: Please Review - No Response Required

Dear CONTACT:

The APPLICANT is pursuing federal funding through the Texas Water Development Board's FUNDING PROGRAM for the proposed PROJECT NAME (TWDB PROJECT NUMBER). The purpose of this notification is to identify if the proposed project will have any potential conflicts with projects being implemented by your agency.

Attached to this letter is a document containing general contact information, project description and project maps. A copy of the full Environmental Information Document (EID), which includes background environmental information and a robust analysis of potential impacts, is available upon request.

If you have any questions or need additional information, please contact me at (tel:) [REDACTED] or by e-mail at [REDACTED].

Sincerely,

APPLICANT/CONSULTANT

Enclosure: Section 1 (General Information), Section 3 (Project Description) and Appendix A (Standard Maps) from the EID.

---

## Section 7: Agency Coordination

### Sample Agency Coordination Letter

DATE

CONTACT NAME

ADDRESS

See section 7 for agency contact information

RE: NEPA Review Requested for Federally Funded Project  
Environmental Information Document Available  
Consultation# \_\_\_\_\_, Date \_\_\_\_\_  
\_\_\_\_\_(Project Name)\_\_\_\_\_  
\_\_\_\_\_(Applicant)\_\_\_\_\_  
\_\_\_\_\_(Project Location)\_\_\_\_\_

Dear CONTACT:

The APPLICANT is pursuing federal funding through the Texas Water Development Board's FUNDING PROGRAM for the proposed PROJECT NAME (TWDB PROJECT NUMBER). The purpose of this coordination is to identify potential environmental and permitting issues: specifically, permits or mitigative measures required to ensure compliance with environmental regulations specific to your agency's area of jurisdiction.

The attached Environmental Information Document (EID) provides a project description, project maps, background environmental information, a robust analysis of potential impacts and a list of all agencies with whom we are coordinating. Sections particularly relevant to your agency include: (use the table of relevant sections by agency provided on the next page to complete this section).

Include a brief description of mitigation measures that will be implemented to reduce impacts to resources under the agency's area of jurisdiction.

Recommended or required actions identified through this coordination, including permits, will be considered for inclusion as conditions in the TWDB's environmental determination. Please cite the relevant authority (statue/regulation) for recommendations.

We request your concurrence with our determination that \_\_\_\_\_. If you have any questions or need any additional information, please contact me at (tel:) \_\_\_\_\_ or by e-mail at \_\_\_\_\_.

Sincerely,  
APPLICANT

Enclosure: EID (access to the EID may also be provided by including a link where the EID can be downloaded).

## Section 7: Agency Coordination

### Relevant Sections by Agency

(for the purposes of this EID, not intended to be all inclusive)

<b>Uniform Project Notification Requirements</b>	
Bureau of Reclamation, Bureau of Land Management, and Local Council of Governments	Section 1: General Information Section 3: Project Description Appendix A: Standard Maps
<b>Uniform Agency Coordination Requirements</b>	
Texas Historical Commission	Section 1: General Information Section 3: Project Description Section 5.8: Cultural Resources Appendix A: Standard Maps Appendix B4: Cultural Resources Report (if applicable)
U.S. Army Corps of Engineers	Section 1: General Information Section 3: Project Description Section 5.4: Water Resources Section 5.5: Topography and Floodplains Section 5.6: Wetlands, Streams and Waters of the U.S. Appendix A: Standard Maps Appendix B2: Wetlands, Streams and Waters of the U.S. (if applicable)
Texas Parks and Wildlife Department & U.S. Fish and Wildlife Service	Section 1: General Information Section 3: Project Description Section 5.1: Land Use Section 5.4: Water Resources Section 5.6: Wetlands, Streams and Waters of the U.S. Section 5.7: Biological Resources Appendix A: Standard Maps Appendix B3: Biological Resources
<b>Circumstantial Requirements</b>	
U.S. Department of Agriculture Natural Resources Conservation Service	Section 1: General Information Section 3: Project Description Section 5.1: Land Use Section 5.3: Soils & Prime and Important Farmlands Appendix A: Standard Maps Appendix B1: Soils & Prime and Important Farmlands



## Section 7: Agency Coordination

### Relevant Sections by Agency

(for the purposes of this EID, not intended to be all inclusive)

<p>U.S. Forest Service National Forest or Grasslands</p>	<p>Section 1: General Information Section 3: Project Description Section 5.5: Topography and Floodplains Section 5.6: Wetlands, Streams and Waters of the U.S. Section 5.7: Biological Resources Appendix A: Standard Maps Appendix B3: Biological Resources</p>
<p>National Park Service Environmental Quality Division</p>	<p>Section 1: General Information Section 3: Project Description Section 5.4: Water Resources Section 5.5: Topography and Floodplains Section 5.6: Wetlands, Streams and Waters of the U.S. Section 5.7: Biological Resources Appendix A: Standard Maps Appendix B3: Biological Resources</p>
<p>National Park Service Big Bend National Park</p>	<p>Section 1: General Information Section 3: Project Description Section 5.5: Topography and Floodplains Section 5.6: Wetlands, Streams and Waters of the U.S. Section 5.7: Biological Resources Appendix A: Standard Maps Appendix B3: Biological Resources</p>
<p>International Boundary and Water Commission (U.S. Section) Environmental Management Division</p>	<p>Section 1: General Information Section 3: Project Description Section 5.4: Water Resources Section 5.5: Topography and Floodplains Section 5.6: Wetlands, Streams and Waters of the U.S. Appendix A: Standard Maps</p>
<p>Environmental Protection Agency Groundwater/UIC Section (6WQ-SG)</p>	<p>Section 1: General Information Section 3: Project Description Section 5.5: Topography and Floodplains Section 5.6: Wetlands, Streams and Waters of the U.S. Section 5.7: Biological Resources Appendix A: Standard Maps Appendix B3: Biological Resources</p>

## Section 7: Agency Coordination

### Relevant Sections by Agency

(for the purposes of this EID, not intended to be all inclusive)

<p>National Flood Insurance Program Local Floodplain Administrator &amp; Texas Water Development Board Flood Mitigation Planning Division</p>	<p>Section 1: General Information Section 3: Project Description Section 5.5: Topography and Floodplains Appendix A: Standard Maps</p>
<p>National Marine Fisheries Service Habitat Conservation Division</p>	<p>Section 1: General Information Section 3: Project Description Section 5.5: Topography and Floodplains Section 5.6: Wetlands, Streams and Waters of the U.S. Section 5.7: Biological Resources Appendix A: Standard Maps Appendix B3: Biological Resources</p>
<p>General Land Office</p>	<p>Section 1: General Information Section 3: Project Description Appendix A: Standard Maps</p>

## Section 8: Certification

### CERTIFICATION

I hereby certify that the information contained in this document is accurate and complete to the best of my knowledge, and that this document describes the complete project. There are no other projects, stages or components other than those described in this document, which are related to the project as connected actions or phased actions.

Signature \_\_\_\_\_

Date \_\_\_\_\_

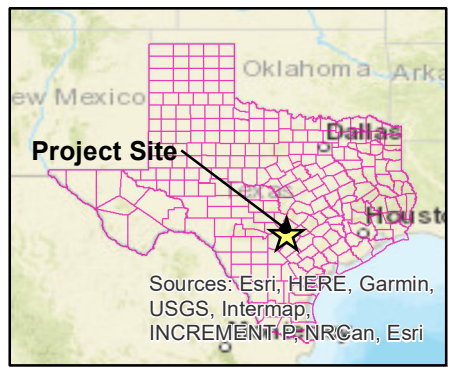
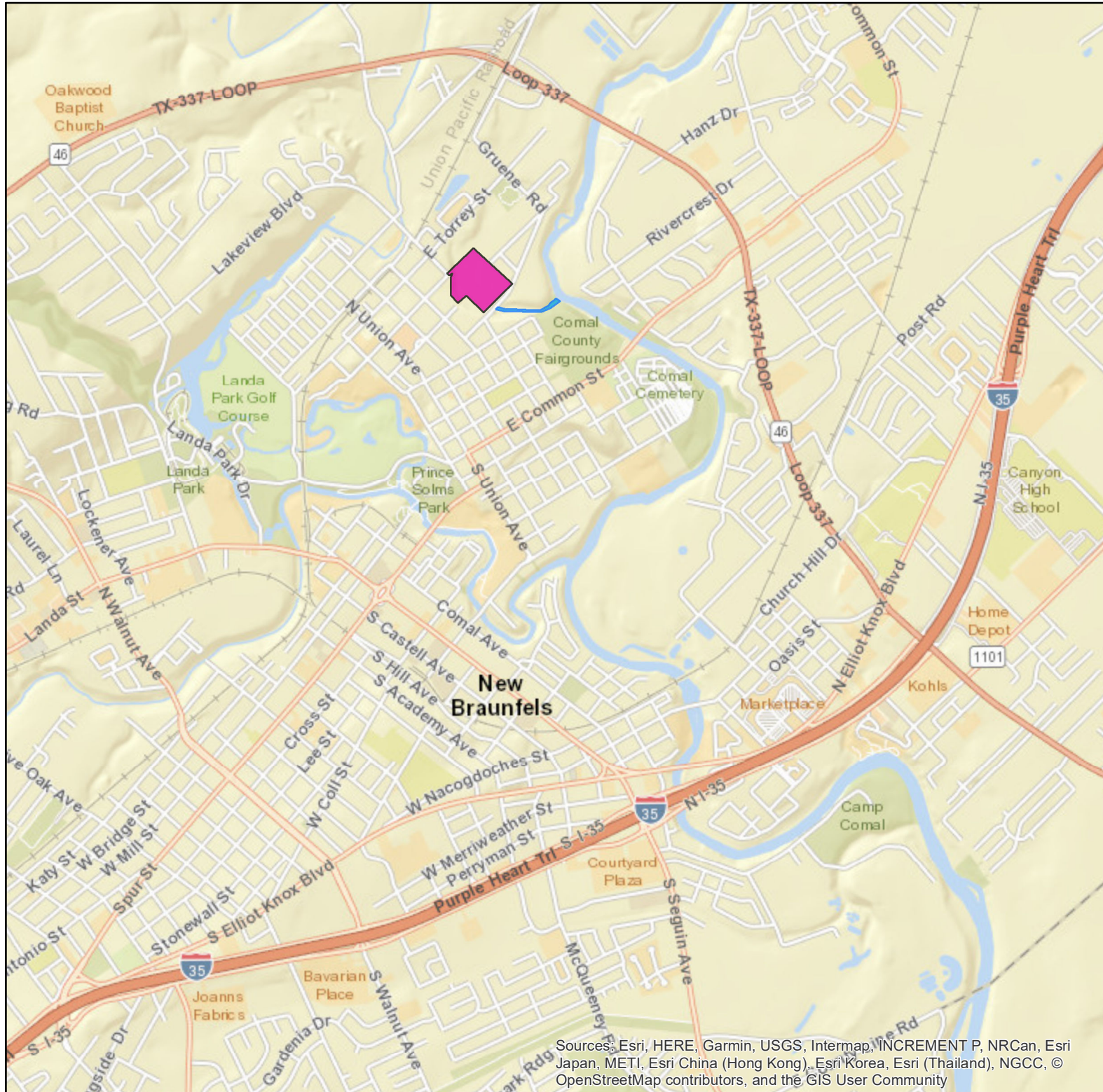
Title \_\_\_\_\_ *(project manager for the preparation of the EID)*

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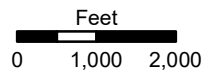
# Section 9: Appendices

# **Appendix A:**

## **Standard Maps**



- Surface Water Treatment Plant (SWTP) Boundary
- Raw Water Pump Station (RWPS) Easement



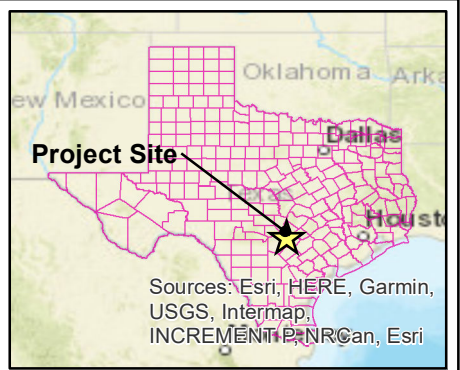
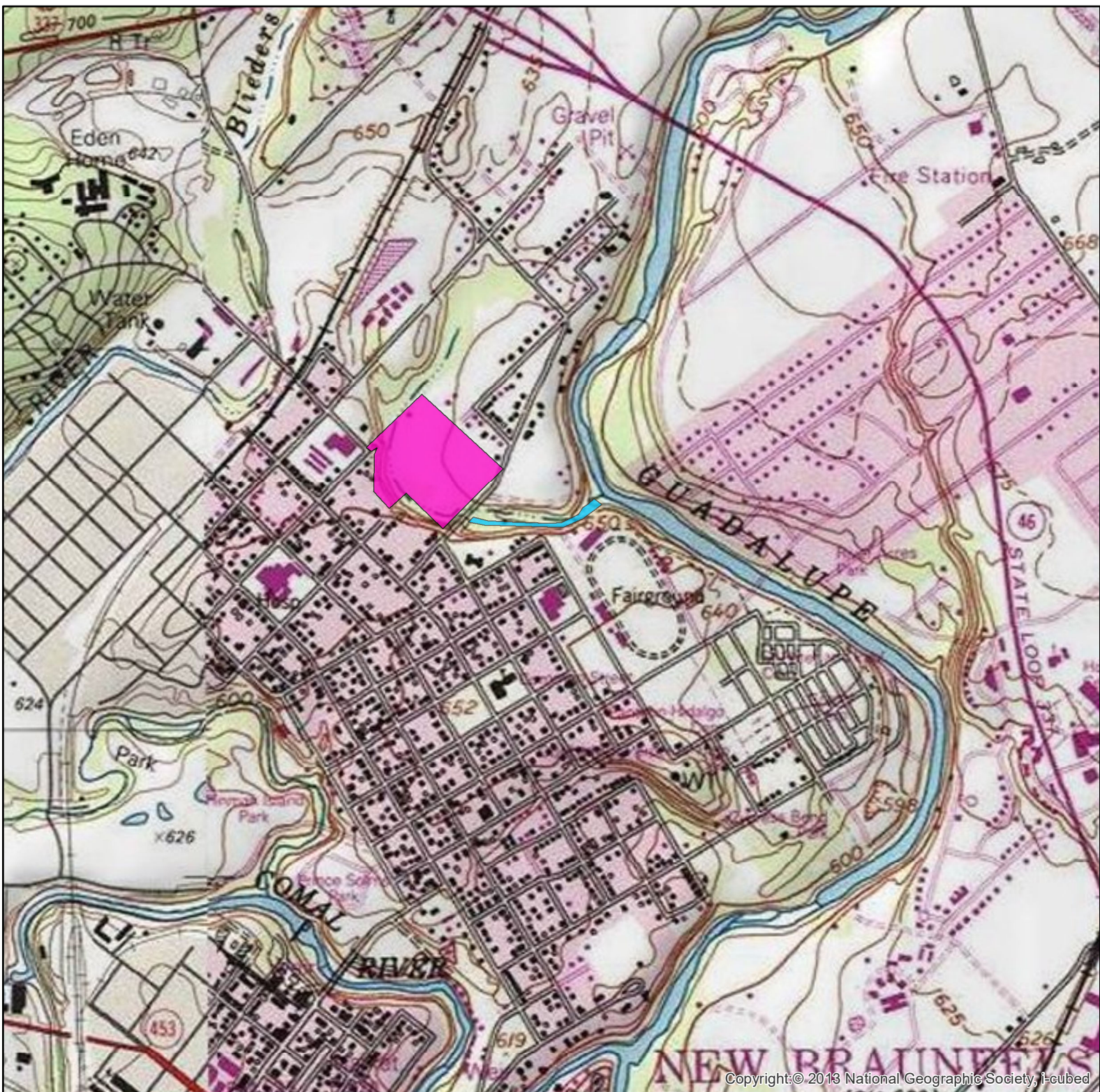
**New Braunfels Utilities  
SWTP Expansion Project  
Comal County, Texas**

**Regional Location Map  
for Preferred Alternative**

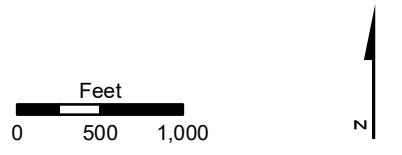


FIGURE  
**A-1**

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community



- Surface Water Treatment Plant (SWTP) Boundary
- Raw Water Pump Station (RWPS) Easement



New Braunfels Utilities  
 SWTP Expansion Project  
 Comal County, Texas

USGS Topographic Map  
 for Preferred Alternative



FIGURE  
 A-2

SEALS:

SEALS:

THIS DOCUMENT IS  
 RELEASED FOR THE  
 PURPOSES OF INTERIM  
 REVIEW NOT FOR  
 CONSTRUCTION, UNDER  
 AUTHORIZATION BY  
 JEFFREY E. RECK  
 TX PE # 93786

NEW BRAUNFELS  
 UTILITIES



SURFACE WTP  
 EXPANSION

REVISIONS

NO.	DATE	ISSUED FOR	BY

STATUS:  
 75% SUBMITTAL

ARCADIS  
 PROJECT NO.: 30045202

DATE: FEBRUARY 2021

DESIGNED BY: P.SMITH

DRAWN BY: N.CANDELAS

CHECKED BY: R.STANDIFER

SHEET TITLE:

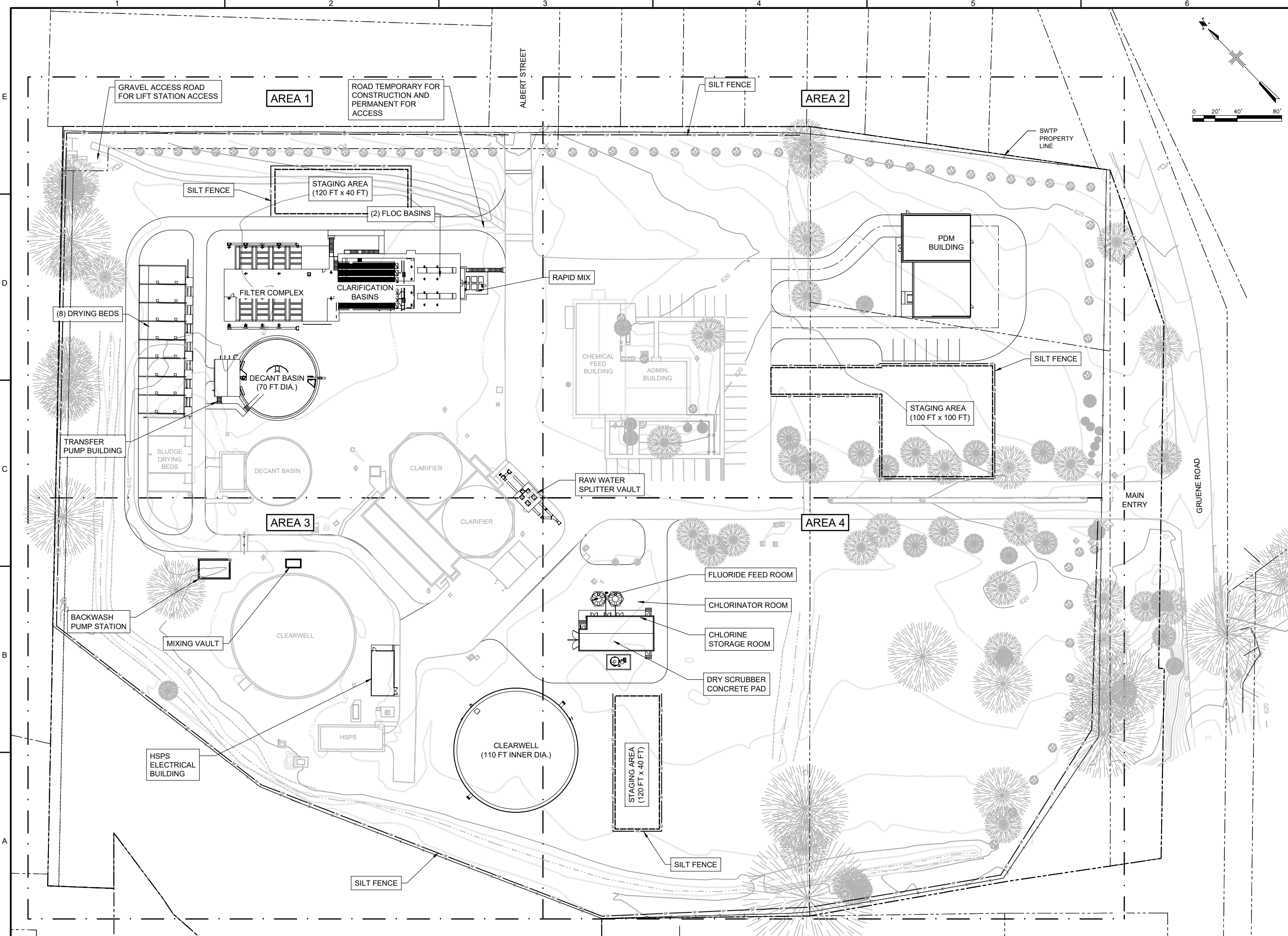
CIVIL

OVERALL SITE PLAN

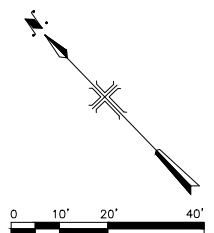
SCALE:  
 1" = 40'-0"

BAR IS ONE INCH ON  
 UNREDUCED DRAWING

**Figure A-3-1**







ARCADIS U.S., INC.  
 TBPE FIRM REGISTRATION NO.: F-533

SEALS:

SEALS:

THIS DOCUMENT IS RELEASED FOR THE PURPOSES OF INTERIM REVIEW NOT FOR CONSTRUCTION, UNDER AUTHORIZATION BY JEFFREY E. RECK TX PE # 93786



SURFACE WTP EXPANSION

REVISIONS			
NO.	DATE	ISSUED FOR	BY

STATUS: 75% SUBMITTAL

ARCADIS PROJECT NO.: 30045202  
 DATE: FEBRUARY 2021  
 DESIGNED BY: P. SMITH  
 DRAWN BY: N. CANDELAS  
 CHECKED BY: C01-12

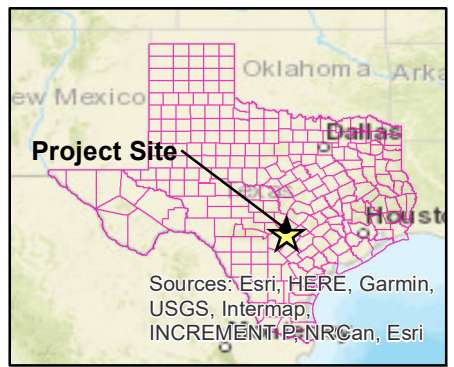
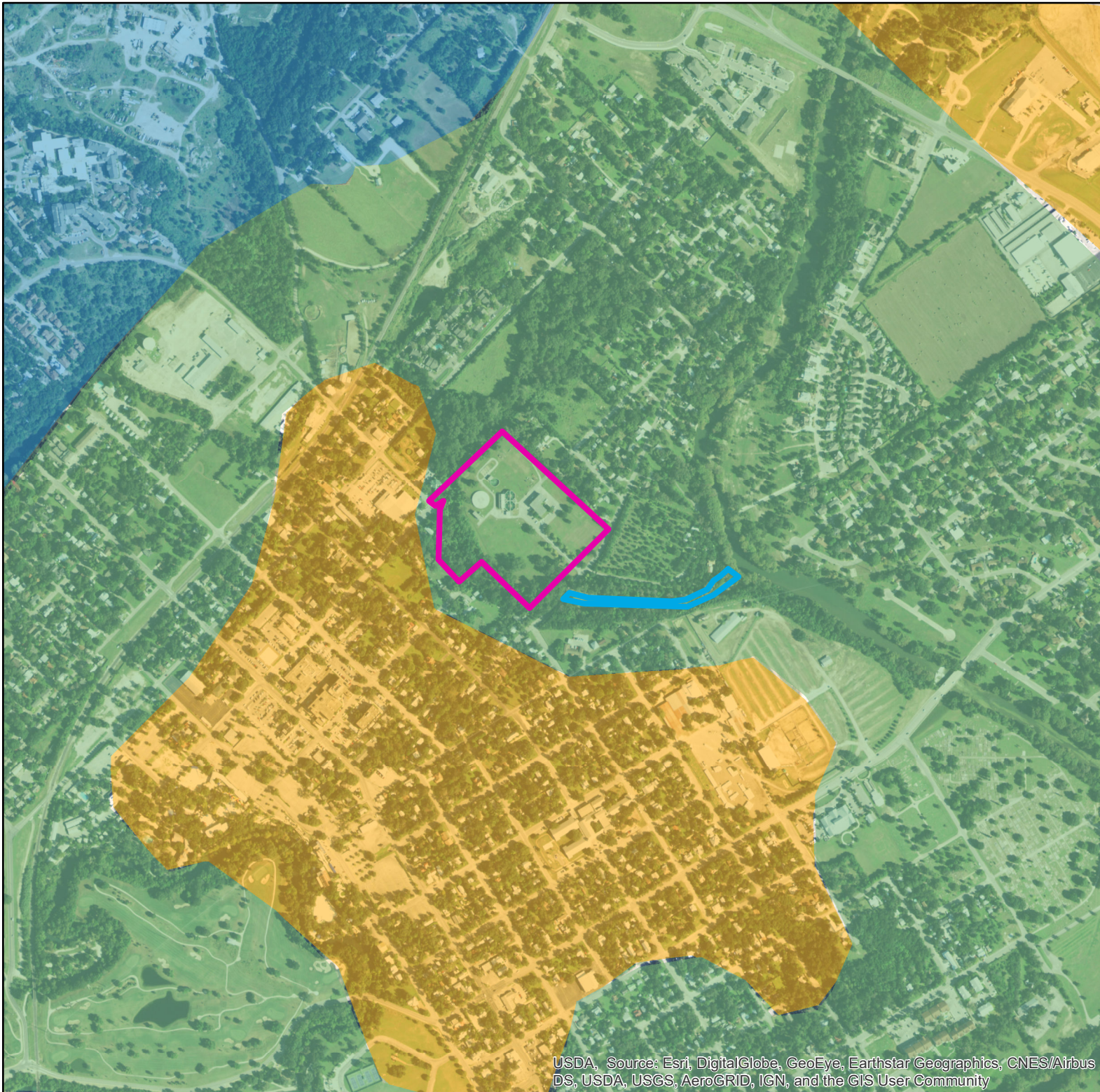
SHEET TITLE: CIVIL



DETENTION POND PLAN AND SECTIONS

NOTE:  
 PROPOSED APPROXIMATE BOUNDARY OF DETENTION POND IS PRELIMINARY ONLY. DETENTION POND IS CURRENTLY UNDER DESIGN AND THE GEOMETRY MAY BE ADJUSTED AS REQUIRED. GENERAL VICINITY OF THE DETENTION POND IS SUBJECT TO CHANGE BASED ON DESIGN REQUIREMENTS AND CONSTRUCTABILITY.

SCALE: 1" = 20'-0"  
BAR IS ONE INCH ON UNREDUCED DRAWING

Figure A-3-2



-  Surface Water Treatment Plant (SWTP) Boundary
-  Raw Water Pump Station (RWPS) Easement

Fluviatile terrace deposits; adjacent to Edwards Plateau, predominantly gravel, limestone, dolomite, and chert.

Fluviatile morphology well preserved with point bars, oxbows and abandoned channel segments.

Edwards limestone; fine to coarse grained, abundant chert.

Leona formation; fine calcareous silt grading down into coarse gravel.



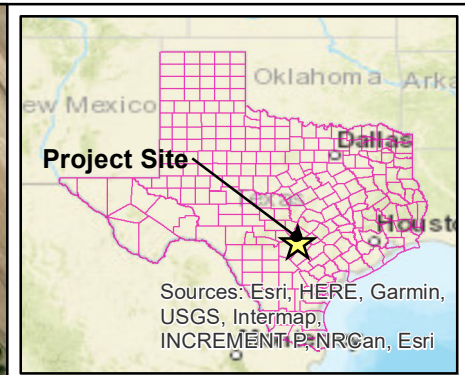
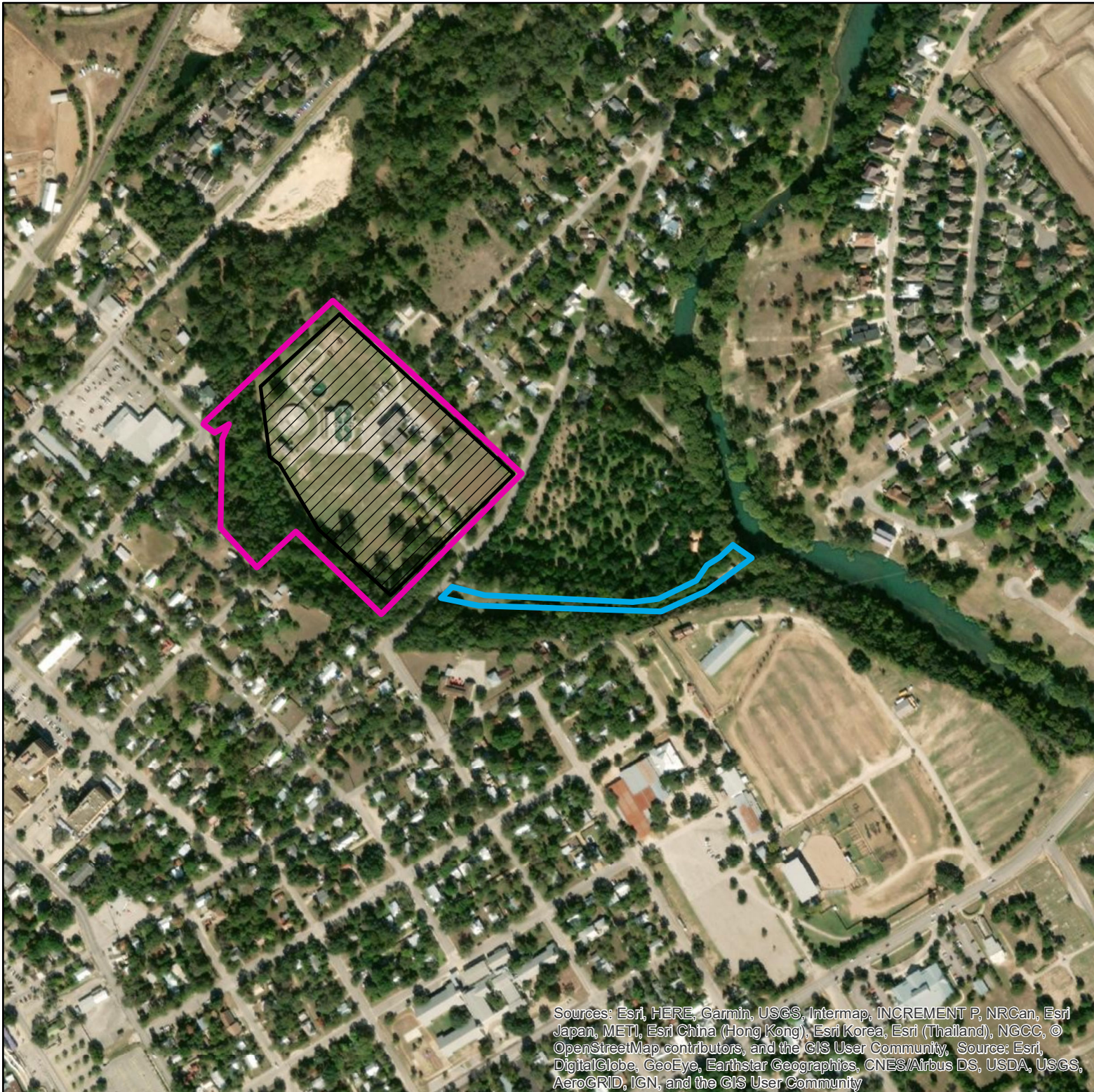
**New Braunfels Utilities  
SWTP Expansion Project  
Comal County, Texas**







**USGS Geologic Map  
for Preferred Alternative**

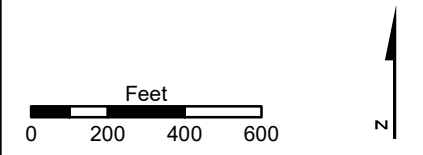
 **ARCADIS**

FIGURE  
**A-4**

USDA, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



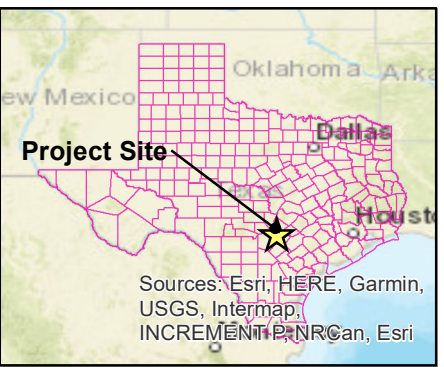
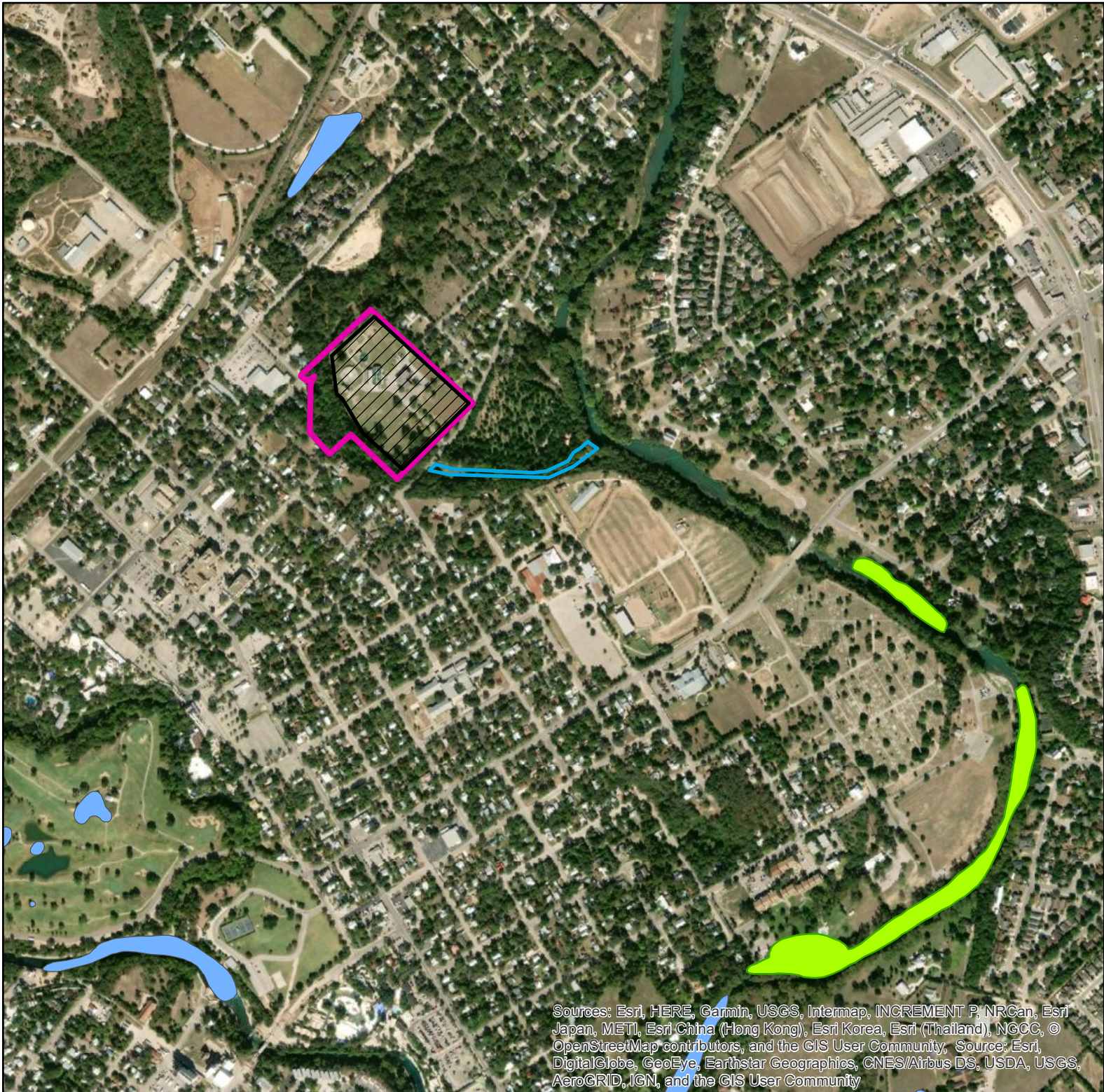
-  Surface Water Treatment Plant (SWTP) Project Area
-  Surface Water Treatment Plant (SWTP) Boundary
-  Raw Water Pump Station (RWPS) Easement
-  NHD Flowline
-  FEMA Floodway
-  FEMA 100-Year Floodplain








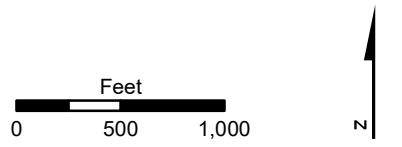
New Braunfels Utilities  
 SWTP Expansion Project  
 Comal County, Texas

**FEMA Floodplain and NHD  
 Map for Preferred Alternative**

Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community. Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



-  Surface Water Treatment Plant (SWTP) Project Area
-  Surface Water Treatment Plant (SWTP) Boundary
-  Raw Water Pump Station (RWPS) Easement
-  NWI: Freshwater Forested/Shrub Wetland
-  NWI: Freshwater Pond

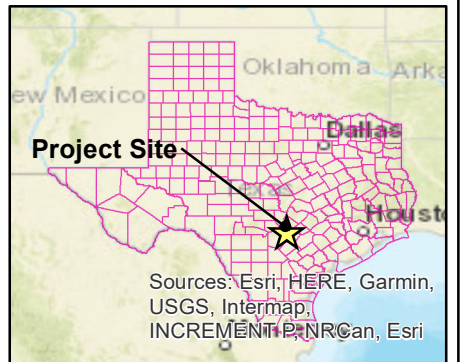
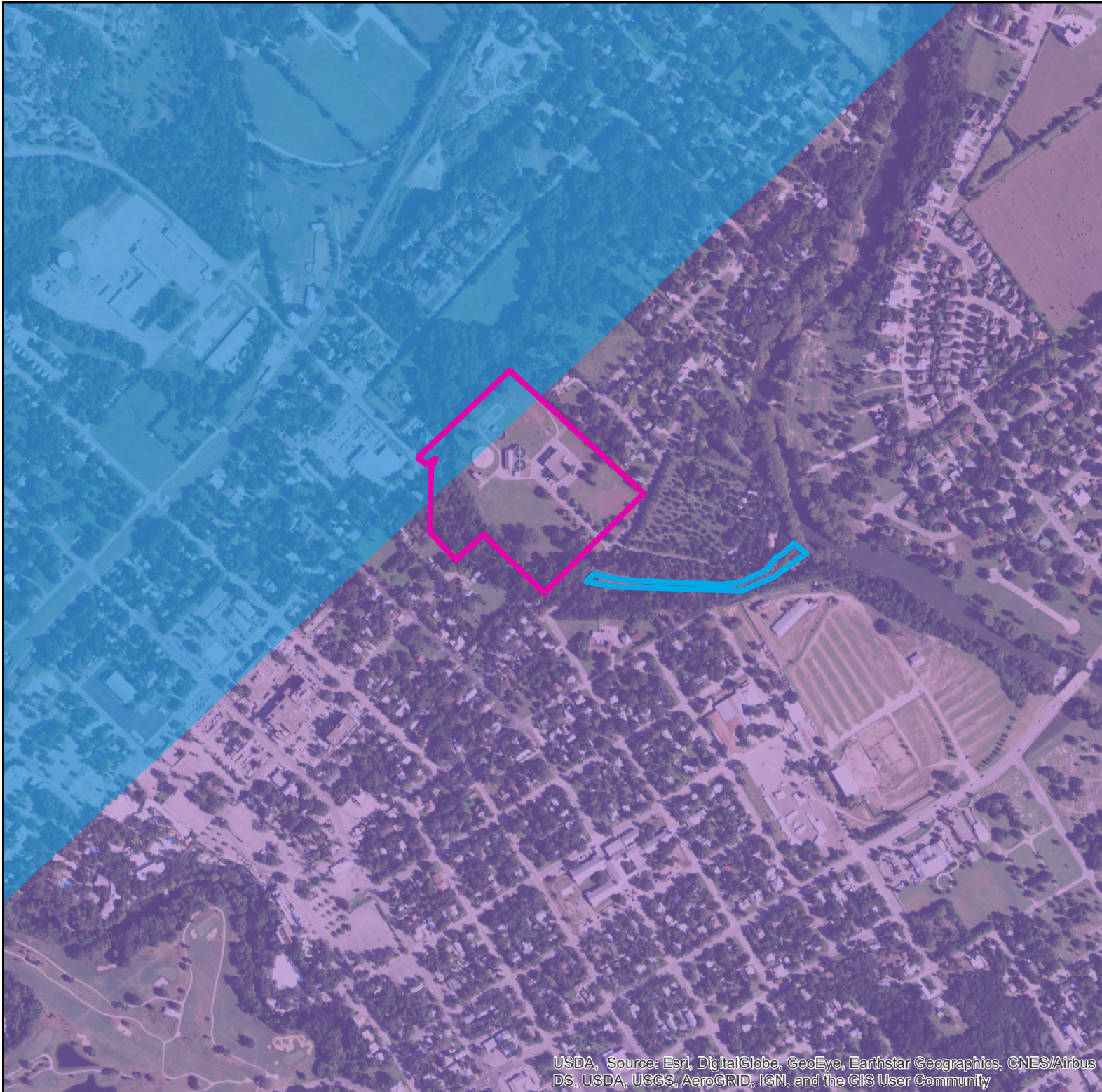






New Braunfels Utilities  
 SWTP Expansion Project  
 Comal County, Texas

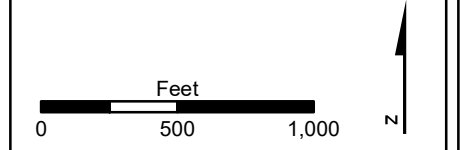
**National Wetland Inventory  
 (NWI) Map  
 for Preferred Alternative**

	FIGURE <b>A-6</b>
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Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, © OpenStreetMap contributors, and the GIS User Community, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



-  Surface Water Treatment Plant (SWTP) Boundary
-  Raw Water Pump Station (RWPS) Easement
-  Edwards Aquifer
-  Trinity Aquifer



New Braunfels Utilities  
SWTP Expansion Project  
Comal County, Texas

**Major Aquifers Map  
for Preferred Alternative**

	<p>FIGURE A-7</p>
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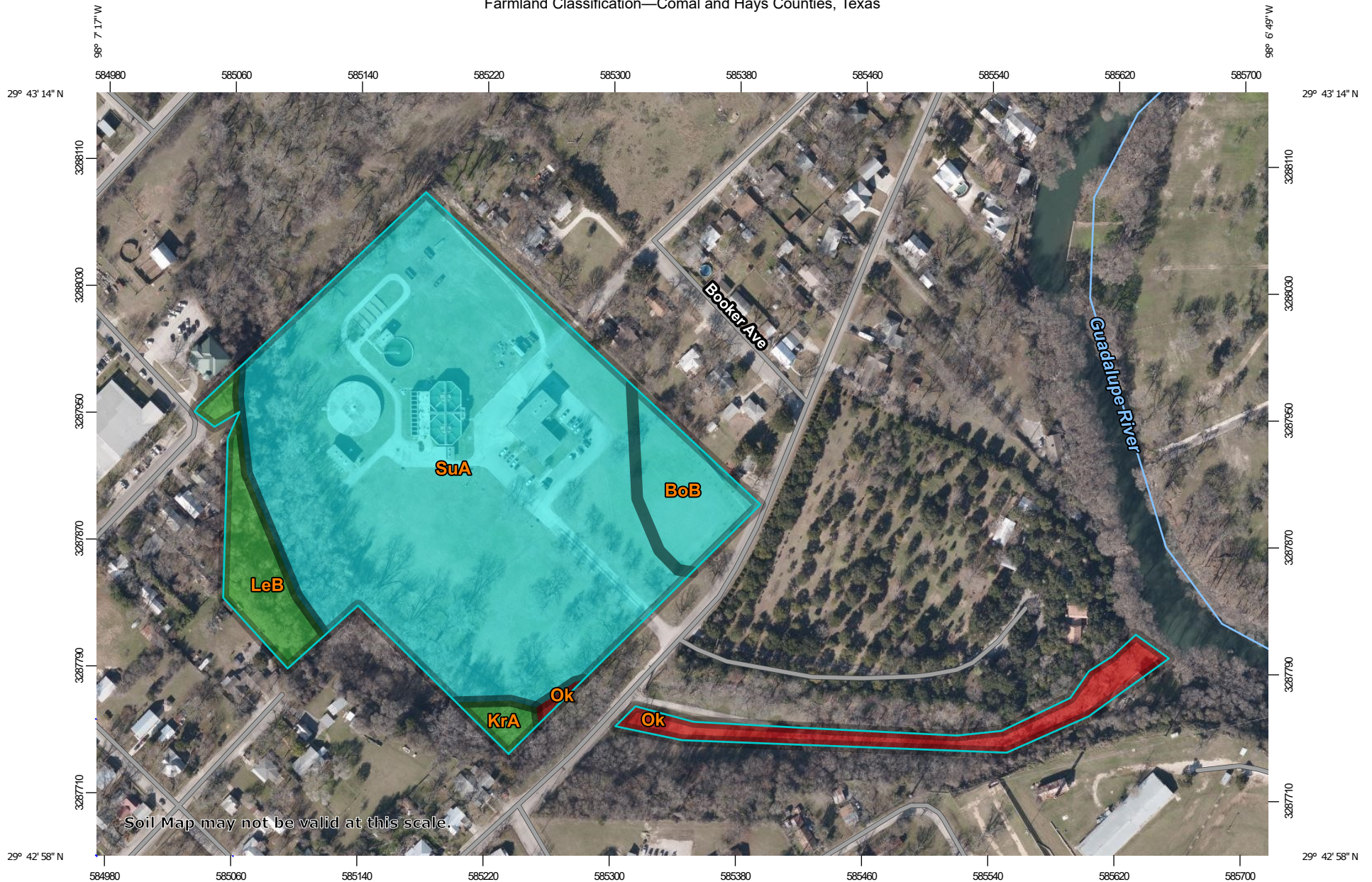
USDA, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

# **Appendix B:**

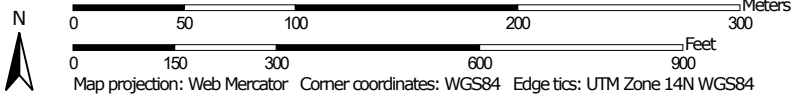
**Environmental Setting,  
Impacts and Mitigation  
Attachments**

## **B-1: Soils & Prime and Important Farmland (Section 5.3)**

Farmland Classification—Comal and Hays Counties, Texas




Map Scale: 1:3,400 if printed on A landscape (11" x 8.5") sheet.













### MAP LEGEND








**Area of Interest (AOI)**






 Area of Interest (AOI)








**Soils**



**Soil Rating Polygons**

-  Not prime farmland
-  All areas are prime farmland
-  Prime farmland if drained
-  Prime farmland if protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated
-  Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated and drained
-  Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season









-  Prime farmland if subsoiled, completely removing the root inhibiting soil layer
-  Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
-  Prime farmland if irrigated and reclaimed of excess salts and sodium
-  Farmland of statewide importance
-  Farmland of statewide importance, if drained
-  Farmland of statewide importance, if protected from flooding or not frequently flooded during the growing season
-  Farmland of statewide importance, if irrigated

-  Farmland of statewide importance, if drained and either protected from flooding or not frequently flooded during the growing season
-  Farmland of statewide importance, if irrigated and drained
-  Farmland of statewide importance, if irrigated and either protected from flooding or not frequently flooded during the growing season
-  Farmland of statewide importance, if subsoiled, completely removing the root inhibiting soil layer
-  Farmland of statewide importance, if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60



































-  Farmland of statewide importance, if irrigated and reclaimed of excess salts and sodium
-  Farmland of statewide importance, if drained or either protected from flooding or not frequently flooded during the growing season
-  Farmland of statewide importance, if warm enough, and either drained or either protected from flooding or not frequently flooded during the growing season
-  Farmland of statewide importance, if warm enough
-  Farmland of statewide importance, if thawed
-  Farmland of local importance
-  Farmland of local importance, if irrigated

-  Farmland of unique importance
-  Not rated or not available






















**Soil Rating Lines**

-  Not prime farmland
-  All areas are prime farmland
-  Prime farmland if drained
-  Prime farmland if protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated
-  Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated and drained
-  Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season

Farmland Classification—Comal and Hays Counties, Texas

	Prime farmland if subsoiled, completely removing the root inhibiting soil layer		Farmland of statewide importance, if drained and either protected from flooding or not frequently flooded during the growing season		Farmland of statewide importance, if irrigated and reclaimed of excess salts and sodium		Farmland of unique importance		Prime farmland if subsoiled, completely removing the root inhibiting soil layer
	Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60		Farmland of statewide importance, if irrigated and drained		Farmland of statewide importance, if drained or either protected from flooding or not frequently flooded during the growing season	<b>Soil Rating Points</b>			Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
	Prime farmland if irrigated and reclaimed of excess salts and sodium		Farmland of statewide importance, if irrigated and either protected from flooding or not frequently flooded during the growing season		Farmland of statewide importance, if warm enough, and either drained or either protected from flooding or not frequently flooded during the growing season		Not prime farmland		Prime farmland if irrigated and reclaimed of excess salts and sodium
	Farmland of statewide importance		Farmland of statewide importance, if subsoiled, completely removing the root inhibiting soil layer		Farmland of statewide importance, if warm enough		Prime farmland if drained		Farmland of statewide importance
	Farmland of statewide importance, if protected from flooding or not frequently flooded during the growing season		Farmland of statewide importance, if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60		Farmland of statewide importance, if thawed		Prime farmland if irrigated		Farmland of statewide importance, if drained
	Farmland of statewide importance, if irrigated				Farmland of local importance		Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season		Farmland of statewide importance, if protected from flooding or not frequently flooded during the growing season
					Farmland of local importance, if irrigated		Prime farmland if irrigated and drained		Farmland of statewide importance, if irrigated
							Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season		

Farmland Classification—Comal and Hays Counties, Texas

<ul style="list-style-type: none"> <li> Farmland of statewide importance, if drained and either protected from flooding or not frequently flooded during the growing season</li> <li> Farmland of statewide importance, if irrigated and drained</li> <li> Farmland of statewide importance, if irrigated and either protected from flooding or not frequently flooded during the growing season</li> <li> Farmland of statewide importance, if subsoiled, completely removing the root inhibiting soil layer</li> <li> Farmland of statewide importance, if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60</li> </ul>	<ul style="list-style-type: none"> <li> Farmland of statewide importance, if irrigated and reclaimed of excess salts and sodium</li> <li> Farmland of statewide importance, if drained or either protected from flooding or not frequently flooded during the growing season</li> <li> Farmland of statewide importance, if warm enough, and either drained or either protected from flooding or not frequently flooded during the growing season</li> <li> Farmland of statewide importance, if warm enough</li> <li> Farmland of statewide importance, if thawed</li> <li> Farmland of local importance</li> <li> Farmland of local importance, if irrigated</li> </ul>	<ul style="list-style-type: none"> <li> Farmland of unique importance</li> <li> Not rated or not available</li> </ul> <p><b>Water Features</b></p> <ul style="list-style-type: none"> <li> Streams and Canals</li> </ul> <p><b>Transportation</b></p> <ul style="list-style-type: none"> <li> Rails</li> <li> Interstate Highways</li> <li> US Routes</li> <li> Major Roads</li> <li> Local Roads</li> </ul> <p><b>Background</b></p> <ul style="list-style-type: none"> <li> Aerial Photography</li> </ul>	<p>The soil surveys that comprise your AOI were mapped at 1:20,000.</p> <div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p>Warning: Soil Map may not be valid at this scale.</p> <p>Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.</p> </div> <p>Please rely on the bar scale on each map sheet for map measurements.</p> <p>Source of Map: Natural Resources Conservation Service          Web Soil Survey URL:          Coordinate System: Web Mercator (EPSG:3857)</p> <p>Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.</p> <p>This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.</p> <p>Soil Survey Area: Comal and Hays Counties, Texas          Survey Area Data: Version 17, Jun 11, 2020</p> <p>Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.</p> <p>Date(s) aerial images were photographed: Jan 4, 2019—Jan 24, 2019</p> <p>The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.</p>
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## Farmland Classification

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BoB	Boerne fine sandy loam, 1 to 3 percent slopes, rarely flooded	Farmland of statewide importance	1.2	6.6%
KrA	Krum clay, 0 to 1 percent slopes	All areas are prime farmland	0.2	1.3%
LeB	Lewisville silty clay, 1 to 3 percent slopes	All areas are prime farmland	1.2	6.5%
Ok	Oakalla silty clay loam, 0 to 2 percent slopes, frequently flooded	Not prime farmland	1.2	6.8%
SuA	Sunev silty clay loam, 0 to 1 percent slopes	Farmland of statewide importance	14.4	78.8%
<b>Totals for Area of Interest</b>			<b>18.2</b>	<b>100.0%</b>

### Description

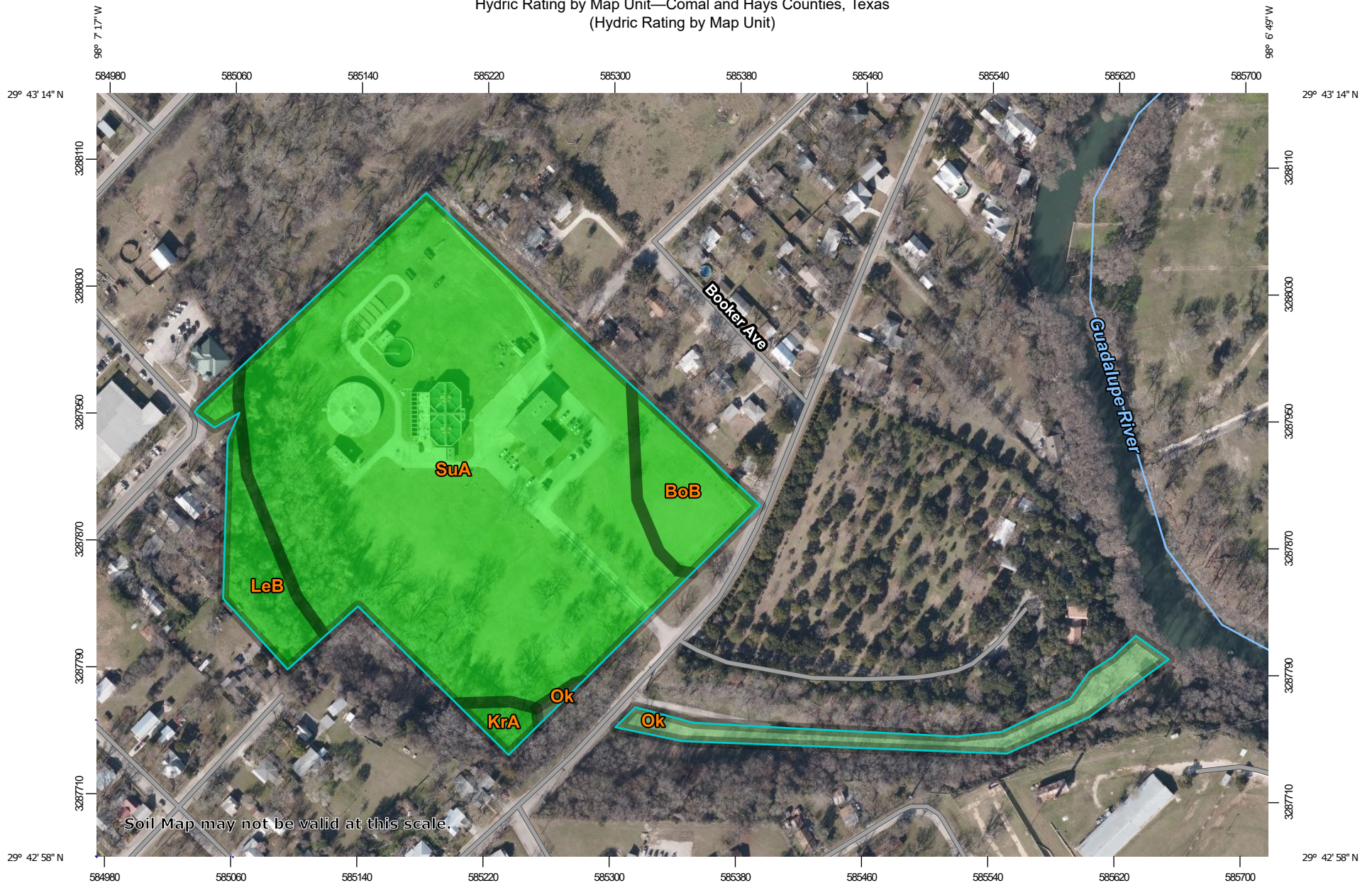
Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.

### Rating Options

*Aggregation Method:* No Aggregation Necessary

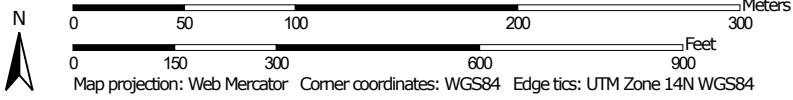
*Tie-break Rule:* Lower

Hydric Rating by Map Unit—Comal and Hays Counties, Texas  
(Hydric Rating by Map Unit)



Soil Map may not be valid at this scale.


Map Scale: 1:3,400 if printed on A landscape (11" x 8.5") sheet.



Hydric Rating by Map Unit—Comal and Hays Counties, Texas  
(Hydric Rating by Map Unit)







**MAP LEGEND**

**Area of Interest (AOI)**







 Area of Interest (AOI)

**Soils**







**Soil Rating Polygons**

-  Hydric (100%)
-  Hydric (66 to 99%)
-  Hydric (33 to 65%)
-  Hydric (1 to 32%)
-  Not Hydric (0%)
-  Not rated or not available


**Soil Rating Lines**

-  Hydric (100%)
-  Hydric (66 to 99%)
-  Hydric (33 to 65%)
-  Hydric (1 to 32%)
-  Not Hydric (0%)
-  Not rated or not available






**Soil Rating Points**

-  Hydric (100%)
-  Hydric (66 to 99%)
-  Hydric (33 to 65%)
-  Hydric (1 to 32%)
-  Not Hydric (0%)
-  Not rated or not available


**Water Features**

 Streams and Canals

**Transportation**

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

**Background**

 Aerial Photography

**MAP INFORMATION**

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
Web Soil Survey URL:  
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Comal and Hays Counties, Texas  
Survey Area Data: Version 17, Jun 11, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 4, 2019—Jan 24, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

## Hydric Rating by Map Unit

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BoB	Boerne fine sandy loam, 1 to 3 percent slopes, rarely flooded	0	1.2	6.6%
KrA	Krum clay, 0 to 1 percent slopes	0	0.2	1.3%
LeB	Lewisville silty clay, 1 to 3 percent slopes	0	1.2	6.5%
Ok	Oakalla silty clay loam, 0 to 2 percent slopes, frequently flooded	1	1.2	6.8%
SuA	Sunev silty clay loam, 0 to 1 percent slopes	0	14.4	78.8%
<b>Totals for Area of Interest</b>			<b>18.2</b>	<b>100.0%</b>

## Description

This rating indicates the percentage of map units that meets the criteria for hydric soils. Map units are composed of one or more map unit components or soil types, each of which is rated as hydric soil or not hydric. Map units that are made up dominantly of hydric soils may have small areas of minor nonhydric components in the higher positions on the landform, and map units that are made up dominantly of nonhydric soils may have small areas of minor hydric components in the lower positions on the landform. Each map unit is rated based on its respective components and the percentage of each component within the map unit.

The thematic map is color coded based on the composition of hydric components. The five color classes are separated as 100 percent hydric components, 66 to 99 percent hydric components, 33 to 65 percent hydric components, 1 to 32 percent hydric components, and less than one percent hydric components.

In Web Soil Survey, the Summary by Map Unit table that is displayed below the map pane contains a column named 'Rating'. In this column the percentage of each map unit that is classified as hydric is displayed.

Hydric soils are defined by the National Technical Committee for Hydric Soils (NTCHS) as soils that formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part (Federal Register, 1994). Under natural conditions, these soils are either saturated or inundated long enough during the growing season to support the growth and reproduction of hydrophytic vegetation.

The NTCHS definition identifies general soil properties that are associated with wetness. In order to determine whether a specific soil is a hydric soil or nonhydric soil, however, more specific information, such as information about the depth and duration of the water table, is needed. Thus, criteria that identify those estimated soil properties unique to hydric soils have been established (Federal Register, 2002). These criteria are used to identify map unit components that normally are associated with wetlands. The criteria used are selected estimated soil properties that are described in "Soil Taxonomy" (Soil Survey Staff, 1999) and "Keys to Soil Taxonomy" (Soil Survey Staff, 2006) and in the "Soil Survey Manual" (Soil Survey Division Staff, 1993).

If soils are wet enough for a long enough period of time to be considered hydric, they should exhibit certain properties that can be easily observed in the field. These visible properties are indicators of hydric soils. The indicators used to make onsite determinations of hydric soils are specified in "Field Indicators of Hydric Soils in the United States" (Hurt and Vasilas, 2006).

### References:

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.



Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18.

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service. U.S. Department of Agriculture Handbook 436.

Soil Survey Staff. 2006. Keys to soil taxonomy. 10th edition. U.S. Department of Agriculture, Natural Resources Conservation Service.

## Rating Options

### *Aggregation Method: Percent Present*

Aggregation is the process by which a set of component attribute values is reduced to a single value that represents the map unit as a whole.

A map unit is typically composed of one or more "components". A component is either some type of soil or some nonsoil entity, e.g., rock outcrop. For the attribute being aggregated, the first step of the aggregation process is to derive one attribute value for each of a map unit's components. From this set of component attributes, the next step of the aggregation process derives a single value that represents the map unit as a whole. Once a single value for each map unit is derived, a thematic map for soil map units can be rendered. Aggregation must be done because, on any soil map, map units are delineated but components are not.

For each of a map unit's components, a corresponding percent composition is recorded. A percent composition of 60 indicates that the corresponding component typically makes up approximately 60% of the map unit. Percent composition is a critical factor in some, but not all, aggregation methods.

The aggregation method "Percent Present" returns the cumulative percent composition of all components of a map unit for which a certain condition is true. For example, attribute "Hydric Rating by Map Unit" returns the cumulative percent composition of all components of a map unit where the corresponding hydric rating is "Yes". Conditions may be simple or complex. At runtime, the user may be able to specify all, some or none of the conditions in question.

### *Component Percent Cutoff: None Specified*

Components whose percent composition is below the cutoff value will not be considered. If no cutoff value is specified, all components in the database will be considered. The data for some contrasting soils of minor extent may not be in the database, and therefore are not considered.

### *Tie-break Rule: Lower*

The tie-break rule indicates which value should be selected from a set of multiple candidate values, or which value should be selected in the event of a percent composition tie.

## Hydrologic Soil Group and Surface Runoff

This table gives estimates of various soil water features. The estimates are used in land use planning that involves engineering considerations.

*Hydrologic soil groups* are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The four hydrologic soil groups are:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas.

*Surface runoff* refers to the loss of water from an area by flow over the land surface. Surface runoff classes are based on slope, climate, and vegetative cover. The concept indicates relative runoff for very specific conditions. It is assumed that the surface of the soil is bare and that the retention of surface water resulting from irregularities in the ground surface is minimal. The classes are negligible, very low, low, medium, high, and very high.

## Report—Hydrologic Soil Group and Surface Runoff

Absence of an entry indicates that the data were not estimated. The dash indicates no documented presence.

Hydrologic Soil Group and Surface Runoff—Comal and Hays Counties, Texas			
Map symbol and soil name	Pct. of map unit	Surface Runoff	Hydrologic Soil Group
BoB—Boerne fine sandy loam, 1 to 3 percent slopes, rarely flooded			
Boerne	94	Very low	A

Hydrologic Soil Group and Surface Runoff--Comal and Hays Counties, Texas			
Map symbol and soil name	Pct. of map unit	Surface Runoff	Hydrologic Soil Group
KrA—Krum clay, 0 to 1 percent slopes			
Krum	90	Medium	C
LeB—Lewisville silty clay, 1 to 3 percent slopes			
Lewisville	85	Low	B
Ok—Oakalla silty clay loam, 0 to 2 percent slopes, frequently flooded			
Oakalla	90	Negligible	B
SuA—Sunev silty clay loam, 0 to 1 percent slopes			
Sunev	85	Negligible	B

## Data Source Information

Soil Survey Area: Comal and Hays Counties, Texas  
 Survey Area Data: Version 17, Jun 11, 2020

**B-2: Wetlands, Streams & Waters of the U.S. (Section 5.6)**

Appendix not applicable. Intentionally left blank.

## **B-3: Biological Resources (Section 5.7)**

Appendix B3 - Potential Impacts Table for Rare, Candidate, Threatened and Endangered Species in Comal County, Texas.

Species (common and scientific name)	State/Federal Protection Status	Habitat	Presence of Critical Habitat	Project Site Suitability	Potential Impacts of Project
Cascade Caverns salamander ( <i>Eurycea latitans</i> )	ST	Wholly aquatic requiring clean, clear-flowing water with a high content of dissolved oxygen. Found in Texas cave springs.	No critical habitat has been designated for this species.	The project site does not contain suitable habitat.	No
San Marcos salamander ( <i>Eurycea nana</i> )	FT, ST	Wholly aquatic requiring rocky substrate and is commonly found in moss and algae. Endemic to San Marcos Springs and nearby surface and subterranean aquatic habitats.	There is final critical habitat for this species. Project location is outside of the critical habitat.	The project site does not contain suitable habitat.	No
Texas blind salamander ( <i>Eurycea rathbuni</i> )	FE, SE	Wholly aquatic requiring cool and clean flowing water. Found underground in the Edwards Aquifer (San Marcos area only).	No critical habitat has been designated for this species.	The project site does not contain suitable habitat.	No
Texas salamander ( <i>Eurycea neotenes</i> )	ST	Wholly aquatic requiring rocky or cobble beds. Found in springs, streams, and caves.	No critical habitat has been designated for this species.	The project site does not contain suitable habitat.	No
Golden-cheeked warbler ( <i>Setophaga chrysoparia</i> )	FE, SE	Prefer ashe juniper in mixed stands with various oaks ( <i>Quercus</i> spp.). Can occur on edges of cedar brakes. Breed late March-early summer.	No critical habitat has been designated for this species.	The strip of woodland adjacent to the project site may contain suitable habitat, but the fragmented nature of the area	No

Appendix B3 - Potential Impacts Table for Rare, Candidate, Threatened and Endangered Species in Comal County, Texas.

				and proximity to disturbance makes presence is unlikely.	
Interior least tern ( <i>Sternula antillarum athalassos</i> )	FE, SE	Prefer sand and gravel bars within braided streams, rivers for nesting, but have been known to nest on man-made structures, such as wastewater treatment facilities. Colony nesters early April – early June.	No critical habitat has been designated for this species.	The project site does not contain suitable habitat.	No. According to USFWS, species only needs to be considered for Wind Energy Projects.
Piping plover ( <i>Charadrius melodus</i> )	FT, ST	Prefer open sand, gravel or cobble beaches for breeding and are sensitive to disturbance. Winter in coastal areas of the United States from North Carolina to Texas.	There is final critical habitat for this species. Project location is outside critical habitat.	The project site does not contain suitable habitat.	No. According to USFWS, species only needs to be considered for Wind Energy Projects.
Red knot ( <i>Calidris canutus ruta</i> )	FT	Prefer coastal marine and estuarine habitats with large areas of intertidal sediments. Winter in Texas and coastal areas of the southeast.	No critical habitat has been designated for this species.	The project site does not contain suitable habitat.	No. According to USFWS, species only needs to be considered for Wind Energy Projects.
Reddish egret ( <i>Egretta rufescens</i> )	ST	Prefer brackish marshes and shallow salt ponds and tidal flats. Resident along the Texas and southeastern coast.	No critical habitat has been designated for this species.	The project site does not contain suitable habitat.	No
Tropical parula ( <i>Setophaga pitiayumi</i> )	ST	Prefer semi-tropical evergreen woodland along rivers and streams with Spanish moss or other epiphytes (for nesting).	No critical habitat has been designated for this species.	The project site does not contain suitable habitat.	No



Appendix B3 - Potential Impacts Table for Rare, Candidate, Threatened and Endangered Species in Comal County, Texas.

		Limited to southern Texas. Breed April to July.			
White-faced ibis ( <i>Plegadis chihi</i> )	ST	Prefer freshwater marshes, sloughs, and irrigated rice fields, but will temporarily take advantage of flooded areas. Colony nest in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats. Migrate throughout most of state, and breed along the Texas coast early April – July.	No critical habitat has been designated for this species.	The project site does not contain suitable habitat.	No
Whooping crane ( <i>Grus americana</i> )	FE, SE	Prefer small ponds, marshes, and flooded grain fields for both roosting and foraging. Potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties.	There is final critical habitat for this species. Project location is outside critical habitat.	The project site does not contain suitable habitat.	No
Wood stork ( <i>Mycteria americana</i> )	ST	Prefer prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water. Formerly nested in Texas, but no breeding records since 1960.	No critical habitat has been designated for this species.	The project site does not contain suitable habitat.	No
Zone-tailed hawk ( <i>Buteo albonotatus</i> )	ST	Prefer arid open country, including open deciduous or pine-oak woodland, mesa or mountain, often near	No critical habitat has been designated for this species.	The project site does not contain suitable habitat.	No

Appendix B3 - Potential Impacts Table for Rare, Candidate, Threatened and Endangered Species in Comal County, Texas.

		watercourses, and wooded canyons and tree-lined rivers along middle-slopes of desert mountains. Prefer montane cliffs for nesting. Limited range to southwest Texas. Breed April – July.			
Peck’s Cave amphipod ( <i>Stygobromus pecki</i> )	FE, SE	Found in groundwater springs, seeps and upwellings in the Edwards Aquifer.	There is final critical habitat for this species. Project location is outside critical habitat.	The project site does not contain suitable habitat.	No, however critical habitat is located within a half mile of the project’s northwest boundary.
Fountain darter ( <i>Etheostoma fonticola</i> )	FE, SE	Known only from the spring-fed San Marcos and Comal rivers in dense beds of aquatic plants growing close to bottom; may be found in slow and fast-flowing habitats.	There is final critical habitat for this species. Project location is outside critical habitat.	The project site does not contain suitable habitat.	No
Guadalupe darter ( <i>Percina apristis</i> )	ST	Found in the Guadalupe River and its tributaries, the San Marcos and Blanco Rivers. Prefers gravel substrate in moderately turbid, consistently flowing water.	There is final critical habitat for this species. Project location is outside critical habitat.	The project site does not contain suitable habitat.	No
Comal Springs dryopid beetle ( <i>Stygoparnus comalensis</i> )	FE, SE	Subterranean aquatic requiring clear flowing, uncontaminated water. Dryopids do not swim, but rather have been observed clinging to objects in a	There is final critical habitat for this species. Project location is outside critical habitat.	The project site does not contain suitable habitat.	No, however critical habitat is located within a half mile of the project’s

Appendix B3 - Potential Impacts Table for Rare, Candidate, Threatened and Endangered Species in Comal County, Texas.

		stream or crawling on stream bottoms. Found in Comal and Fern Bank Springs.			northwest boundary.
Comal Springs riffle beetle ( <i>Heterelmis comalensis</i> )	FE, SE	Comal and San Marcos Springs	There is final critical habitat for this species. Project location is outside critical habitat.	The project site does not contain suitable habitat.	No, however critical habitat is located within a half mile of the project's northwest boundary.
White-nosed coati ( <i>Nasua narica</i> )	ST	Prefer woodlands, riparian corridors and canyons. Most individuals in Texas probably transients from Mexico.	No critical habitat has been designated for this species.	The project site does not contain suitable habitat.	No
False spike mussel ( <i>Fusconaia mitchelli</i> )	ST	Prefer small streams to medium-size rivers in habitats such as riffles and runs with flowing water. Suitable substrate consists of sand, gravel, and cobble. Found within the Brazos River basin, residing in the Little River, San Gabriel River and Brushy Creek.	No critical habitat has been designated for this species.	The project site does not contain suitable habitat.	No
Guadalupe fatmucket ( <i>Lampsilis bergmanni</i> )	ST	Reported to occur in slow to moderate current in sand, mud, and gravel substrates among large cobble, boulders, bedrock ledges, horizontal cracks in bedrock slabs, and macrophyte beds. Has also been observed inhabiting the roots of	No critical habitat has been designated for this species.	The project site does not contain suitable habitat.	No

Appendix B3 - Potential Impacts Table for Rare, Candidate, Threatened and Endangered Species in Comal County, Texas.

		cypress trees and vegetation along steep banks. Found in the upstream portion of the Guadalupe River and its tributaries of the Edwards Plateau region in Kerr, Kendall and Comal counties, Texas.			
Guadalupe orb ( <i>Cyclonaias necki</i> )	ST	Suitable substrate consists of sand, gravel, and cobble, including mud-silt or gravel-filled cracks in bedrock slabs. Found in the Guadalupe River Basin in rivers and tributaries.	No critical habitat has been designated for this species.	The project site does not contain suitable habitat.	No
Cagle's map turtle ( <i>Graptemys caglei</i> )	ST	Aquatic: shallow water with swift to moderate flow and gravel or cobble bottom, connected by deeper pools with a slower flow rate and a silt or mud bottom; gravel bar riffles and transition areas between riffles and pools especially important in providing insect prey items; nests on gently sloping sand banks within 30 feet of water edge.	No critical habitat has been designated for this species.	The project site does not contain suitable habitat.	No
Texas horned lizard ( <i>Phrynosoma cornutum</i> )	ST	Terrestrial: Open habitats with sparse vegetation, including grass, prairie, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to	No critical habitat has been designated for this species.	The project site does not contain suitable habitat.	

Appendix B3 - Potential Impacts Table for Rare, Candidate, Threatened and Endangered Species in Comal County, Texas.

		rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive. Largely limited below the pinyon-juniper zone on mountains in the Big Bend area.			
Texas tortoise ( <i>Gopherus berlandieri</i> )	ST	Terrestrial: Open scrub woods, arid brush, lomas, grass-cactus association; often in areas with sandy well-drained soils. When inactive occupies shallow depressions dug at base of bush or cactus; sometimes in underground burrow or under object. Eggs are laid in nests dug in soil near or under bushes.	No critical habitat has been designated for this species.	The project site does not contain suitable habitat.	No
Texas wild-rice ( <i>Zizania texana</i> )	FE	Clumping perennial grass that roots underwater in riverbeds.	There is final critical habitat for this species. Project location is outside critical habitat.	The project site does not contain suitable habitat.	No
Bracted twistflower ( <i>Streptanthus bracteatus</i> )	C	Rocky hillsides and slopes. It is usually found growing under shrubs.	No critical habitat has been designated for this species.	The project site does not contain suitable habitat.	No

Footnotes: (SE) State-Endangered, (ST) State-Threatened, (FE) Federally Endangered, (FT) Federally Threatened

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## COMAL COUNTY

### AMPHIBIANS

**Blanco River Springs salamander** *Eurycea pterophila*

Aquatic; springs, streams and caves with rocky or cobble beds.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3	State Rank: S3

**Cascade Caverns salamander** *Eurycea latitans*

Aquatic; springs, streams and caves with rocky or cobble beds.

Federal Status:	State Status: T	SGCN: Y
Endemic: Y	Global Rank: G3	State Rank: S2

**San Marcos salamander** *Eurycea nana*

Aquatic; springs and associated water.

Federal Status: LT	State Status: T	SGCN: Y
Endemic: Y	Global Rank: G1	State Rank: S1

**Strecker's chorus frog** *Pseudacris streckeri*

Terrestrial and aquatic: Wooded floodplains and flats, prairies, cultivated fields and marshes. Likes sandy substrates.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

**Texas blind salamander** *Eurycea rathbuni*

Aquatic and subterranean; streams and caves.

Federal Status: LE	State Status: E	SGCN: Y
Endemic: Y	Global Rank: G1	State Rank: S1

**Texas salamander** *Eurycea neotenes*

Aquatic; springs, streams and caves with rocky or cobble beds.

Federal Status:	State Status: T	SGCN: Y
Endemic: Y	Global Rank: G1G2	State Rank: S1S2

**Woodhouse's toad** *Anaxyrus woodhousii*

Terrestrial and aquatic: A wide variety of terrestrial habitats are used by this species, including forests, grasslands, and barrier island sand dunes. Aquatic habitats are equally varied.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: SU

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## COMAL COUNTY

### ARACHNIDS

**No accepted common name**      *Texella brevidenta*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G1G2	State Rank: S1

**No accepted common name**      *Cicurina puentecilla*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G1G2	State Rank: S1

**No accepted common name**      *Cicurina reclusa*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G1G2	State Rank: S1

**No accepted common name**      *Almuerzothyas comalensis*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: N
Endemic: Y	Global Rank: GNR	State Rank: SU

### ARTHROPODS

**No accepted common name**      *Speodesmus ivyi*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: GNR	State Rank: SNR

### BIRDS

**bald eagle**      *Haliaeetus leucocephalus*

Found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3B,S3N

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## COMAL COUNTY

### BIRDS

**black-capped vireo** *Vireo atricapilla*

Oak-juniper woodlands with distinctive patchy, two-layered aspect; shrub and tree layer with open, grassy spaces; requires foliage reaching to ground level for nesting cover; return to same territory, or one nearby, year after year; deciduous and broad-leaved shrubs and trees provide insects for feeding; species composition less important than presence of adequate broad-leaved shrubs, foliage to ground level, and required structure; nesting season March-late summer

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S3B

**Franklin's gull** *Leucophaeus pipixcan*

This species is only a spring and fall migrant throughout Texas. It does not breed in or near Texas. Winter records are unusual consisting of one or a few individuals at a given site (especially along the Gulf coastline). During migration, these gulls fly during daylight hours but often come down to wetlands, lake shore, or islands to roost for the night.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S2N

**golden-cheeked warbler** *Setophaga chrysoparia*

Ashe juniper in mixed stands with various oaks (*Quercus* spp.). Edges of cedar brakes. Dependent on Ashe juniper (also known as cedar) for long fine bark strips, only available from mature trees, used in nest construction; nests are placed in various trees other than Ashe juniper; only a few mature junipers or nearby cedar brakes can provide the necessary nest material; forage for insects in broad-leaved trees and shrubs; nesting late March-early summer.

Federal Status: LE	State Status: E	SGCN: Y
Endemic: N	Global Rank: G2	State Rank: S2S3B

**interior least tern** *Sternula antillarum athalassos*

Sand beaches, flats, bays, inlets, lagoons, islands. Subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony

Federal Status: LE	State Status: E	SGCN: Y
Endemic: N	Global Rank: G4T3Q	State Rank: S1B

**mountain plover** *Charadrius montanus*

Breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S2

**piping plover** *Charadrius melodus*

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## COMAL COUNTY

### BIRDS

Beaches, sandflats, and dunes along Gulf Coast beaches and adjacent offshore islands. Also spoil islands in the Intracoastal Waterway. Based on the November 30, 1992 Section 6 Job No. 9.1, Piping Plover and Snowy Plover Winter Habitat Status Survey, algal flats appear to be the highest quality habitat. Some of the most important aspects of algal flats are their relative inaccessibility and their continuous availability throughout all tidal conditions. Sand flats often appear to be preferred over algal flats when both are available, but large portions of sand flats along the Texas coast are available only during low-very low tides and are often completely unavailable during extreme high tides or strong north winds. Beaches appear to serve as a secondary habitat to the flats associated with the primary bays, lagoons, and inter-island passes. Beaches are rarely used on the southern Texas coast, where bayside habitat is always available, and are abandoned as bayside habitats become available on the central and northern coast. However, beaches are probably a vital habitat along the central and northern coast (i.e. north of Padre Island) during periods of extreme high tides that cover the flats. Optimal site characteristics appear to be large in area, sparsely vegetated, continuously available or in close proximity to secondary habitat, and with limited human disturbance.

Federal Status: LT	State Status: T	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S2N

**reddish egret** *Egretta rufescens*

Resident of the Texas Gulf Coast; brackish marshes and shallow salt ponds and tidal flats; nests on ground or in trees or bushes, on dry coastal islands in brushy thickets of yucca and prickly pear

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S2B

**tropical parula** *Setophaga pitiayumi*

Semi-tropical evergreen woodland along rivers and resacas. Texas ebony, anacua and other trees with epiphytic plants hanging from them. Dense or open woods, undergrowth, brush, and trees along edges of rivers and resacas; breeding April to July.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3B

**western burrowing owl** *Athene cunicularia hypugaea*

Open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4T4	State Rank: S2

**white-faced ibis** *Plegadis chihi*

Prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; currently confined to near-coastal rookeries in so-called hog-wallow prairies. Nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4B

**whooping crane** *Grus americana*

Small ponds, marshes, and flooded grain fields for both roosting and foraging. Potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties.

Federal Status: LE	State Status: E	SGCN: Y
Endemic: N	Global Rank: G1	State Rank: S1N

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## COMAL COUNTY

### BIRDS

**wood stork** *Mycteria americana*

Prefers to nest in large tracts of baldcypress (*Taxodium distichum*) or red mangrove (*Rhizophora mangle*); forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries); breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas, but no breeding records since 1960

Federal Status: State Status: T SGCN: Y  
Endemic: N Global Rank: G4 State Rank: SHB,S2N

**zone-tailed hawk** *Buteo albonotatus*

Arid open country, including open deciduous or pine-oak woodland, mesa or mountain county, often near watercourses, and wooded canyons and tree-lined rivers along middle-slopes of desert mountains; nests in various habitats and sites, ranging from small trees in lower desert, giant cottonwoods in riparian areas, to mature conifers in high mountain regions

Federal Status: State Status: T SGCN: Y  
Endemic: N Global Rank: G4 State Rank: S3B

### CRUSTACEANS

**a bathynellid** *Texanobathynella bowmani*

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Y  
Endemic: Y Global Rank: GNR State Rank: S2S4

**Ezell's Cave amphipod** *Stygobromus flagellatus*

Known only from artesian wells

Federal Status: State Status: SGCN: Y  
Endemic: Y Global Rank: G2G3 State Rank: S3

**No accepted common name** *Nitocrellopsis texana*

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Y  
Endemic: Y Global Rank: GNR State Rank: SU

**No accepted common name** *Palaemonetes texanus*

Collected in Comal and Hays counties (Middel Guadalupe and San Marcos watersheds).

Federal Status: State Status: SGCN: Y  
Endemic: Y Global Rank: G1G2 State Rank: S1?

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## COMAL COUNTY

### CRUSTACEANS

**No accepted common name**      *Artesia subterranea*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G1G2	State Rank: S2

**No accepted common name**      *Mexiweckelia hardeni*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G2G3	State Rank: S2

**Peck's Cave amphipod**      *Stygobromus pecki*

Small, aquatic crustacean; lives underground in the Edwards Aquifer; collected at Comal Springs and Hueco Springs

Federal Status: LE	State Status: E	SGCN: Y
Endemic: Y	Global Rank: G1G2	State Rank: S1

### FISH

**american eel**      *Anguilla rostrata*

Originally found in all river systems from the Red River to the Rio Grande. Aquatic habitats include large rivers, streams, tributaries, coastal watersheds, estuaries, bays, and oceans. Spawns in Sargasso Sea, larva move to coastal waters, metamorphose, and begin upstream movements. Females tend to move further upstream than males (who are often found in brackish estuaries). American Eel are habitat generalists and may be found in a broad range of habitat conditions including slow- and fast-flowing waters over many substrate types. Extirpation in upstream drainages attributed to reservoirs that impede upstream migration.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S4

**fountain darter**      *Etheostoma fonticola*

Known only from the spring-fed San Marcos and Comal rivers in dense beds of aquatic plants growing close to bottom; may be found in slow- and fast-flowing habitats.

Federal Status: LE	State Status: E	SGCN: Y
Endemic: Y	Global Rank: G1	State Rank: S1

**Guadalupe bass**      *Micropterus treculii*

Endemic to the streams of the northern and eastern Edwards Plateau including portions of the Brazos, Colorado, Guadalupe, and San Antonio basins; species also found outside of the Edwards Plateau streams in decreased abundance, primarily in the lower Colorado River; two introduced populations have been established in the Nueces River system. A pure population was re-established in a portion of the Blanco River in 2014. Species prefers lentic environments but commonly taken in flowing water; numerous smaller fish occur in rapids, many times near eddies; large individuals found mainly in riffle tail races; usually found in spring-fed streams having clear water and relatively consistent temperatures.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3	State Rank: S3

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## COMAL COUNTY

### FISH

#### Guadalupe darter

*Percina apristis*

Endemic to the Guadalupe River Basin; Found in riffles; most common under or around 25-30 cm boulders in the main current; seems to prefer moderately turbid water.

Federal Status:	State Status: T	SGCN: Y
Endemic: Y	Global Rank: G4	State Rank: S2

#### Texas shiner

*Notropis amabilis*

In Texas, it is found primarily in Edwards Plateau streams from the San Gabriel River in the east to the Pecos River in the west. Typical habitat includes rocky or sandy runs, as well as pools.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S4

### INSECTS

#### a caddisfly

*Ochrotrichia capitana*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G1G3	State Rank: S2?

#### a caddisfly

*Neotrichia juani*

Specimens were collected from perennial and ephemeral rivers, and small spring-fed streams (Harris and Tiemann 1993).

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: G1	State Rank: S1

#### a caddisfly

*Xiphocentron messapus*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G1G3	State Rank: S2?

#### a mayfly

*Pseudocentropiloides morihari*

Mayflies distinguished by aquatic larval stage; adult stage generally found in shoreline vegetation

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G2G3	State Rank: S2?

#### American bumblebee

*Bombus pensylvanicus*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: G3G4	State Rank: SNR

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## COMAL COUNTY

### INSECTS

**Comal Springs diving beetle**      *Comaldessus stygius*

Known only from the outflows at Comal Springs; aquatic; diving beetles generally inhabit the water column

Federal Status:                      State Status:                      SGCN: Y  
Endemic: Y                      Global Rank: G1                      State Rank: S1

**Comal Springs dryopid beetle**      *Stygoparnus comalensis*

Dryopids usually cling to objects in a stream; dryopids are sometimes found crawling on stream bottoms or along shores; adults may leave the stream and fly about, especially at night; most dryopid larvae are vermiform and live in soil or decaying wood

Federal Status: LE                      State Status: E                      SGCN: Y  
Endemic: Y                      Global Rank: G1G2                      State Rank: S1

**Comal Springs riffle beetle**      *Heterelmis comalensis*

Comal and San Marcos Springs

Federal Status: LE                      State Status: E                      SGCN: Y  
Endemic:                      Global Rank: G1                      State Rank: S1

**Edwards Aquifer diving beetle**      *Haideoporus texanus*

Habitat poorly known; known from an artesian well in Hays County

Federal Status:                      State Status:                      SGCN: Y  
Endemic: Y                      Global Rank: G1G2                      State Rank: S1

**No accepted common name**      *Oxyelophila callista*

Habitat description is not available at this time.

Federal Status:                      State Status:                      SGCN: Y  
Endemic:                      Global Rank: GNR                      State Rank: SNR

**No accepted common name**      *Rhadine insolita*

Habitat description is not available at this time.

Federal Status:                      State Status:                      SGCN: Y  
Endemic: Y                      Global Rank: G1G2                      State Rank: S1

**No accepted common name**      *Rhadine speca*

Habitat description is not available at this time.

Federal Status:                      State Status:                      SGCN: Y  
Endemic: Y                      Global Rank: G2                      State Rank: S2

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## COMAL COUNTY

### INSECTS

**purse casemaker caddisfly**      *Hydroptila melia*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: G2G3	State Rank: S2?

### MAMMALS

**American badger**      *Taxidea taxus*

Generalist. Prefers areas with soft soils that sustain ground squirrels for food. When inactive, occupies underground burrow. Young are born in underground burrows.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

**big brown bat**      *Eptesicus fuscus*

Any wooded areas or woodlands except south Texas. Riparian areas in west Texas.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

**big free-tailed bat**      *Nyctinomops macrotis*

Habitat data sparse but records indicate that species prefers to roost in crevices and cracks in high canyon walls, but will use buildings, as well; reproduction data sparse, gives birth to single offspring late June-early July; females gather in nursery colonies; winter habits undetermined, but may hibernate in the Trans-Pecos; opportunistic insectivore

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: G5	State Rank: S3

**black-tailed prairie dog**      *Cynomys ludovicianus*

Dry, flat, short grasslands with low, relatively sparse vegetation, including areas overgrazed by cattle; live in large family groups

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S3

**cave myotis bat**      *Myotis velifer*

Colonial and cave-dwelling; also roosts in rock crevices, old buildings, carports, under bridges, and even in abandoned Cliff Swallow (*Hirundo pyrrhonota*) nests; roosts in clusters of up to thousands of individuals; hibernates in limestone caves of Edwards Plateau and gypsum cave of Panhandle during winter; opportunistic insectivore.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4G5	State Rank: S4

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## COMAL COUNTY

### MAMMALS

**eastern red bat**

*Lasiurus borealis*

Found in a variety of habitats in Texas. Usually associated with wooded areas. Found in towns especially during migration.

Federal Status:

State Status:

SGCN: N

Endemic: N

Global Rank: G3G4

State Rank: S4

**eastern spotted skunk**

*Spilogale putorius*

Generalist; open fields prairies, croplands, fence rows, farmyards, forest edges & woodlands. Prefer wooded, brushy areas & tallgrass prairies. S.p. ssp. interrupta found in wooded areas and tallgrass prairies, preferring rocky canyons and outcrops when such sites are available.

Federal Status:

State Status:

SGCN: Y

Endemic: N

Global Rank: G4

State Rank: S1S3

**hoary bat**

*Lasiurus cinereus*

Known from montane and riparian woodland in Trans-Pecos, forests and woods in east and central Texas.

Federal Status:

State Status:

SGCN: N

Endemic: N

Global Rank: G3G4

State Rank: S4

**long-tailed weasel**

*Mustela frenata*

Includes brushlands, fence rows, upland woods and bottomland hardwoods, forest edges & rocky desert scrub. Usually live close to water.

Federal Status:

State Status:

SGCN: Y

Endemic: N

Global Rank: G5

State Rank: S5

**Mexican free-tailed bat**

*Tadarida brasiliensis*

Roosts in buildings in east Texas. Largest maternity roosts are in limestone caves on the Edwards Plateau. Found in all habitats, forest to desert.

Federal Status:

State Status:

SGCN: Y

Endemic: N

Global Rank: G5

State Rank: S5

**Mexican long-tongued bat**

*Choeronycteris mexicana*

Only Texas record is from riparian forest; in general--neotropical nectivorous species roosting in caves, mines, and large crevices found in deep canyons along the Rio Grande ; also found in buildings and often associated with big-eared bats (*Plecotus* spp.); single TX record from Santa Ana NWR

Federal Status:

State Status:

SGCN: Y

Endemic: N

Global Rank: G3G4

State Rank: S1

**mink**

*Neovison vison*

Intimately associated with water; coastal swamps & marshes, wooded riparian zones, edges of lakes. Prefer floodplains.

Federal Status:

State Status:

SGCN: Y

Endemic: N

Global Rank: G5

State Rank: S4

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## COMAL COUNTY

### MAMMALS

#### plains spotted skunk

*Spilogale putorius interrupta*

Generalist; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie

Federal Status:	State Status:	SGCN: N
Endemic: N	Global Rank: G4T4	State Rank: S1S3

#### swamp rabbit

*Sylvilagus aquaticus*

Primarily found in lowland areas near water including: cypress bogs and marshes, floodplains, creeks and rivers.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

#### tricolored bat

*Perimyotis subflavus*

Forest, woodland and riparian areas are important. Caves are very important to this species.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G2G3	State Rank: S3S4

#### western hog-nosed skunk

*Conepatus leuconotus*

Habitats include woodlands, grasslands & deserts, to 7200 feet, most common in rugged, rocky canyon country; little is known about the habitat of the ssp. *telmalestes*

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S4

#### western spotted skunk

*Spilogale gracilis*

Brushy canyons, rocky outcrops (rimrock) on hillsides and walls of canyons. In semi-arid brushlands in U.S., in wet tropical forests in Mexico. When inactive or bearing young, occupies den in rocks, burrow, hollow log, brush pile, or under building.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

#### white-nosed coati

*Nasua narica*

Woodlands, riparian corridors and canyons. Most individuals in Texas probably transients from Mexico; diurnal and crepuscular; very sociable; forages on ground and in trees; omnivorous; may be susceptible to hunting, trapping, and pet trade

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S1

### MOLLUSKS

#### False Spike Mussel

*Fusconaia mitchelli*

Occurs in small streams to medium-size rivers in habitats such as riffles and runs with flowing water. Is often found in stable substrates of sand, gravel, and cobble (Howells 2010; Randklev et al. 2012; Sowards et al. 2013; Tsakiris and Randklev 2016). [Mussels of Texas 2019]

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G1	State Rank: S1

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## COMAL COUNTY

### MOLLUSKS

**glossy wolfsnail** *Euglandina texasiana*

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Y  
Endemic: Global Rank: G1G2 State Rank: S1S2

**Guadalupe Fatmucket** *Lampsilis bergmanni*

Reported to occur in slow to moderate current in sand, mud, and gravel substrates among large cobble, boulders, bedrock ledges, horizontal cracks in bedrock slabs, and macrophyte beds. Has also been observed inhabiting the roots of cypress trees and vegetation along steep banks. Reported in lakes at Kerrville, Texas, which suggests it may occasionally persist in some impoundment conditions (Robert G. Howells, personal communication). (Mussels of Texas, 2020)

Federal Status: State Status: T SGCN: N  
Endemic: Y Global Rank: G1 State Rank: SNR

**Guadalupe Orb** *Cyclonaias necki*

Species' distribution is limited to the Guadalupe River basin. Occurs in both mainstem and tributary habitats. Often found in substrates composed of sand, gravel, and cobble, including mud-silt or gravel-filled cracks in bedrock slabs. Considered intolerant of reservoirs, but are known to occur in them (Howells 2010m; Randklev et al. 2017b). [Mussels of Texas 2019]

Federal Status: State Status: T SGCN: N  
Endemic: Y Global Rank: GNR State Rank: S2

**horseshoe liptooth** *Daedalochila hippocrepis*

Terrestrial snail known only from the steep, wooded hillsides of Landa Park in New Braunfels

Federal Status: State Status: SGCN: Y  
Endemic: Global Rank: G1 State Rank: S1

**No accepted common name** *Stygopyrgus bartonensis*

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Y  
Endemic: Y Global Rank: G1 State Rank: S1

**No accepted common name** *Holospira goldfussi*

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Y  
Endemic: Global Rank: G2G3 State Rank: S2?

**No accepted common name** *Millerelix gracilis*

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Y  
Endemic: Global Rank: G2G3 State Rank: S2?

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## COMAL COUNTY

### MOLLUSKS

**No accepted common name**      *Elimia comalensis*  
Habitat description is not available at this time.  
Federal Status:                      State Status:                      SGCN: Y  
Endemic: Y                              Global Rank: G2                      State Rank: S2?

**No accepted common name**      *Phreatodrobia conica*  
Habitat description is not available at this time.  
Federal Status:                      State Status:                      SGCN: Y  
Endemic: Y                              Global Rank: G1                      State Rank: S2

**No accepted common name**      *Phreatodrobia micra*  
Habitat description is not available at this time.  
Federal Status:                      State Status:                      SGCN: Y  
Endemic: Y                              Global Rank: G2G3                      State Rank: S2

**No accepted common name**      *Phreatodrobia plana*  
Habitat description is not available at this time.  
Federal Status:                      State Status:                      SGCN: Y  
Endemic: Y                              Global Rank: G2                      State Rank: S2

**No accepted common name**      *Phreatodrobia rotunda*  
Habitat description is not available at this time.  
Federal Status:                      State Status:                      SGCN: Y  
Endemic: Y                              Global Rank: G1G2                      State Rank: S2

**No accepted common name**      *Marstonia comalensis*  
Habitat description is not available at this time.  
Federal Status:                      State Status:                      SGCN: Y  
Endemic: Y                              Global Rank: G1                      State Rank: S1

### REPTILES

**Cagle's map turtle**                      *Graptemys caglei*  
Aquatic: shallow water with swift to moderate flow and gravel or cobble bottom, connected by deeper pools with a slower flow rate and a silt or mud bottom; gravel bar riffles and transition areas between riffles and pools especially important in providing insect prey items; nests on gently sloping sand banks within ca. 30 feet of waters edge.  
Federal Status:                      State Status: T                      SGCN: Y  
Endemic: Y                              Global Rank: G3                      State Rank: S1

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## COMAL COUNTY

### REPTILES

**eastern box turtle** *Terrapene carolina*

Terrestrial: Eastern box turtles inhabit forests, fields, forest-brush, and forest-field ecotones. In some areas they move seasonally from fields in spring to forest in summer. They commonly enters pools of shallow water in summer. For shelter, they burrow into loose soil, debris, mud, old stump holes, or under leaf litter. They can successfully hibernate in sites that may experience subfreezing temperatures.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S3

**keeled earless lizard** *Holbrookia propinqua*

Terrestrial: Habitats include coastal dunes, barrier islands, and other sandy areas (Axtell 1983). Although it occurs well inland, this species is most abundant on coastal dunes, where it seeks shelter in the burrows of small mammals or crabs (Bartlett and Bartlett 1999).

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G4 State Rank: S3

**plateau spot-tailed earless lizard** *Holbrookia lacerata*

Terrestrial: Habitats include moderately open prairie-brushland regions, particularly fairly flat areas free of vegetation or other obstructions (e.g., open meadows, old and new fields, graded roadways, cleared and disturbed areas, prairie savanna, and active agriculture including row crops); also, oak-juniper woodlands and mesquite-prickly pear associations (Axtell 1968, Bartlett and Bartlett 1999).

Federal Status: State Status: SGCN: Y  
Endemic: Y Global Rank: GNR State Rank: S2

**slender glass lizard** *Ophisaurus attenuatus*

Terrestrial: Habitats include open grassland, prairie, woodland edge, open woodland, oak savannas, longleaf pine flatwoods, scrubby areas, fallow fields, and areas near streams and ponds, often in habitats with sandy soil.

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5 State Rank: S3

**Tamaulipan spot-tailed earless lizard** *Holbrookia subcaudalis*

Terrestrial: Habitats include moderately open prairie-brushland regions, particularly fairly flat areas free of vegetation or other obstructions (e.g., open meadows, old and new fields, graded roadways, cleared and disturbed areas, prairie savanna, and active agriculture including row crops); also, oak-juniper woodlands and mesquite-prickly pear associations (Axtell 1968, Bartlett and Bartlett 1999).

Federal Status: State Status: SGCN: Y  
Endemic: Global Rank: GNR State Rank: S2

**Texas garter snake** *Thamnophis sirtalis annectens*

Terrestrial and aquatic: Habitats used include the grasslands and modified open areas in the vicinity of aquatic features, such as ponds, streams or marshes. Damp soils and debris for cover are thought to be critical.

Federal Status: State Status: SGCN: Y  
Endemic: Y Global Rank: G5T4 State Rank: S1

**Texas horned lizard** *Phrynosoma cornutum*

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## COMAL COUNTY

### REPTILES

Terrestrial: Open habitats with sparse vegetation, including grass, prairie, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive. Occurs to 6000 feet, but largely limited below the pinyon-juniper zone on mountains in the Big Bend area.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4G5	State Rank: S3

**Texas tortoise** *Gopherus berlandieri*

Terrestrial: Open scrub woods, arid brush, lomas, grass-cactus association; often in areas with sandy well-drained soils. When inactive occupies shallow depressions dug at base of bush or cactus; sometimes in underground burrow or under object. Eggs are laid in nests dug in soil near or under bushes.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S2

**western box turtle** *Terrapene ornata*

Terrestrial: Ornate or western box turtles inhabit prairie grassland, pasture, fields, sandhills, and open woodland. They are essentially terrestrial but sometimes enter slow, shallow streams and creek pools. For shelter, they burrow into soil (e.g., under plants such as yucca) (Converse et al. 2002) or enter burrows made by other species.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

**western hognose snake** *Heterodon nasicus*

Terrestrial: Shortgrass or mixed grass prairie, with gravel or sandy soils. Often found associated with draws, floodplains, and more mesic habitats within the arid landscape. Frequently occurs in shrub encroached grasslands.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4

### PLANTS

**bigflower cornsalad** *Valerianella stenocarpa*

Usually along creekbeds or in vernal moist grassy open areas (Carr 2015).

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3	State Rank: S3

**bracted twistflower** *Streptanthus bracteatus*

Shallow, well-drained gravelly clays and clay loams over limestone in oak juniper woodlands and associated openings, on steep to moderate slopes and in canyon bottoms; several known soils include Tarrant, Brackett, or Speck over Edwards, Glen Rose, and Walnut geologic formations; populations fluctuate widely from year to year, depending on winter rainfall; flowering mid April-late May, fruit matures and foliage withers by early summer

Federal Status: C	State Status:	SGCN: Y
Endemic: Y	Global Rank: G1	State Rank: S1

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## COMAL COUNTY

### PLANTS

**Buckley tridens**

*Tridens buckleyanus*

Occurs in juniper-oak woodlands on rocky limestone slopes; Perennial; Flowering/Fruiting April-Nov

Federal Status:

State Status:

SGCN: Y

Endemic: Y

Global Rank: G3G4

State Rank: S3S4

**canyon mock-orange**

*Philadelphus texensis var. ernestii*

Usually found growing from honeycomb pits on outcrops of Cretaceous limestone exposed as rimrock along mesic canyons, usually in the shade of mixed evergreen-deciduous canyon woodland; flowering April-June, fruit dehiscing September-October

Federal Status:

State Status:

SGCN: Y

Endemic: N

Global Rank: G3T3

State Rank: S3

**Comal snakewood**

*Colubrina stricta*

In El Paso County, found in a patch of thorny shrubs in colluvial deposits and sandy soils at the base of an igneous rock outcrop; the historic Comal County record does not describe the habitat; in Mexico, found in shrublands on calcareous, gravelly, clay soils with woody associates; flowering late spring or early summer

Federal Status:

State Status:

SGCN: Y

Endemic: N

Global Rank: G2

State Rank: S1

**darkstem noseburn**

*Tragia nigricans*

Occurs in oak-juniper woodlands on mesic limestone slopes and canyon bottoms; Perennial; Flowering/Fruiting April-Oct

Federal Status:

State Status:

SGCN: Y

Endemic: Y

Global Rank: G3

State Rank: S3

**Glass Mountains coral-root**

*Hexalectris nitida*

Apparently rare in mixed woodlands in canyons in the mountains of the Brewster County, but encountered with regularity, albeit in small numbers, under *Juniperus ashei* in woodlands over limestone on the Edwards Plateau, Callahan Divide and Lampasas Cutplain; Perennial; Flowering June-Sept; Fruiting July-Sept

Federal Status:

State Status:

SGCN: Y

Endemic: N

Global Rank: G3

State Rank: S3

**gravelbar brickellbush**

*Brickellia dentata*

Essentially restricted to frequently-scoured gravelly alluvial beds in creek and river bottoms; Perennial; Flowering June-Nov; Fruiting June-Oct

Federal Status:

State Status:

SGCN: Y

Endemic: Y

Global Rank: G3G4

State Rank: S3S4

**Heller's marbleseed**

*Onosmodium helleri*

Occurs in loamy calcareous soils in oak-juniper woodlands on rocky limestone slopes, often in more mesic portions of canyons; Perennial; Flowering March-May

Federal Status:

State Status:

SGCN: Y

Endemic: Y

Global Rank: G3

State Rank: S3

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## COMAL COUNTY

### PLANTS

**Hill Country wild-mercury**      *Argythamnia aphoroides*

Mostly in bluestem-grama grasslands associated with plateau live oak woodlands on shallow to moderately deep clays and clay loams over limestone on rolling uplands, also in partial shade of oak-juniper woodlands in gravelly soils on rocky limestone slopes; Perennial; Flowering April-May with fruit persisting until midsummer

Federal Status:                      State Status:                      SGCN: Y  
Endemic: Y                      Global Rank: G2G3                      State Rank: S3

**Lindheimer's tickseed**      *Desmodium lindheimeri*

Known in Texas only from three locations; US habitat is uncertain; has been found along rocky bed of dry ravine and among brush on the banks, steep ravine banks, dry caliche flat roadsides, in shallow soil on outcrops; occurred in deep to partial shade and openings in live oak-juniper woodland associations on the Edwards Limestone; flowering August-October or November.

Federal Status:                      State Status:                      SGCN: Y  
Endemic: N                      Global Rank: G3G4                      State Rank: S1

**narrowleaf brickellbush**      *Brickellia eupatorioides var. gracillima*

Moist to dry gravelly alluvial soils along riverbanks but also on limestone slopes; Perennial; Flowering/Fruiting April-Nov

Federal Status:                      State Status:                      SGCN: Y  
Endemic: Y                      Global Rank: G5T3                      State Rank: S3

**net-leaf bundleflower**      *Desmanthus reticulatus*

Mostly on clay prairies of the coastal plain of central and south Texas; Perennial; Flowering April-July; Fruiting April-Oct

Federal Status:                      State Status:                      SGCN: Y  
Endemic: Y                      Global Rank: G3                      State Rank: S3

**Osage Plains false foxglove**      *Agalinis densiflora*

Most records are from grasslands on shallow, gravelly, well drained, calcareous soils; Prairies, dry limestone soils; Annual; Flowering Aug-Oct

Federal Status:                      State Status:                      SGCN: Y  
Endemic: N                      Global Rank: G3                      State Rank: S2

**Plateau loosestrife**      *Lythrum ovalifolium*

Banks and gravelly beds of perennial (or strong intermittent) streams on the Edwards Plateau, Llano Uplift and Lampasas Cutplain; Perennial; Flowering/Fruiting April-Nov

Federal Status:                      State Status:                      SGCN: Y  
Endemic: N                      Global Rank: G3G4                      State Rank: S3S4

**plateau milkvine**      *Matelea edwardsensis*

Occurs in various types of juniper-oak and oak-juniper woodlands; Perennial; Flowering March-Oct; Fruiting May-June

Federal Status:                      State Status:                      SGCN: Y  
Endemic: Y                      Global Rank: G3                      State Rank: S3

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## COMAL COUNTY

### PLANTS

**scarlet leather-flower**

*Clematis texensis*

Usually in oak-juniper woodlands in mesic rocky limestone canyons or along perennial streams; Perennial; Flowering March-July; Fruiting May-July

Federal Status:

State Status:

SGCN: Y

Endemic: Y

Global Rank: G3G4

State Rank: S3S4

**spreading lestdaisy**

*Chaetopappa effusa*

Limestone cliffs, ledges, bluffs, steep hillsides, sometimes in seepy areas, oak-juniper, oak, or mixed deciduous woods, 300-500 m elevation; Perennial; Flowering (May) July-Oct

Federal Status:

State Status:

SGCN: Y

Endemic: Y

Global Rank: G3G4

State Rank: S3S4

**sycamore-leaf snowbell**

*Styrax platanifolius ssp. platanifolius*

Rare throughout range, usually in oak-juniper woodlands on steep rocky banks and ledges along intermittent or perennial streams, rarely far from some reliable source of moisture; Perennial; Flowering April-May; Fruiting May-Aug.

Federal Status:

State Status:

SGCN: Y

Endemic: Y

Global Rank: G3T3

State Rank: S3

**Texas almond**

*Prunus minutiflora*

Wide-ranging but scarce, in a variety of grassland and shrubland situations, mostly on calcareous soils underlain by limestone but occasionally in sandier neutral soils underlain by granite; Perennial; Flowering Feb-May and Oct; Fruiting Feb-Sept

Federal Status:

State Status:

SGCN: Y

Endemic: Y

Global Rank: G3G4

State Rank: S3S4

**Texas amorphia**

*Amorpha roemeriana*

Juniper-oak woodlands or shrublands on rocky limestone slopes, sometimes on dry shelves above creeks; Perennial; Flowering May-June; Fruiting June-Oct

Federal Status:

State Status:

SGCN: Y

Endemic: N

Global Rank: G3

State Rank: S3

**Texas barberry**

*Berberis swaseyi*

Shallow calcareous stony clay of upland grasslands/shrublands over limestone as well as in loamier soils in openly wooded canyons and on creek terraces; Perennial; Flowering/Fruiting March-June

Federal Status:

State Status:

SGCN: Y

Endemic: Y

Global Rank: G3

State Rank: S3

**DISCLAIMER**

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## COMAL COUNTY

### PLANTS

**Texas claret-cup cactus** *Echinocereus coccineus* var. *paucispinus*

Mountains, hills, and mesas, igneous and limestone, oak-juniper-pinyon woodland or juniper woodland on limestone mesas, mostly rocky habitats but also in alluvial basins, grasslands, or among mesquite or other shrubs. Flowering March - April (Powell and Weedin 2004).

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G5T3 State Rank: S3

**Texas fescue** *Festuca versuta*

Occurs in mesic woodlands on limestone-derived soils on stream terraces and canyon slopes; Perennial; Flowering/Fruiting April-June

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G3 State Rank: S3

**Texas mock-orange** *Philadelphus texensis* var. *texensis*

Limestone slopes and ravines, slopes in oak-juniper woodlands; variety *texensis* has a more westward range than var. *ernestii*; it is known from Bandera, Bexar, Edwards, Kendall, Medina, Real, and Uvalde counties in central Texas; Flowering Apr–May; fruiting Jun–Oct (Freeman 2017).

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G3T2 State Rank: S2

**Texas seymeria** *Seymeria texana*

Found primarily in grassy openings in juniper-oak woodlands on dry rocky slopes but sometimes on rock outcrops in shaded canyons; Annual; Flowering May–Nov; Fruiting July–Nov

Federal Status: State Status: SGCN: Y  
Endemic: Y Global Rank: G3 State Rank: S3

**tree dodder** *Cuscuta exaltata*

Parasitic on various *Quercus*, *Juglans*, *Rhus*, *Vitis*, *Ulmus*, and *Diospyros* species as well as *Acacia berlandieri* and other woody plants; Annual; Flowering May–Oct; Fruiting July–Oct

Federal Status: State Status: SGCN: Y  
Endemic: N Global Rank: G3 State Rank: S3

**turnip-root scurfpea** *Pediomelum cyphocalyx*

Grasslands and openings in juniper-oak woodlands on limestone substrates on the Edwards Plateau and in north-central Texas (Carr 2015).

Federal Status: State Status: SGCN: Y  
Endemic: Y Global Rank: G3G4 State Rank: S2S3

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## COMAL COUNTY

### PLANTS

**Warnock's coral-root**                      *Hexalectris warnockii*

In leaf litter and humus in oak-juniper woodlands on shaded slopes and intermittent, rocky creekbeds in canyons; in the Trans Pecos in oak-pinyon-juniper woodlands in higher mesic canyons (to 2000 m [6550 ft]), primarily on igneous substrates; in Terrell County under *Quercus fusiformis* mottes on terraces of spring-fed perennial streams, draining an otherwise rather xeric limestone landscape; on the Callahan Divide (Taylor County), the White Rock Escarpment (Dallas County), and the Edwards Plateau in oak-juniper woodlands on limestone slopes; in Gillespie County on igneous substrates of the Llano Uplift; flowering June-September; individual plants do not usually bloom in successive years

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G2G3	State Rank: S2

**Wright's milkvetch**                      *Astragalus wrightii*

On sandy or gravelly soils; April (Diggs et al. 1999).

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3	State Rank: S3

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# United States Department of the Interior



## FISH AND WILDLIFE SERVICE

Austin Ecological Services Field Office

10711 Burnet Road, Suite 200

Austin, TX 78758-4460

Phone: (512) 490-0057 Fax: (512) 490-0974

<http://www.fws.gov/southwest/es/AustinTexas/>

<http://www.fws.gov/southwest/es/EndangeredSpecies/lists/>

In Reply Refer To:

November 20, 2020

Consultation Code: 02ETAU00-2021-SLI-0301

Event Code: 02ETAU00-2021-E-00648

Project Name: NBU SWTP Expansion Project

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that *may* occur within the county of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please note that new information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Also note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of federally listed as threatened

or endangered species and to determine whether projects may affect these species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

While a Federal agency may designate a non-Federal representative to conduct informal consultation or prepare a biological assessment, the Federal Agency must notify the Service in writing of any such designation. The Federal agency shall also independently review and evaluate the scope and content of a biological assessment prepared by their designated non-Federal representative before that document is submitted to the Service.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by a federally funded, permitted or authorized activity, the agency is required to consult with the Service pursuant to 50 CFR 402. The following definitions are provided to assist you in reaching a determination:

- *No effect* - the proposed action will not affect federally listed species or critical habitat. A “no effect” determination does not require section 7 consultation and no coordination or contact with the Service is necessary. However, if the project changes or additional information on the distribution of listed or proposed species becomes available, the project should be reanalyzed for effects not previously considered.
  - *May affect, but is not likely to adversely affect* - the project may affect listed species and/or critical habitat; however, the effects are expected to be discountable, insignificant, or completely beneficial. Certain avoidance and minimization measures may need to be implemented in order to reach this level of effect. The Federal agency or the designated non-Federal representative should consult with the Service to seek written concurrence that adverse effects are not likely. Be sure to include all of the information and documentation used to reach your decision with your request for concurrence. The Service must have this documentation before issuing a concurrence.
  - *Is likely to adversely affect* - adverse effects to listed species may occur as a direct or indirect result of the proposed action. For this determination, the effect of the action is neither discountable nor insignificant. If the overall effect of the proposed action is beneficial to the listed species but the action is also likely to cause some adverse effects to individuals of that species, then the proposed action “is likely to adversely affect” the listed species. The analysis should consider all interrelated and interdependent actions. An “is likely to adversely affect” determination requires the Federal action agency to initiate formal section 7 consultation with our office.
-

Regardless of the determination, the Service recommends that the Federal agency maintain a complete record of the evaluation, including steps leading to the determination of effect, the qualified personnel conducting the evaluation, habitat conditions, site photographs, and any other related information. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at: <http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>.

### Migratory Birds

For projects that may affect migratory birds, the Migratory Bird Treaty Act (MBTA) implements various treaties and conventions for the protection of these species. Under the MBTA, taking, killing, or possessing migratory birds is unlawful. Migratory birds may nest in trees, brushy areas, or other areas of suitable habitat. The Service recommends activities requiring vegetation removal or disturbance avoid the peak nesting period of March through August to avoid destruction of individuals, nests, or eggs. If project activities must be conducted during this time, we recommend surveying for nests prior to conducting work. If a nest is found, and if possible, the Service recommends a buffer of vegetation remain around the nest until the young have fledged or the nest is abandoned.

For additional information concerning the MBTA and recommendations to reduce impacts to migratory birds please contact the U.S. Fish and Wildlife Service Migratory Birds Office, 500 Gold Ave. SW, Albuquerque, NM 87102. A list of migratory birds may be viewed at <https://www.fws.gov/birds/management/managed-species/migratory-bird-treaty-act-protected-species.php>. Guidance for minimizing impacts to migratory birds for projects including communications towers can be found at: <https://www.fws.gov/birds/management/project-assessment-tools-and-guidance/guidance-documents/communication-towers.php>. Additionally, wind energy projects should follow the wind energy guidelines

<https://www.fws.gov/birds/management/project-assessment-tools-and-guidance/guidance-documents/wind-energy.php> ) for minimizing impacts to migratory birds and bats.

Finally, please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan <https://www.fws.gov/birds/management/project-assessment-tools-and-guidance/guidance-documents/eagles.php>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
-

## Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**Austin Ecological Services Field Office**

10711 Burnet Road, Suite 200

Austin, TX 78758-4460

(512) 490-0057

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## Project Summary

Consultation Code: 02ETAU00-2021-SLI-0301

Event Code: 02ETAU00-2021-E-00648

Project Name: NBU SWTP Expansion Project

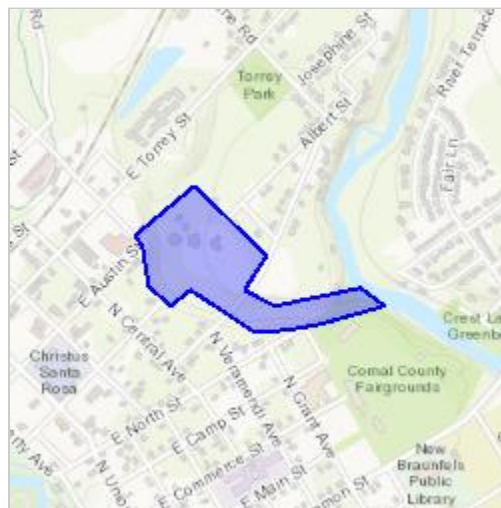
Project Type: WASTEWATER FACILITY

**Project Description:** The New Braunfels Utility (NBU) existing surface water treatment plant (SWTP) is located toward the center of NBU's service area at 2356 Gruene Road, approximately one-quarter mile from the banks of the Guadalupe River. The raw water pump station (RWPS) property access is provided to NBU through a 30-foot wide electrical line, water line, and roadway/access easement. Current land use includes the existing SWTP, open and maintained grassland, and adjacent woodland consisting of pecan, live oak, and hackberry trees. NBU properties are approximately 15.7 acres. The purpose of this project is to provide a roadmap for the expansion and optimization of the NBU SWTP that allows NBU to meet its production, operational, and water quality goals with an 8 MGD expansion of the existing SWTP.

The timing of the project is projected to begin in Fall 2021.

### Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/29.71832119972826N98.11891926715055W>



Counties: Comal, TX

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## Endangered Species Act Species

There is a total of 13 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 3 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries<sup>1</sup>, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

- 
1. [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.
-



## Birds

NAME	STATUS
<p>Golden-cheeked Warbler (=wood) <i>Dendroica chrysoparia</i></p> <p>No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/33">https://ecos.fws.gov/ecp/species/33</a></p>	Endangered
<p>Least Tern <i>Sterna antillarum</i></p> <p>Population: interior pop. No critical habitat has been designated for this species. This species only needs to be considered under the following conditions:</p> <ul style="list-style-type: none"> <li>▪ Wind Energy Projects</li> </ul> <p>Species profile: <a href="https://ecos.fws.gov/ecp/species/8505">https://ecos.fws.gov/ecp/species/8505</a></p>	Endangered
<p>Piping Plover <i>Charadrius melodus</i></p> <p>Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. This species only needs to be considered under the following conditions:</p> <ul style="list-style-type: none"> <li>▪ Wind Energy Projects</li> </ul> <p>Species profile: <a href="https://ecos.fws.gov/ecp/species/6039">https://ecos.fws.gov/ecp/species/6039</a></p>	Threatened
<p>Red Knot <i>Calidris canutus rufa</i></p> <p>No critical habitat has been designated for this species. This species only needs to be considered under the following conditions:</p> <ul style="list-style-type: none"> <li>▪ Wind Energy Projects</li> </ul> <p>Species profile: <a href="https://ecos.fws.gov/ecp/species/1864">https://ecos.fws.gov/ecp/species/1864</a></p>	Threatened
<p>Whooping Crane <i>Grus americana</i></p> <p>Population: Wherever found, except where listed as an experimental population There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/758">https://ecos.fws.gov/ecp/species/758</a></p>	Endangered

## Amphibians

NAME	STATUS
<p>San Marcos Salamander <i>Eurycea nana</i></p> <p>There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/6374">https://ecos.fws.gov/ecp/species/6374</a></p>	Threatened
<p>Texas Blind Salamander <i>Typhlomolge rathbuni</i></p> <p>No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/5130">https://ecos.fws.gov/ecp/species/5130</a></p>	Endangered

## Fishes

NAME	STATUS
Fountain Darter <i>Etheostoma fonticola</i> There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/5858">https://ecos.fws.gov/ecp/species/5858</a>	Endangered

## Insects

NAME	STATUS
Comal Springs Dryopid Beetle <i>Stygoparnus comalensis</i> There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/7175">https://ecos.fws.gov/ecp/species/7175</a>	Endangered
Comal Springs Riffle Beetle <i>Heterelmis comalensis</i> There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/3403">https://ecos.fws.gov/ecp/species/3403</a>	Endangered

## Crustaceans

NAME	STATUS
Peck's Cave Amphipod <i>Stygobromus (=Stygonectes) pecki</i> There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/8575">https://ecos.fws.gov/ecp/species/8575</a>	Endangered

## Flowering Plants

NAME	STATUS
Bracted Twistflower <i>Streptanthus bracteatus</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/2856">https://ecos.fws.gov/ecp/species/2856</a>	Candidate
Texas Wild-rice <i>Zizania texana</i> There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/805">https://ecos.fws.gov/ecp/species/805</a>	Endangered

## Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

## **B-4: Cultural Resources (Section 5.8)**

# TEXAS HISTORICAL COMMISSION

## REQUEST FOR SHPO CONSULTATION:

### Section 106 of the National Historic Preservation Act and/or the Antiquities Code of Texas

*Please see instructions for completing this form and additional information on Section 106 and Antiquities Code consultation on the Texas Historical Commission website at <http://www.thc.state.tx.us/crm/crmsend.shtml>.*

- This is a new submission.
- This is additional information relating to THC tracking number(s): \_\_\_\_\_

<b>Project Information</b>		
PROJECT NAME <b>New Braunfels Utility Surface Water Treatment Plant Expansion Project</b>		
PROJECT ADDRESS <b>2356 Gruene Road</b>	PROJECT CITY <b>New Braunfels</b>	PROJECT ZIP CODE(S) <b>78130</b>
PROJECT COUNTY OR COUNTIES <b>Comal</b>		
PROJECT TYPE (Check all that apply)		
<input type="checkbox"/> Road/Highway Construction or Improvement	<input type="checkbox"/> Repair, Rehabilitation, or Renovation of Structure(s)	
<input type="checkbox"/> Site Excavation	<input type="checkbox"/> Addition to Existing Structure(s)	
<input checked="" type="checkbox"/> Utilities and Infrastructure	<input type="checkbox"/> Demolition or Relocation of Existing Structure(s)	
<input checked="" type="checkbox"/> New Construction	<input type="checkbox"/> None of these	
BRIEF PROJECT DESCRIPTION: Please explain the project in one or two sentences. More details should be included as an attachment to this form. <b>In response to an increasing demand for potable water in the City of New Braunfels, New Braunfels Utilities (NBU) has to expand their existing Surface Water Treatment Plant (SWTP). The current facility has a capacity of 8 million gallons per day (MGD) and the capacity needs to be increased to 16 MGD. Please see Attachment 1 for a more detailed description.</b>		

<b>Project Contact Information</b>			
PROJECT CONTACT NAME <b>Crista M. Haag</b>	TITLE <b>Senior Archaeologist</b>	ORGANIZATION <b>Arcadis, US Inc</b>	
ADDRESS <b>4665 Cornell Road, Suite 200</b>	CITY <b>Cincinnati</b>	STATE <b>OH</b>	ZIP CODE <b>45241</b>
PHONE <b>513-985-8012</b>	EMAIL <b>crista.haag@arcadis.com</b>		

<b>Federal Involvement (Section 106 of the National Historic Preservation Act)</b>			
Does this project involve approval, funding, permit, or license from a federal agency?			
<input checked="" type="checkbox"/> Yes (Please complete this section)		<input type="checkbox"/> No (Skip to next section)	
FEDERAL AGENCY <b>Texas Water Development Board</b>	FEDERAL PROGRAM, FUNDING, OR PERMIT TYPE <b>Clean Water State Revolving Fund (see Attachment 1)</b>		
CONTACT PERSON	PHONE		
ADDRESS	EMAIL		

<b>State Involvement (Antiquities Code of Texas)</b>	
Does this project occur on land or property owned by the State of Texas or a political subdivision of the state?	
<input type="checkbox"/> Yes (Please complete this section)	<input checked="" type="checkbox"/> No (Skip to next section)
CURRENT OR FUTURE OWNER OF THE PUBLIC LAND	
CONTACT PERSON	PHONE
ADDRESS	EMAIL

<b>Identification of Historic Properties: Archeology</b>
Does this project involve ground-disturbing activity? <input checked="" type="checkbox"/> Yes (Please complete this section) <input type="checkbox"/> No (Skip to next section)
Describe the nature of the ground-disturbing activity, including but not limited to depth, width, and length. <b>The Project is still being designed. It is anticipated that ground disturbing activities will be within the existing SWTP facility. The parcel is approximately 15 acres in size. Please see Attachment 1 for additional information on the project description.</b>
Describe the previous and current land use, conditions, and disturbances. <b>Current land use is an existing SWTP. This facility was constructed sometime in the early 1990s. Prior to 1990, the general project area appears to be a level grassy field. A review of USGS topographic maps, indicates that sometime between the late 1920s and early 1960s, the area was land leveled.</b>

<b>Identification of Historic Properties: Structures</b>
Does the project area or area of potential effects include buildings, structures, or designed landscape features (such as parks or cemeteries) that are 45 years of age or older? <input type="checkbox"/> Yes (Please complete this section) <input checked="" type="checkbox"/> No (Skip to next section)
Is the project area or area of potential effects within or adjacent to a property or district that is listed in or eligible for listing in the National Register of Historic Places? <input checked="" type="checkbox"/> Yes, name of property or district: <b>Site 41CM288 (see Attachment 1)</b> <input type="checkbox"/> No <input type="checkbox"/> Unknown
In the space below or as an attachment, describe each building, structure, or landscape feature within the project area or area of potential effect that is 45 years of age or older.
ADDRESS <b>please see Attachment 1</b> DATE OF CONSTRUCTION SOURCE FOR CONSTRUCTION DATE
ADDRESS DATE OF CONSTRUCTION SOURCE FOR CONSTRUCTION DATE
ADDRESS DATE OF CONSTRUCTION SOURCE FOR CONSTRUCTION DATE

**Attachments**

[Please see detailed instructions regarding attachments.](#)

Include the following with each submission:

- Project Work Description
- Maps
- Identification of Historic Properties
- Photographs Desktop assessment, no photographs available

For Section 106 reviews only, also include:

- Consulting Parties/Public Notification
- Area of Potential Effects
- Determination of Eligibility
- Determination of Effect

**Submit completed form and attachments to the address below. Faxes and email are not acceptable.**

Mark Wolfe  
 State Historic Preservation Officer  
 Texas Historical Commission  
 P.O. Box 12276, Austin, TX 78711-2276 (mail service)  
 108 W. 16th Street, Austin, TX 78701 (courier service)

**For SHPO Use Only**

## Attachment 1- Additional Text

### Project Description

The New Braunfels Utility Surface Water Treatment Plant (SWTP) Expansion Project (Project) is located in the City of New Braunfels in Comal County, Texas (Attachment 2, Figure 1). The existing SWTP is owned by New Braunfels Utilities (NBU) and is located roughly west of Gruene Road. Currently, the existing SWTP has the capacity to treat 8 million gallons of water per day. East of Gruene Road, there is raw water pump station (RWPS) easement (Attachment 2, Figure 2).

In response to an increasing demand for potable water in the City of New Braunfels, NBU has secured the water rights to a firm yield supply of 16 million gallons per day (MGD) of surface water through Guadalupe River run-of-river water permits and Guadalupe-Blanco River Authority (GBRA) Canyon Reservoir water. As a result, the existing SWTP needs to be expanded from a capacity of 8 MGD to 16 MGD.

Project plans are still being designed, but it is anticipated that the following will be needed (Attachment 2, Figure 3):

- A fourth pump to expand the 16 MGD raw water pump station, thereby increasing the total capacity of the pump station to 25.9 MGD;
- A new bulk polymer storage tank and day tank, and new metering pumps for feeding both the existing and expansion portions of the SWTP;
- New chlorine and ammonium sulfate facilities;
- A new treatment unit with rapid mix flocculation basins, clarifiers, filters, and an associated pipe gallery, and the associated feed and discharge yard piping;
- A new backwash/decant basin;
- Four additional sludge drying beds;
- An additional ground storage tank;
- Expansion of the high service pump station; and
- Distribution system improvements.

All Project activities/ improvements will occur within the existing, developed SWTP. No work is anticipated within the existing RWPS.

The Project is being reviewed by the Texas Water Development Board (TWDB). As the Project may receive funding through the Clean Water State Revolving Fund or the Drinking Water State Revolving Fund, the Project is subject to National Environmental Policy Act requirements.

### Area of Potential Effect

For the purposes of this cultural resources desktop assessment, Arcadis considered direct impacts to both the existing SWTP and RWPS totaling approximately 18 acres. The construction of the new infrastructure within the existing SWTP should not cause

visual impacts to the surrounding landscape because of the presence of similar existing infrastructure within the SWTP and that the SWTP is surrounded by trees thus blocking views of the facility. Therefore, the Project APE is defined as the 18-acre SWTP and RWPS.

### **Previously Recorded Cultural Resources and Surveys**

Arcadis reviewed the Texas Historic Sites and Archeological Sites Atlas (ATLAS) to locate previously recorded cultural resources and surveys within or near the Project. A 1-mile buffer was used around the Project APE to identify previously recorded cultural resources and to provide information on the probability of identifying additional cultural resources within the Project footprint. The review included known archeological sites, architectural and historical resources, National Register of Historic Places (NRHP) properties, state antiquities landmarks (SAL), cemeteries, and previous cultural resources surveys.

Within ATLAS, 12 archeological sites, four cemeteries, 15 architectural and historic resources, one NRHP property, and 16 previous cultural resources surveys were recorded within 1-mile of the Project APE. One survey (ATLAS # 8500002899) covers the entire existing SWTP. There was limited information on this survey in ATLAS, but the survey did identify one archeological site (41CM182). Located on the northeastern edge of the SWTP parcel, site 41CM182 was a small, unassigned prehistoric lithic scatter. It was recommended as not eligible for listing in the NRHP and has likely been destroyed by the construction of the SWTP.

The northern portion of archeological site, 41CM288, was located within the RWPS. Site 41CM288 contains both prehistoric and historic components and was identified during a transmission line survey (ATLAS # 8500011771) that covers a small portion of the APE. The site is located primarily within the county fairgrounds just to the south and was subjected to Phase II NRHP testing (Dockall et al. 2006). The results of the Phase II NRHP testing were not able to determine an NRHP or SAL status, so the site remains undetermined.

From the Phase II NRHP testing, the historic component consists of a circa 1930s incinerator and associated trash dump (Dockall et al. 2006:143-144). The trash dump was considered not eligible for listing in the NRHP or SAL, however, the incinerator was in good condition and considered potentially eligible for listing in the NRHP or SAL. It was recommended that additional archival research would be needed to further evaluate the incinerator (Dockall et al. 2006:144). In addition, further excavations would be needed to evaluate the prehistoric component. Specifically, the cave below the bluff and deeply buried deposits along German Creek (Dockall et al. 2006:144).

## Project Recommendations

The Project involves the expansion of the existing SWTP to increase water treatment capacity. The current Project layout has all proposed land requirements/ ground disturbance occurring within the existing SWTP parcel. For the purposes of this cultural resources desktop study, the APE included the existing SWTP parcel and also the existing RWPS. The RWPS was included to account for possible Project design changes.

The background records check review identified that the entire existing SWTP has been previously surveyed for cultural resources. This survey was conducted for the construction of the SWTP sometime in 1988. Only one archeological site was identified (41CM182), and this site was not eligible for listing in the NRHP. It likely has already been destroyed by construction of the SWTP. Given the following:

- The current Project design and proposed ground disturbance are occurring within the existing, previously disturbed SWTP,
- That the existing SWTP has been previously surveyed for cultural resources, and
- That there was only one not eligible archaeological site identified as part of this survey,

It is the opinion of Arcadis, that the current Project design, which is limited to the existing SWTP would not affect historic properties and no further cultural resources work is required.

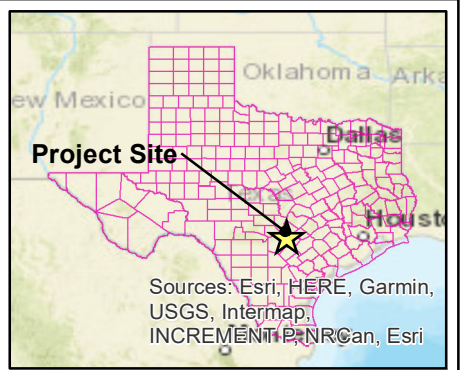
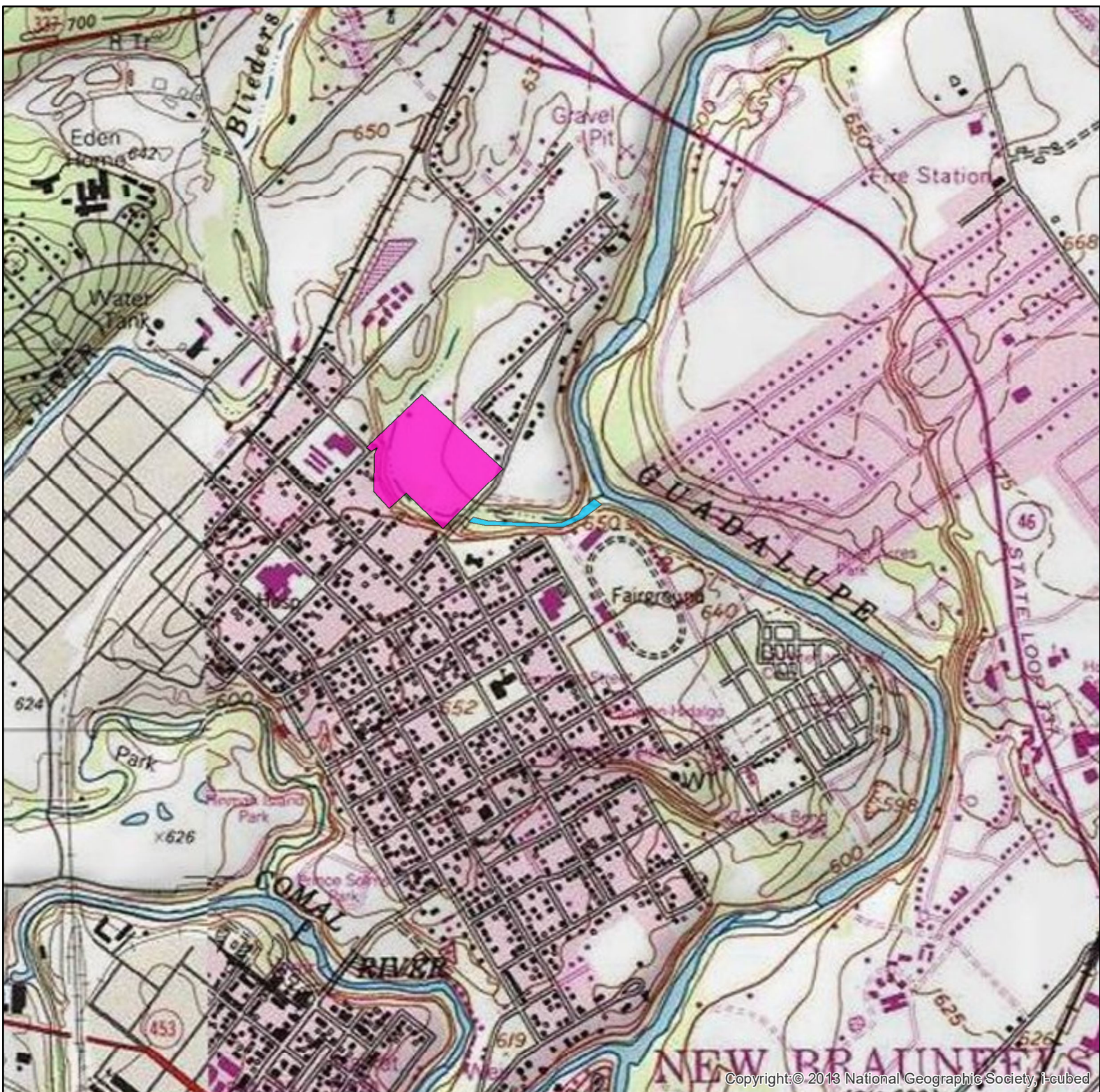
In the event that Project designs change and the existing RWPS is included as part of the Project, additional archaeological work may be required. This work could include additional Phase I archaeological survey for portions of the Project that are located outside the existing RWPS, in addition to, additional Phase II NRHP testing at site 41CM288, if the site is impacted by the Project. It is recommended that NBU avoid site 41CM288 if possible.

## References

Dockall, John E, Douglas K Boyd, and Lannie Ethridge Kittrell. 2006. *Geoarcheological and Historical Investigations in the Comal Springs Area, LCRA Clear Springs Autotransformer Project, Comal County, Texas — Comal County*. Prepared by Prewitt and Associates, Inc. Prepared for Lower Colorado River Authority.

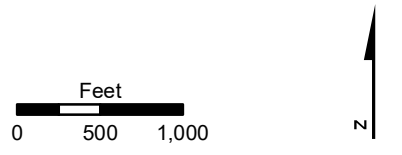


## Attachment 2- Project Mapping



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri

- Surface Water Treatment (SWTP) Plant Boundary
- Raw Water Pump Station (RWPS) Easement

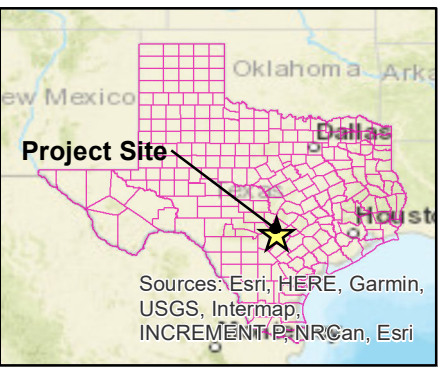
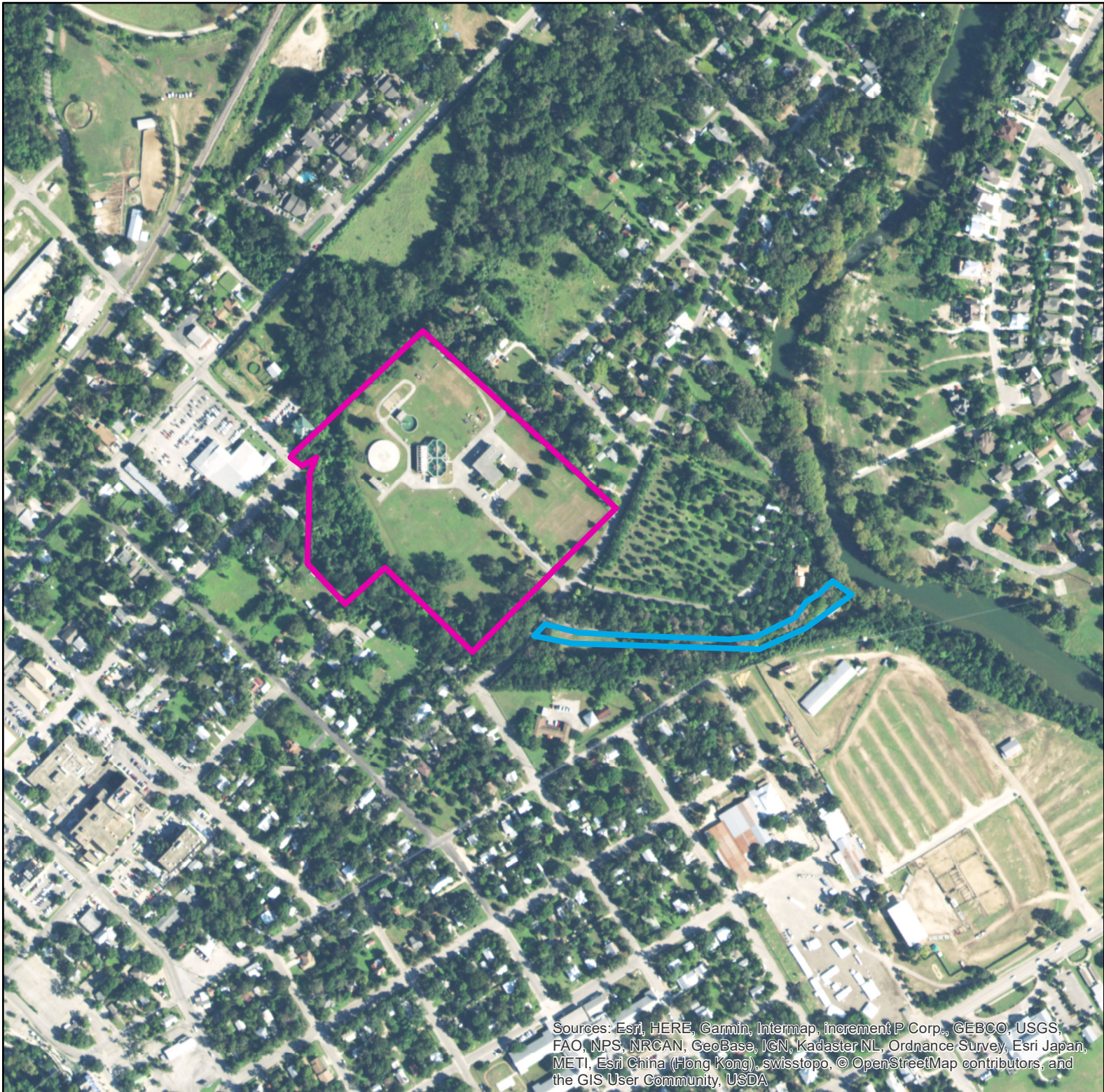




New Braunfels Utility  
 SWTP Expansion Project  
 Comal County, Texas

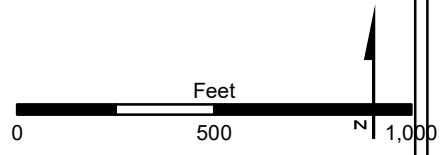
**USGS Topographic Map  
 for Preferred Alternative**



FIGURE  
 1



-  Surface Water Treatment (SWTP) Plant Boundary
-  Raw Water Pump Station (RWPS) Easement



New Braunfels Utility  
SWTP Expansion Project  
Comal County, Texas

**Aerial Overview Map  
for Preferred Alternative**



FIGURE  
2

Sources: Esri, HERE, Garmin, Intermap, Increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community, USDA



Figure 3. Proposed SWTP Layout.

## **B-5: Hazardous Materials (Section 5.9)**

Appendix not applicable. Intentionally left blank.

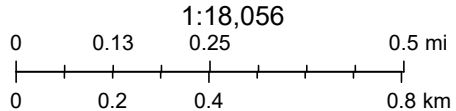
## **B-6: Social Implications & Environmental Justice (Section 5.10)**

# SWTP Expansion Project and 0.5 mile Buffer



December 3, 2020

 SWTP Expansion Project



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Location: User-specified polygonal location  
 Ring (buffer): .5-miles radius  
 Description: Buffer around SWTP Expansion Project Boundary

Summary of ACS Estimates		2013 - 2017
Population		2,386
Population Density (per sq. mile)		2,323
Minority Population		988
% Minority		41%
Households		818
Housing Units		999
Housing Units Built Before 1950		276
Per Capita Income		29,411
Land Area (sq. miles) (Source: SF1)		1.03
% Land Area		97%
Water Area (sq. miles) (Source: SF1)		0.04
% Water Area		3%

	2013 - 2017 ACS Estimates	Percent	MOE (±)
<b>Population by Race</b>			
Total	2,386	100%	443
Population Reporting One Race	2,332	98%	827
White	2,081	87%	439
Black	42	2%	100
American Indian	6	0%	30
Asian	101	4%	158
Pacific Islander	0	0%	13
Some Other Race	102	4%	87
Population Reporting Two or More Races	54	2%	97
Total Hispanic Population	820	34%	342
Total Non-Hispanic Population	1,566		
White Alone	1,397	59%	317
Black Alone	41	2%	100
American Indian Alone	6	0%	30
Non-Hispanic Asian Alone	101	4%	158
Pacific Islander Alone	0	0%	13
Other Race Alone	0	0%	13
Two or More Races Alone	21	1%	91
<b>Population by Sex</b>			
Male	1,094	46%	303
Female	1,292	54%	244
<b>Population by Age</b>			
Age 0-4	179	8%	134
Age 0-17	579	24%	218
Age 18+	1,807	76%	370
Age 65+	349	15%	245

**Data Note:** Detail may not sum to totals due to rounding. Hispanic population can be of any race.

N/A means not available. **Source:** U.S. Census Bureau, American Community Survey (ACS) 2013 - 2017

Location: User-specified polygonal location  
 Ring (buffer): .5-miles radius  
 Description: Buffer around SWTP Expansion Project Boundary

	2013 - 2017 ACS Estimates	Percent	MOE (±)
<b>Population 25+ by Educational Attainment</b>			
Total	1,630	100%	313
Less than 9th Grade	128	8%	66
9th - 12th Grade, No Diploma	80	5%	53
High School Graduate	390	24%	213
Some College, No Degree	416	26%	202
Associate Degree	90	6%	96
Bachelor's Degree or more	617	38%	230
<b>Population Age 5+ Years by Ability to Speak English</b>			
Total	2,207	100%	423
Speak only English	1,619	73%	375
Non-English at Home <sup>1+2+3+4</sup>	588	27%	216
<sup>1</sup> Speak English "very well"	420	19%	201
<sup>2</sup> Speak English "well"	62	3%	51
<sup>3</sup> Speak English "not well"	105	5%	65
<sup>4</sup> Speak English "not at all"	1	0%	30
<sup>3+4</sup> Speak English "less than well"	106	5%	65
<sup>2+3+4</sup> Speak English "less than very well"	168	8%	77
<b>Linguistically Isolated Households*</b>			
Total	20	100%	32
Speak Spanish	12	57%	16
Speak Other Indo-European Languages	0	0%	29
Speak Asian-Pacific Island Languages	9	43%	23
Speak Other Languages	0	0%	13
<b>Households by Household Income</b>			
Household Income Base	818	100%	140
< \$15,000	57	7%	98
\$15,000 - \$25,000	79	10%	127
\$25,000 - \$50,000	179	22%	133
\$50,000 - \$75,000	144	18%	111
\$75,000 +	359	44%	167
<b>Occupied Housing Units by Tenure</b>			
Total	818	100%	140
Owner Occupied	470	57%	117
Renter Occupied	348	43%	166
<b>Employed Population Age 16+ Years</b>			
Total	1,868	100%	354
In Labor Force	1,330	71%	271
Civilian Unemployed in Labor Force	28	1%	47
Not In Labor Force	538	29%	275

**Data Note:** Detail may not sum to totals due to rounding. Hispanic population can be of anyrace.

N/A means not available. **Source:** U.S. Census Bureau, American Community Survey (ACS)

\*Households in which no one 14 and over speaks English "very well" or speaks English only.

Location: User-specified polygonal location

Ring (buffer): .5-miles radius

Description: Buffer around SWTP Expansion Project Boundary

	2013 - 2017 ACS Estimates	Percent	MOE (±)
<b>Population by Language Spoken at Home*</b>			
Total (persons age 5 and above)	2,320	100%	292
English	1,602	69%	283
Spanish	578	25%	304
French	0	0%	66
French Creole	N/A	N/A	N/A
Italian	N/A	N/A	N/A
Portuguese	N/A	N/A	N/A
German	36	2%	54
Yiddish	N/A	N/A	N/A
Other West Germanic	N/A	N/A	N/A
Scandinavian	N/A	N/A	N/A
Greek	N/A	N/A	N/A
Russian	N/A	N/A	N/A
Polish	N/A	N/A	N/A
Serbo-Croatian	N/A	N/A	N/A
Other Slavic	N/A	N/A	N/A
Armenian	N/A	N/A	N/A
Persian	N/A	N/A	N/A
Gujarathi	N/A	N/A	N/A
Hindi	N/A	N/A	N/A
Urdu	N/A	N/A	N/A
Other Indic	N/A	N/A	N/A
Other Indo-European	39	2%	66
Chinese	50	2%	98
Japanese	N/A	N/A	N/A
Korean	0	0%	13
Mon-Khmer, Cambodian	N/A	N/A	N/A
Hmong	N/A	N/A	N/A
Thai	N/A	N/A	N/A
Laotian	N/A	N/A	N/A
Vietnamese	14	1%	31
Other Asian	0	0%	13
Tagalog	0	0%	13
Other Pacific Island	N/A	N/A	N/A
Navajo	N/A	N/A	N/A
Other Native American	N/A	N/A	N/A
Hungarian	N/A	N/A	N/A
Arabic	0	0%	13
Hebrew	N/A	N/A	N/A
African	N/A	N/A	N/A
Other and non-specified	0	0%	13
Total Non-English	718	31%	407

**Data Note:** Detail may not sum to totals due to rounding. Hispanic population can be of any race.

N/A means not available. **Source:** U.S. Census Bureau, American Community Survey (ACS) 2013 - 2017.

\*Population by Language Spoken at Home is available at the census tract summary level and up.

Location: User-specified polygonal location

Ring (buffer): .5-miles radius

Description: Buffer around SWTP Expansion Project Boundary

Summary	Census 2010
Population	1,717
Population Density (per sq. mile)	1,672
Minority Population	745
% Minority	43%
Households	672
Housing Units	866
Land Area (sq. miles)	1.03
% Land Area	97%
Water Area (sq. miles)	0.04
% Water Area	3%

Population by Race	Number	Percent
Total	1,717	-----
Population Reporting One Race	1,683	98%
White	1,489	87%
Black	25	1%
American Indian	12	1%
Asian	4	0%
Pacific Islander	1	0%
Some Other Race	152	9%
Population Reporting Two or More Races	34	2%
Total Hispanic Population	701	41%
Total Non-Hispanic Population	1,016	59%
White Alone	972	57%
Black Alone	24	1%
American Indian Alone	5	0%
Non-Hispanic Asian Alone	4	0%
Pacific Islander Alone	1	0%
Other Race Alone	0	0%
Two or More Races Alone	11	1%

Population by Sex	Number	Percent
Male	825	48%
Female	892	52%

Population by Age	Number	Percent
Age 0-4	100	6%
Age 0-17	377	22%
Age 18+	1,340	78%
Age 65+	266	15%

Households by Tenure	Number	Percent
Total	672	
Owner Occupied	378	56%
Renter Occupied	294	44%

**Data Note:** Detail may not sum to totals due to rounding. Hispanic population can be of any race.

**Source:** U.S. Census Bureau, Census 2010 Summary File 1.

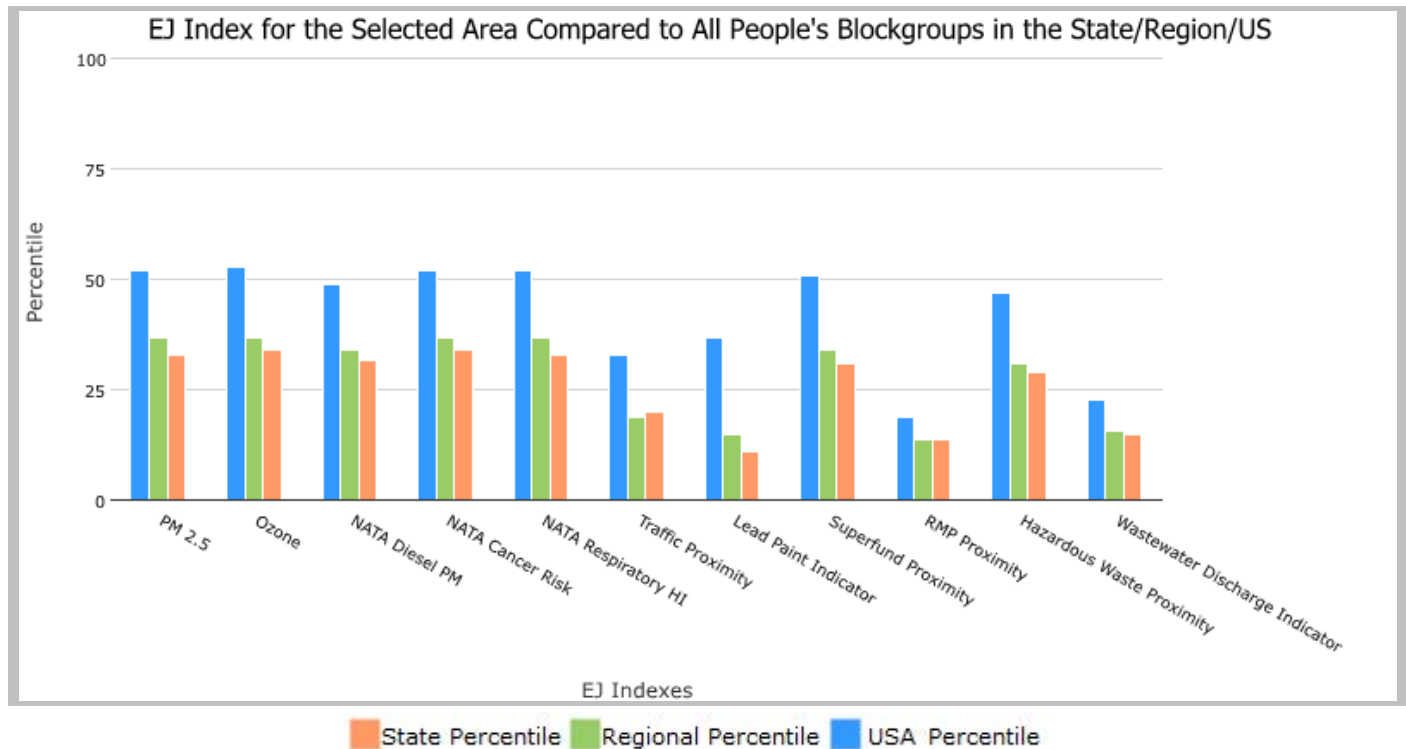
.5 miles Ring around the Area, TEXAS, EPA Region 6

Approximate Population: 2,386

Input Area (sq. miles): 1.12

SWTP Expansion Project

Selected Variables	State Percentile	EPA Region Percentile	USA Percentile
<b>EJ Indexes</b>			
EJ Index for PM2.5	33	37	52
EJ Index for Ozone	34	37	53
EJ Index for NATA* Diesel PM	32	34	49
EJ Index for NATA* Air Toxics Cancer Risk	34	37	52
EJ Index for NATA* Respiratory Hazard Index	33	37	52
EJ Index for Traffic Proximity and Volume	20	19	33
EJ Index for Lead Paint Indicator	11	15	37
EJ Index for Superfund Proximity	31	34	51
EJ Index for RMP Proximity	14	14	19
EJ Index for Hazardous Waste Proximity	29	31	47
EJ Index for Wastewater Discharge Indicator	15	16	23



This report shows the values for environmental and demographic indicators and EJSCREEN indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports.

**.5 miles Ring around the Area, TEXAS, EPA Region 6**

**Approximate Population: 2,386**

**Input Area (sq. miles): 1.12**

**SWTP Expansion Project**



December 3, 2020

- Water Bodies
- SWTP Expansion Project

1:18,056  
 0 0.2 0.4 0.8 mi  
 0 0.3 0.6 1.2 km

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<b>Sites reporting to EPA</b>	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0

## EJSCREEN Report (Version 2019)



.5 miles Ring around the Area, TEXAS, EPA Region 6

Approximate Population: 2,386

Input Area (sq. miles): 1.12

SWTP Expansion Project

Selected Variables	Value	State Avg.	%ile in State	EPA Region Avg.	%ile in EPA Region	USA Avg.	%ile in USA
<b>Environmental Indicators</b>							
Particulate Matter (PM 2.5 in $\mu\text{g}/\text{m}^3$ )	8.04	8.43	26	8.37	27	8.3	39
Ozone (ppb)	36.2	38.4	29	39.4	24	43	14
NATA* Diesel PM ( $\mu\text{g}/\text{m}^3$ )	0.337	0.429	37	0.401	<50th	0.479	<50th
NATA* Cancer Risk (lifetime risk per million)	30	35	23	36	<50th	32	<50th
NATA* Respiratory Hazard Index	0.38	0.43	26	0.45	<50th	0.44	<50th
Traffic Proximity and Volume (daily traffic count/distance to road)	180	470	50	400	55	750	45
Lead Paint Indicator (% Pre-1960 Housing)	0.4	0.15	86	0.17	85	0.28	70
Superfund Proximity (site count/km distance)	0.036	0.085	42	0.081	46	0.13	32
RMP Proximity (facility count/km distance)	1.8	0.91	86	0.82	87	0.74	89
Hazardous Waste Proximity (facility count/km distance)	0.26	0.83	45	0.75	49	4	41
Wastewater Discharge Indicator (toxicity-weighted concentration/m distance)	0.0025	0.19	69	9.8	70	14	71
<b>Demographic Indicators</b>							
Demographic Index	35%	47%	36	44%	41	36%	56
Minority Population	41%	57%	34	51%	43	39%	60
Low Income Population	28%	36%	41	37%	38	33%	47
Linguistically Isolated Population	2%	8%	39	6%	50	4%	60
Population With Less Than High School Education	13%	17%	48	16%	49	13%	61
Population Under 5 years of age	8%	7%	55	7%	58	6%	68
Population over 64 years of age	15%	12%	71	13%	65	15%	56

\* The National-Scale Air Toxics Assessment (NATA) is EPA's ongoing, comprehensive evaluation of air toxics in the United States. EPA developed the NATA to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that NATA provides broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. More information on the NATA analysis can be found at: <https://www.epa.gov/national-air-toxics-assessment>.

For additional information, see: [www.epa.gov/environmentaljustice](http://www.epa.gov/environmentaljustice)



EJSCREEN is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJSCREEN documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJSCREEN outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.

**QuickFacts**

**Comal County, Texas; New Braunfels city, Texas; Texas**

QuickFacts provides statistics for all states and counties, and for cities and towns with a *population of 5,000 or more*.

**Table**

All Topics 	Comal County, Texas	New Braunfels city, Texas	Texas
<b>Population estimates, July 1, 2019, (V2019)</b>	<b>156,209</b>	<b>90,209</b>	<b>28,995,881</b>
 <b>PEOPLE</b>			
<b>Population</b>			
<b>Population estimates, July 1, 2019, (V2019)</b>	<b>156,209</b>	<b>90,209</b>	<b>28,995,881</b>
Population estimates base, April 1, 2010, (V2019)	108,520	57,676	25,146,091
Population, percent change - April 1, 2010 (estimates base) to July 1, 2019, (V2019)	43.9%	56.4%	15.3%
Population, Census, April 1, 2010	108,472	57,740	25,145,561
<b>Age and Sex</b>			
Persons under 5 years, percent	▲ 5.7%	▲ 7.7%	▲ 6.9%
Persons under 18 years, percent	▲ 22.5%	▲ 25.3%	▲ 25.5%
Persons 65 years and over, percent	▲ 18.3%	▲ 14.8%	▲ 12.9%
Female persons, percent	▲ 50.5%	▲ 51.2%	▲ 50.3%
<b>Race and Hispanic Origin</b>			
White alone, percent	▲ 92.9%	▲ 90.7%	▲ 78.7%
Black or African American alone, percent (a)	▲ 2.7%	▲ 2.0%	▲ 12.9%
American Indian and Alaska Native alone, percent (a)	▲ 0.9%	▲ 0.3%	▲ 1.0%
Asian alone, percent (a)	▲ 1.4%	▲ 1.4%	▲ 5.2%
Native Hawaiian and Other Pacific Islander alone, percent (a)	▲ 0.1%	▲ 0.0%	▲ 0.1%
Two or More Races, percent	▲ 2.0%	▲ 2.3%	▲ 2.1%
Hispanic or Latino, percent (b)	▲ 28.1%	▲ 34.0%	▲ 39.7%
White alone, not Hispanic or Latino, percent	▲ 66.5%	▲ 60.8%	▲ 41.2%
<b>Population Characteristics</b>			
Veterans, 2014-2018	12,591	5,501	1,474,232
Foreign born persons, percent, 2014-2018	6.3%	7.4%	17.0%
<b>Housing</b>			
Housing units, July 1, 2019, (V2019)	63,391	X	11,283,353
Owner-occupied housing unit rate, 2014-2018	75.1%	63.7%	61.9%
Median value of owner-occupied housing units, 2014-2018	\$262,400	\$199,700	\$161,700
Median selected monthly owner costs -with a mortgage, 2014-2018	\$1,738	\$1,516	\$1,549
Median selected monthly owner costs -without a mortgage, 2014-2018	\$535	\$509	\$500
Median gross rent, 2014-2018	\$1,109	\$1,146	\$998
Building permits, 2019	2,945	X	209,895
<b>Families &amp; Living Arrangements</b>			
Households, 2014-2018	48,903	26,524	9,553,046
Persons per household, 2014-2018	2.74	2.78	2.86
Living in same house 1 year ago, percent of persons age 1 year+, 2014-2018	86.0%	83.4%	84.1%
Language other than English spoken at home, percent of persons age 5 years+, 2014-2018	18.4%	23.2%	35.5%
<b>Computer and Internet Use</b>			
Households with a computer, percent, 2014-2018	92.0%	90.9%	89.2%
Households with a broadband Internet subscription, percent, 2014-2018	87.0%	85.9%	79.3%
<b>Education</b>			
High school graduate or higher, percent of persons age 25 years+, 2014-2018	92.4%	91.2%	83.2%
Bachelor's degree or higher, percent of persons age 25 years+, 2014-2018	35.3%	32.3%	29.3%
<b>Health</b>			
With a disability, under age 65 years, percent, 2014-2018	9.8%	10.2%	7.9%
Persons without health insurance, under age 65 years, percent	▲ 15.4%	▲ 14.4%	▲ 20.8%
<b>Economy</b>			



In civilian labor force, total, percent of population age 16 years+, 2014-2018	59.6%	65.2%	64.2%
In civilian labor force, female, percent of population age 16 years+, 2014-2018	52.8%	58.0%	57.7%
Total accommodation and food services sales, 2012 (\$1,000) (c)	304,924	247,944	54,480,811
Total health care and social assistance receipts/revenue, 2012 (\$1,000) (c)	497,173	448,047	145,035,130
Total manufacturers shipments, 2012 (\$1,000) (c)	960,302	587,086	702,603,073
Total merchant wholesaler sales, 2012 (\$1,000) (c)	D	D	691,242,607
Total retail sales, 2012 (\$1,000) (c)	1,894,490	1,585,262	356,116,376
Total retail sales per capita, 2012 (c)	\$16,563	\$26,090	\$13,666

#### Transportation

Mean travel time to work (minutes), workers age 16 years+, 2014-2018	30.9	24.6	26.4
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#### Income & Poverty

Median household income (in 2018 dollars), 2014-2018	\$75,356	\$67,510	\$59,570
Per capita income in past 12 months (in 2018 dollars), 2014-2018	\$36,899	\$31,702	\$30,143
Persons in poverty, percent	▲ 7.1%	▲ 8.9%	▲ 13.6%

### BUSINESSES

#### Businesses

Total employer establishments, 2018	3,823	X	600,747
Total employment, 2018	51,846	X	10,794,596
Total annual payroll, 2018 (\$1,000)	2,120,200	X	577,914,267
Total employment, percent change, 2017-2018	6.6%	X	2.0%
Total nonemployer establishments, 2018	15,676	X	2,514,301
All firms, 2012	11,805	6,109	2,356,748
Men-owned firms, 2012	6,111	3,008	1,251,696
Women-owned firms, 2012	3,981	2,308	866,678
Minority-owned firms, 2012	2,337	1,359	1,070,392
Nonminority-owned firms, 2012	8,888	4,402	1,224,845
Veteran-owned firms, 2012	1,372	548	213,590
Nonveteran-owned firms, 2012	9,707	5,196	2,057,218


### GEOGRAPHY


#### Geography

Population per square mile, 2010	193.9	1,316.1	96.3
Land area in square miles, 2010	559.48	43.87	261,231.71
FIPS Code	48091	4850820	48

About datasets used in this table

**Value Notes**

 Estimates are not comparable to other geographic levels due to methodology differences that may exist between different data sources.

Some estimates presented here come from sample data, and thus have sampling errors that may render some apparent differences between geographies statistically indistinguishable. Click the Quick Info  icon to the row in TABLE view to learn about sampling error.

The vintage year (e.g., V2019) refers to the final year of the series (2010 thru 2019). *Different vintage years of estimates are not comparable.*

**Fact Notes**


- (a) Includes persons reporting only one race
- (b) Hispanics may be of any race, so also are included in applicable race categories
- (c) Economic Census - Puerto Rico data are not comparable to U.S. Economic Census data

**Value Flags**

- Either no or too few sample observations were available to compute an estimate, or a ratio of medians cannot be calculated because one or both of the median estimates falls in the lowest or upper in open ended distribution.
- D Suppressed to avoid disclosure of confidential information
- F Fewer than 25 firms
- FN Footnote on this item in place of data
- N Data for this geographic area cannot be displayed because the number of sample cases is too small.
- NA Not available
- S Suppressed; does not meet publication standards
- X Not applicable
- Z Value greater than zero but less than half unit of measure shown

QuickFacts data are derived from: Population Estimates, American Community Survey, Census of Population and Housing, Current Population Survey, Small Area Health Insurance Estimates, Small Area Income and F Estimates, State and County Housing Unit Estimates, County Business Patterns, Nonemployer Statistics, Economic Census, Survey of Business Owners, Building Permits.

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## **B-7: Public Meeting (Section 6.0)**

# **Appendix C:**

## **Agency Coordination**

TEXAS HISTORICAL COMMISSION

REQUEST FOR SHPO CONSULTATION:

Section 106 of the National Historic Preservation Act and/or the Antiquities Code of Texas

Please see instructions for completing this form and additional information on Section 106 and Antiquities Code consultation on the Texas Historical Commission website at http://www.thc.state.tx.us/crm/crmsend.shtml.

- This is a new submission.
This is additional information relating to THC tracking number(s):

Project Information
PROJECT NAME: New Braunfels Utility Surface Water Treatment Plant Expansion Project
PROJECT ADDRESS: 2356 Gruene Road
PROJECT CITY: New Braunfels
PROJECT ZIP CODE(S): 78130
PROJECT COUNTY OR COUNTIES: Comal
PROJECT TYPE: [X] Utilities and Infrastructure, [X] New Construction
BRIEF PROJECT DESCRIPTION: Please explain the project in one or two sentences. More details should be included as an attachment to this form. In response to an increasing demand for potable water in the City of New Braunfels, New Braunfels Utilities (NBU) has to expand their existing Surface Water Treatment Plant (SWTP). The current facility has a capacity of 8 million gallons per day (MGD) and the capacity needs to be increased to 16 MGD. Please see Attachment 1 for a more detailed description.

Project Contact Information
PROJECT CONTACT NAME: Crista M. Haag
TITLE: Senior Archaeologist
ORGANIZATION: Arcadis, US Inc
ADDRESS: 4665 Cornell Road, Suite 200
CITY: Cincinnati
STATE: OH
ZIP CODE: 45241
PHONE: 513-985-8012
EMAIL: crista.haag@arcadis.com

Federal Involvement (Section 106 of the National Historic Preservation Act)
Does this project involve approval, funding, permit, or license from a federal agency?
[X] Yes (Please complete this section)
FEDERAL AGENCY: Texas Water Development Board
FEDERAL PROGRAM, FUNDING, OR PERMIT TYPE: Clean Water State Revolving Fund (see Attachment 1)
CONTACT PERSON: Clay Schultz
PHONE: (512) 463-6277
ADDRESS: 1700 North Congress Avenue, Austin, TX 78701
EMAIL: clay.schultz@twdb.texas.gov

State Involvement (Antiquities Code of Texas)
Does this project occur on land or property owned by the State of Texas or a political subdivision of the state?
[X] No (Skip to next section)
CURRENT OR FUTURE OWNER OF THE PUBLIC LAND
CONTACT PERSON
PHONE
ADDRESS
EMAIL

**Identification of Historic Properties: Archeology**

Does this project involve ground-disturbing activity?  
 Yes (Please complete this section)  No (Skip to next section)

Describe the nature of the ground-disturbing activity, including but not limited to depth, width, and length.  
**The Project is still being designed. It is anticipated that ground disturbing activities will be within the existing SWTP facility. The parcel is approximately 17 acres in size. Please see Attachment 1 for additional information on the project description.**

Describe the previous and current land use, conditions, and disturbances.  
**Current land use is an existing SWTP. This facility was constructed sometime in the early 1990s. Prior to 1990, the general project area appears to be a level grassy field. A review of USGS topographic maps, indicates that sometime between the late 1920s and early 1960s, the area was land leveled.**

**Identification of Historic Properties: Structures**

Does the project area or area of potential effects include buildings, structures, or designed landscape features (such as parks or cemeteries) that are 45 years of age or older?  
 Yes (Please complete this section)  No (Skip to next section)

Is the project area or area of potential effects within or adjacent to a property or district that is listed in or eligible for listing in the National Register of Historic Places?  
 Yes, name of property or district: **Site 41CM288 (see Attachment 1)**  No  Unknown

In the space below or as an attachment, describe each building, structure, or landscape feature within the project area or area of potential effect that is 45 years of age or older.

ADDRESS	DATE OF CONSTRUCTION	SOURCE FOR CONSTRUCTION DATE
<b>please see Attachment 1</b>		
ADDRESS	DATE OF CONSTRUCTION	SOURCE FOR CONSTRUCTION DATE
ADDRESS	DATE OF CONSTRUCTION	SOURCE FOR CONSTRUCTION DATE

**Attachments**

[Please see detailed instructions regarding attachments.](#)

Include the following with each submission:

- Project Work Description
- Maps
- Identification of Historic Properties
- Photographs Desktop assessment, no photographs available

For Section 106 reviews only, also include:

- Consulting Parties/Public Notification
- Area of Potential Effects
- Determination of Eligibility
- Determination of Effect

**Submit completed form and attachments to the address below. Faxes and email are not acceptable.**

Mark Wolfe  
 State Historic Preservation Officer  
 Texas Historical Commission  
 P.O. Box 12276, Austin, TX 78711-2276 (mail service)  
 108 W. 16th Street, Austin, TX 78701 (courier service)

**For SHPO Use Only**

## Attachment 1- Additional Text

### Project Description

The New Braunfels Utility Surface Water Treatment Plant (SWTP) Expansion Project (Project) is located in the City of New Braunfels in Comal County, Texas (Attachment 2, Figure 1). The existing SWTP (17 acres in size) is owned by New Braunfels Utilities (NBU) and is located roughly west of Gruene Road. Currently, the existing SWTP has the capacity to treat 8 million gallons of water per day. East of Gruene Road, there is raw water pump station (RWPS) easement (three acres in size; Attachment 2, Figure 1).

In response to an increasing demand for potable water in the City of New Braunfels, NBU has secured the water rights to a firm yield supply of 16 million gallons per day (MGD) of surface water through Guadalupe River run-of-river water permits and Guadalupe-Blanco River Authority (GBRA) Canyon Reservoir water. As a result, the existing SWTP needs to be expanded from a capacity of 8 MGD to 16 MGD.

Project plans are still being designed, but it is anticipated that the following will be needed (Attachment 2, Figure 2):

- A fourth pump to expand the 16 MGD raw water pump station, thereby increasing the total capacity of the pump station to 25.9 MGD;
- A new bulk polymer storage tank and day tank, and new metering pumps for feeding both the existing and expansion portions of the SWTP;
- New chlorine and ammonium sulfate facilities;
- A new treatment unit with rapid mix flocculation basins, clarifiers, filters, and an associated pipe gallery, and the associated feed and discharge yard piping;
- A new backwash/decant basin;
- Four additional sludge drying beds;
- An additional ground storage tank;
- Expansion of the high service pump station; and
- Distribution system improvements.

All Project activities/ improvements will occur within the existing, developed SWTP. No work is anticipated within the existing RWPS.

The Project is being reviewed by the Texas Water Development Board (TWDB). As the Project may receive funding through the Clean Water State Revolving Fund or the Drinking Water State Revolving Fund, the Project is subject to National Environmental Policy Act requirements.

### Area of Potential Effect

For the purposes of this cultural resources desktop assessment, Arcadis considered direct impacts to both the existing SWTP and RWPS totaling approximately 20 acres. The construction of the new infrastructure within the existing SWTP should not cause

visual impacts to the surrounding landscape because of the presence of similar existing infrastructure within the SWTP and that the SWTP is surrounded by trees thus blocking views of the facility. Therefore, the Project APE is defined as the 20-acre SWTP and RWPS.

### **Previously Recorded Cultural Resources and Surveys**

Arcadis reviewed the Texas Historic Sites and Archeological Sites Atlas (ATLAS) to locate previously recorded cultural resources and surveys within or near the Project. A one-mile buffer was used around the Project APE to identify previously recorded cultural resources and to provide information on the probability of identifying additional cultural resources within the Project footprint. The review included known archeological sites, architectural and historical resources, National Register of Historic Places (NRHP) properties, state antiquities landmarks (SAL), cemeteries, and previous cultural resources surveys.

Within ATLAS, 12 archeological sites, four cemeteries, 15 architectural and historic resources, one NRHP property, and 16 previous cultural resources surveys were recorded within one-mile of the Project APE. One survey (ATLAS # 8500002899) covers the entire existing SWTP. There was limited information on this survey in ATLAS, but the survey did identify one archeological site (41CM182). Located on the northeastern edge of the SWTP parcel, site 41CM182 was a small, unassigned prehistoric lithic scatter. It was recommended as not eligible for listing in the NRHP and has likely been destroyed by the construction of the SWTP.

The northern portion of archeological site, 41CM288, was located within the RWPS. Site 41CM288 contains both prehistoric and historic components and was identified during a transmission line survey (ATLAS # 8500011771) that covers a small portion of the APE. The site is located primarily within the county fairgrounds just to the south and was subjected to Phase II NRHP testing (Dockall et al. 2006). The results of the Phase II NRHP testing were not able to determine an NRHP or SAL status, so the site remains undetermined.

From the Phase II NRHP testing, the historic component consists of a circa 1930s incinerator and associated trash dump (Dockall et al. 2006:143-144). The trash dump was considered not eligible for listing in the NRHP or SAL, however, the incinerator was in good condition and considered potentially eligible for listing in the NRHP or SAL. It was recommended that additional archival research would be needed to further evaluate the incinerator (Dockall et al. 2006:144). In addition, further excavations would be needed to evaluate the prehistoric component. Specifically, the cave below the bluff and deeply buried deposits along German Creek (Dockall et al. 2006:144).



## Project Recommendations

The Project involves the expansion of the existing SWTP to increase water treatment capacity. The current Project layout has all proposed land requirements/ ground disturbance occurring within the existing SWTP parcel. For the purposes of this cultural resources desktop study, the APE included the existing SWTP parcel and also the existing RWPS. The RWPS was included to account for possible Project design changes.

The background records check review identified that the entire existing SWTP has been previously surveyed for cultural resources. This survey was conducted for the construction of the SWTP sometime in 1988. Only one archeological site was identified (41CM182), and this site was not eligible for listing in the NRHP. It likely has already been destroyed by construction of the SWTP. Given the following:

- The current Project design and proposed ground disturbance are occurring within the existing, previously disturbed SWTP,
- That the existing SWTP has been previously surveyed for cultural resources, and
- That there was only one not eligible archaeological site identified as part of this survey,

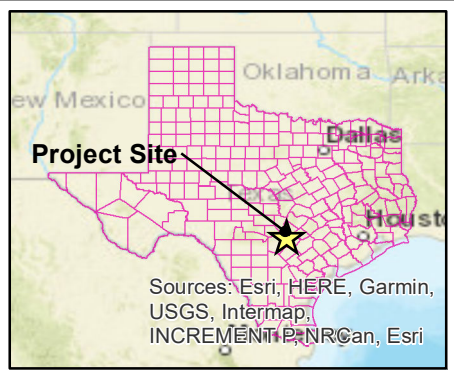
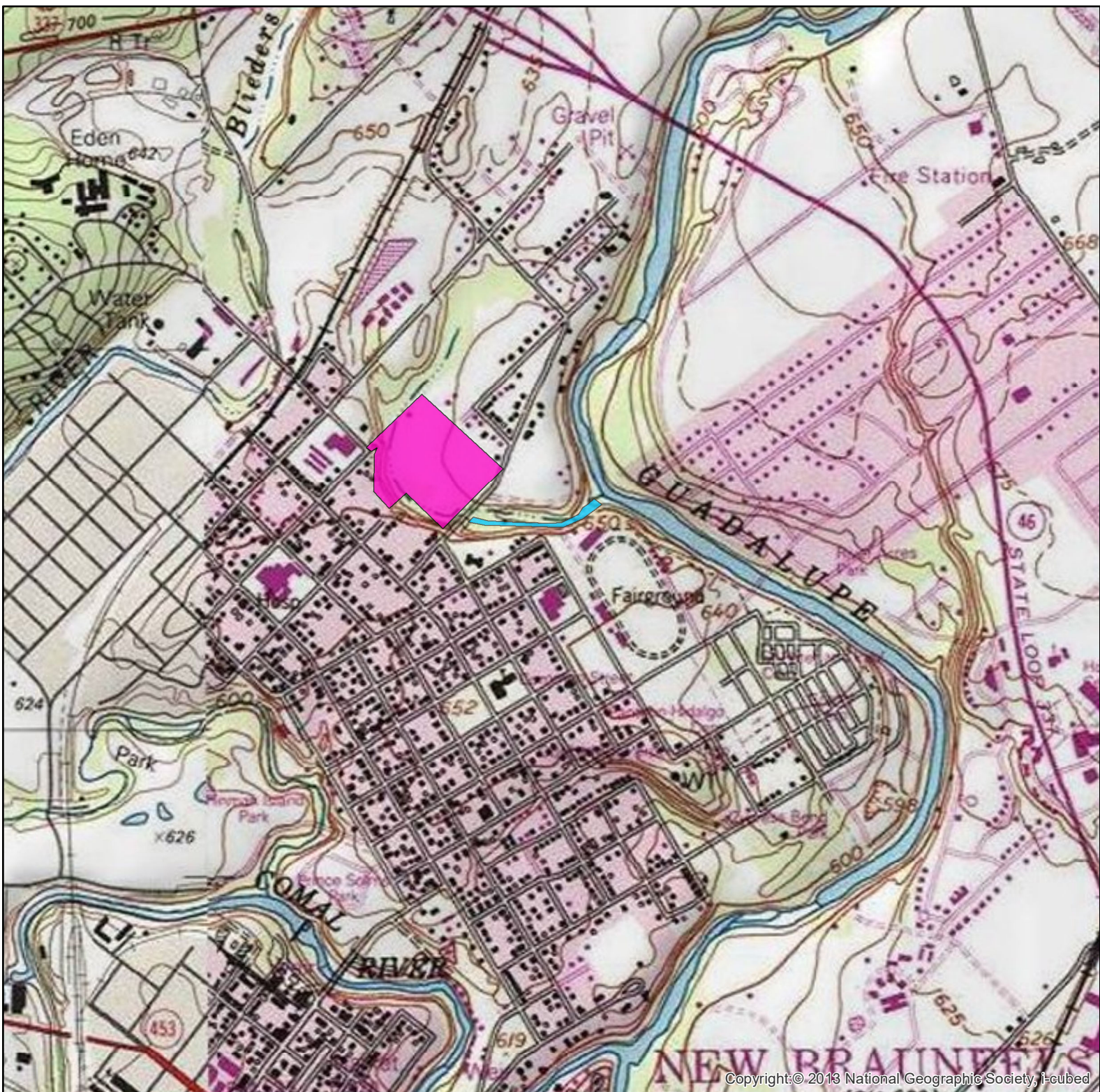
It is the opinion of Arcadis, that the current Project design, which is limited to the existing SWTP would not affect historic properties and no further cultural resources work is required.

In the event that Project designs change and the existing RWPS is included as part of the Project, additional archaeological work may be required. This work could include additional Phase I archaeological survey for portions of the Project that are located outside the existing RWPS, in addition to, additional Phase II NRHP testing at site 41CM288, if the site is impacted by the Project. It is recommended that NBU avoid site 41CM288 if possible.

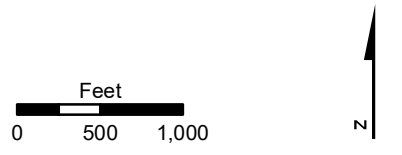
## References

Dockall, John E, Douglas K Boyd, and Lannie Ethridge Kittrell. 2006. *Geoarcheological and Historical Investigations in the Comal Springs Area, LCRA Clear Springs Autotransformer Project, Comal County, Texas — Comal County*. Prepared by Prewitt and Associates, Inc. Prepared for Lower Colorado River Authority.

## Attachment 2- Project Mapping



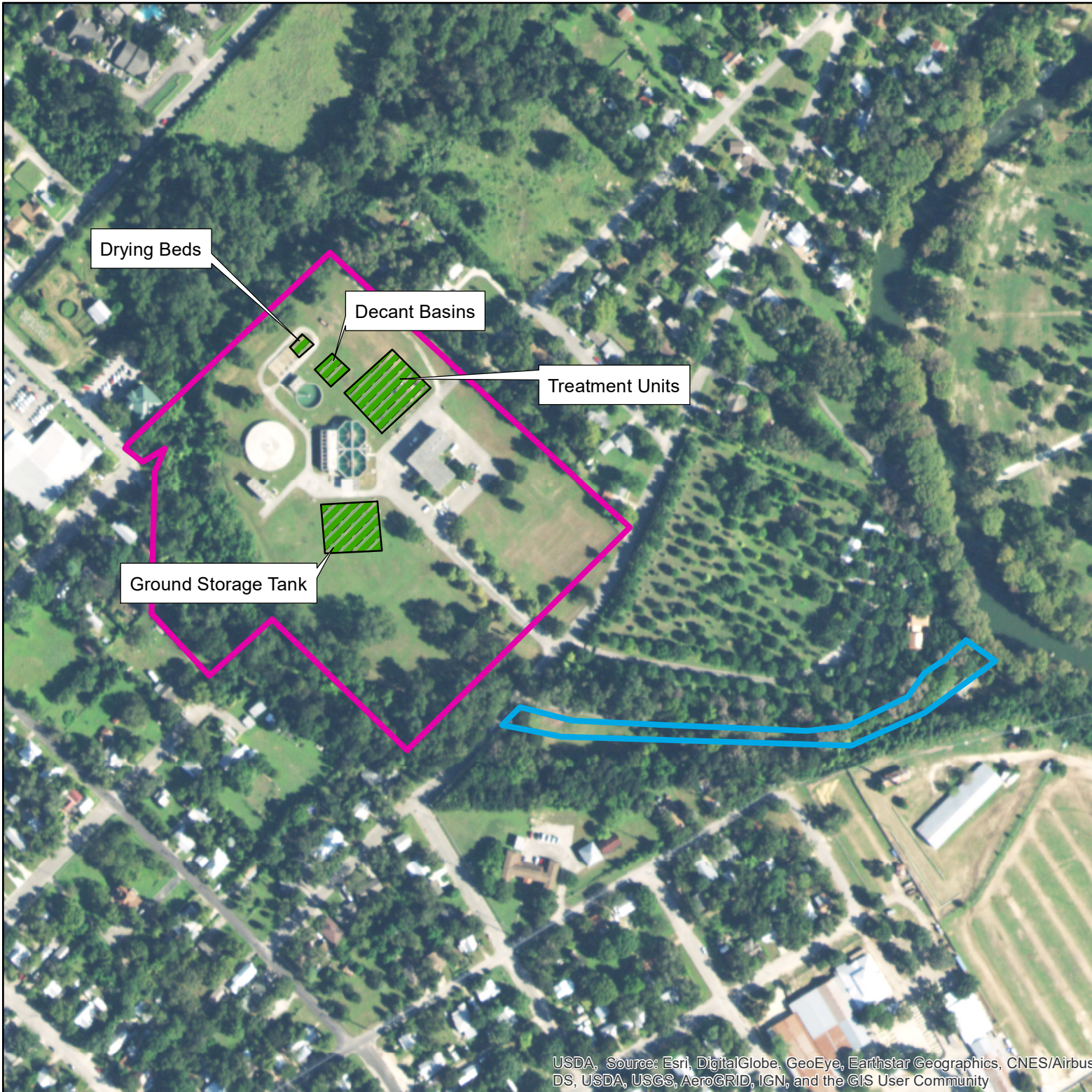
- Surface Water Treatment (SWTP) Plant Boundary
- Raw Water Pump Station (RWPS) Easement



New Braunfels Utility  
 SWTP Expansion Project  
 Comal County, Texas

USGS Topographic Map  
 for Preferred Alternative

	<p>FIGURE 1</p>
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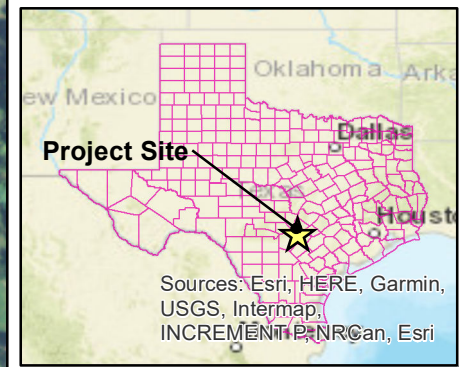


Drying Beds




Decant Basins

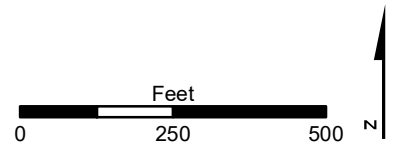
Treatment Units

Ground Storage Tank



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri

-  Surface Water Treatment (SWTP) Plant Boundary  
Approx. 17 Acres
-  Raw Water Pump Station (RWPS) Easement  
Approx. 1.2 Acres
-  Proposed Activities



New Braunfels Utility  
SWTP Expansion Project  
Comal County, Texas

**Project Overview Map  
for Preferred Alternative**

USDA, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

## **Project Coordination and Review Requests** **(Including Threatened and Endangered Species)**

### **EARLY PROJECT COORDINATION**

If you are in the information gathering phase of project coordination and assessment, *in lieu of* submitting a Project Review form or a letter request, you may obtain information from the following Texas Parks and Wildlife Department (TPWD) sources regarding sensitive resource information for use in your analyses. TPWD recommends you use at least the following two sources of information when analyzing for project impacts to sensitive resources, including before submitting a request for TPWD review and recommendations.

**RARE, THREATENED, AND ENDANGERED SPECIES OF TEXAS BY COUNTY** - This database includes lists of species known to occur and potentially occurring in Texas at the county level. It can be accessed online at: [http://www.tpwd.state.tx.us/landwater/land/maps/gis/ris/endangered\\_species/](http://www.tpwd.state.tx.us/landwater/land/maps/gis/ris/endangered_species/) or by contacting our administrative staff at (512) 389-4571. Appropriate use and interpretation of the county level lists are the responsibility of the recipient.

**TEXAS NATURAL DIVERSITY DATABASE (TXNDD)** – The TXNDD is publicly available location specific data on rare, threatened and endangered species, natural communities and other significant features of conservation concern to TPWD. This information can be obtained by submitting a data request to [txndd@tpwd.state.tx.us](mailto:txndd@tpwd.state.tx.us). Response to a data request will include available TXNDD records, reports, and geographic information system compatible shapefiles of recorded locations for species and other rare resources on the U.S. Geological Survey (USGS) 7.5 minute topographic quadrangle of the project and surrounding area. Responses generally take a maximum of five business days from receipt of the request. Appropriate use and interpretation of TXNDD data are the responsibility of the recipient.

### **WILDLIFE HABITAT ASSESSMENT (WHAB) PROGRAM REVIEW**

**PROJECT REVIEW REQUESTS** – The WHAB Program can provide a review of your assessment, after your analysis for impacts using the above two data sources. Please complete the WHAB Review Request form (attached; use Word format for fill-in version), or use the form as an outline of information to include with your letter request. The WHAB Program response will provide an evaluation of your environmental assessment for impacts to fish and wildlife and their habitats, including rare, threatened, and endangered species, other significant resources and concerns presently known or potentially occurring in the vicinity of your project. WHAB Program responses generally take 4 to 6 weeks on average from receipt, depending on the size of your request.

The request should include all the information listed on the next two pages and be sent to the address shown on the last page. The more pertinent information you provide, the more customized our review, and the faster our turnaround. Review requests submitted without adequate project detail may cause a delay in our response as we will need to contact you and wait for supplemental information. The potential for adverse impacts to natural resources from project activities varies based on the type of activity; location; season; vegetation; present physical features (both natural and man-made); degree of disturbance; planned avoidance, minimization, mitigation, enhancement, and restoration measures; species-specific tolerance levels; etc. Current color photographs and aerial photographs of the site greatly facilitate the review process. Complete information allows us to more accurately assess the potential for project impacts, as well as, assists us in narrowing the list of rare, threatened, and endangered species and other natural resources that may need to be addressed further.



# WILDLIFE HABITAT ASSESSMENT PROGRAM Review Requests

(Including Threatened and Endangered Species)

Name: Elizabeth Hingle Date: 12/9/2020  
Your Company: Arcadis Phone: ( 504 ) 650-3930  
Your Company Address: 1717 W. 6<sup>th</sup> Street Fax: ( )  
City, State, Zip: Austin Texas 78703 E-mail: elizabeth.hingle@arcadis.com

Project Title, Number and Site Location: NBU SWTP Expansion Project County(ies): Comal County, Texas

## 1. Scope of Project:

(a) What regulations will this review help you to comply with? OR, if not regulatory, why is the review being requested? Who is the project sponsor?

**This review aids in the compliance of the Environmental Information Document required by the Texas Water Development Board. New Braunfels Utility is the project sponsor.**

(b) What and where is the project site? What activities will be conducted at the site? (Especially activity types, extent, boundaries, length & width, waterways, vegetation disturbance, and total acreage of site and acreage of the site that will be disturbed)

**2356 Gruene Road, New Braunfels, Texas 78130. Location is an existing Surface Water Treatment Plant Facility. Project Boundary is approximately 17 acres. Expansion activities anticipated to disturb approximately 2 acres. Construction plans include a ground water storage tank, two water treatment units, drying beds and a decant basin.**

(c) If this request is for a site investigation or risk assessment, why is the site being investigated? If applicable, what contaminant pathways are being evaluated?

**N/A**

(d) Schedule of activities – Approximately when (which calendar months, how many years) will the project be active on the site?

**Construction anticipated to begin early 2022 and completed between 2022-2024.**

2. **Vegetation:** Species, dominant plants, structure and composition, vegetation layers, height of layers, natural vegetation community types.

**Project activities will occur within maintained and mowed open fields. Woodlands adjacent to project area consist of tree species such as hackberry (Celtis sp.), cedar elm (Ulmus crassifolia), various oak species (Quercus spp.), pecan (Carya illinoensis) and Ashe juniper (Juniperus ashei).**

3. **Other Natural Resources/Physical Features:**

(a) Soils, geology, watercourses, aquifers, flood zones, etc.

**See attached Figures A-4, A-5, A-6, B-1**

(b) Habitat, animals, animal assemblages, other sensitive features, etc.

**Woodland surrounding project area has potential to provide habitat for nesting migratory bird species. Deer may also utilize the area. No aquatic species are likely to utilize the area due to the lack of flowing streams. Aquatic species, including those found within the attached potential impacts table may be found in the Guadalupe River.**

4. **Existing Site Development:** Extent of pavement, gravel, shell, or other cover; buildings, landscaped, xeriscaped, drainage system, etc.

**Paved roads exist throughout the facility and will benefit future construction. Existing facilities include a NBU administration building, treatment units, drying beds, decant basins and a ground storage tank. Immediate surrounding area is landscaped and mowed grass.**

5. **Historic Use/Function of Site:** Pasture, forest, urban, row crops, rangeland, wetland, etc. If the request is for a risk assessment, when was, or for how long, has the site been active, inactive? Are cultural resources present on the site or will the project cross or impact state or federal lands, local parklands?

One archeological site (41CM182) was identified as a result of a previous cultural resources survey (ATLAS# 8500002899), which covers the entire existing SWTP. Site 41CM182 is located on the northeastern edge of the SWTP parcel and consists of a small, unassigned prehistoric lithic scatter. It was recommended as not eligible for listing in the National Register of Historic Places (NRHP) and has likely been destroyed by the construction of the existing SWTP. Project will not cross or impact state lands, federal lands or local parks.

6. **Has a threatened and endangered species survey or assessment**, wetland delineation, or other biological assessment already been performed? (In general, TPWD recommends an on-site habitat assessment be performed.)  Yes  No
- (a) If yes, provide surveyor name, qualifications, methods or protocols, acreage surveyed, level of effort, weather conditions, time of day, and dates the survey was performed.
- Jeremy Henson and Branson Mauck, certified ecologist and professional wetland scientist, cloudy conditions, midday of 5/27/2020.**



**WILDLIFE HABITAT ASSESSMENT PROGRAM**  
**Review Requests (Continued)**  
**(Including Threatened and Endangered Species)**

6. (b) If yes, please provide results and copy of survey/assessment report.

7. **Could current on-site or adjacent habitat support rare species?**  Yes  No  
Specifically, explain why or why not.

**Woodlands adjacent to project site could provide habitat for golden-cheeked warblers due to presence of mixed oak and ashe juniper. However, this is unlikely due to disturbance proximity and habitat quality.**

8. **Provide a description of potential negative direct and indirect impacts** from proposed project activities or former and current site activities, such as types of habitat and acreage to be degraded or lost, temporarily and permanently. Also, describe cumulative effects that could be anticipated from the project on the natural environment.

**Temporary impacts to migratory bird species could result from construction noise. No forested areas are anticipated to be impacted. All construction activities are planned to occur within maintained grassland near adjacent buildings.**

9. **Provide a description of planned beneficial mitigation and enhancements** or restoration efforts. Be sure to note the avoidance, minimization, and compensatory mitigation measures planned to address the threat of negative impacts (e.g. which erosion control measures will be used, what will site restoration activities encompass, etc.).

1

10. **Include copies of coordination with other agencies** relevant to impacts or enhancements of natural resources for this project, or agency & contact name.

11. **Clearly delineate exact location of site and its boundaries** using an applicable USGS quad (most preferable) as the base layer or best map available. The topographic map citation should include the USGS quad name. The map must contain identifiable features and a scale that allows us to find your site **and** accurately pinpoint your site boundaries. When using internet maps, provide both a location map (zoomed out for highway reference) and a layout map (zoomed in for site features, boundaries, and neighboring street reference)

12. **Originals or color-copy photographs** of site and surrounding area with captions or narratives.

13. **Aerial photographs with pertinent features labeled.** Aerials should show the year photograph was taken.

**Send completed form to:**

Texas Parks and Wildlife Department  
Wildlife Division  
Wildlife Habitat Assessment Program  
4200 Smith School Road  
Austin, Texas 78744-3291  
(512) 389-4571 (Phone) (512) 389-4599 (Fax)

Texas Parks and Wildlife Department maintains the information collected through this form. With few exceptions, you are entitled to be informed about the information we collect. Under Sections 552.021 and 552.023 of the Texas Government Code, you are also entitled to receive and



review the information. Under Section 559.004, you are also entitled to have this information corrected.