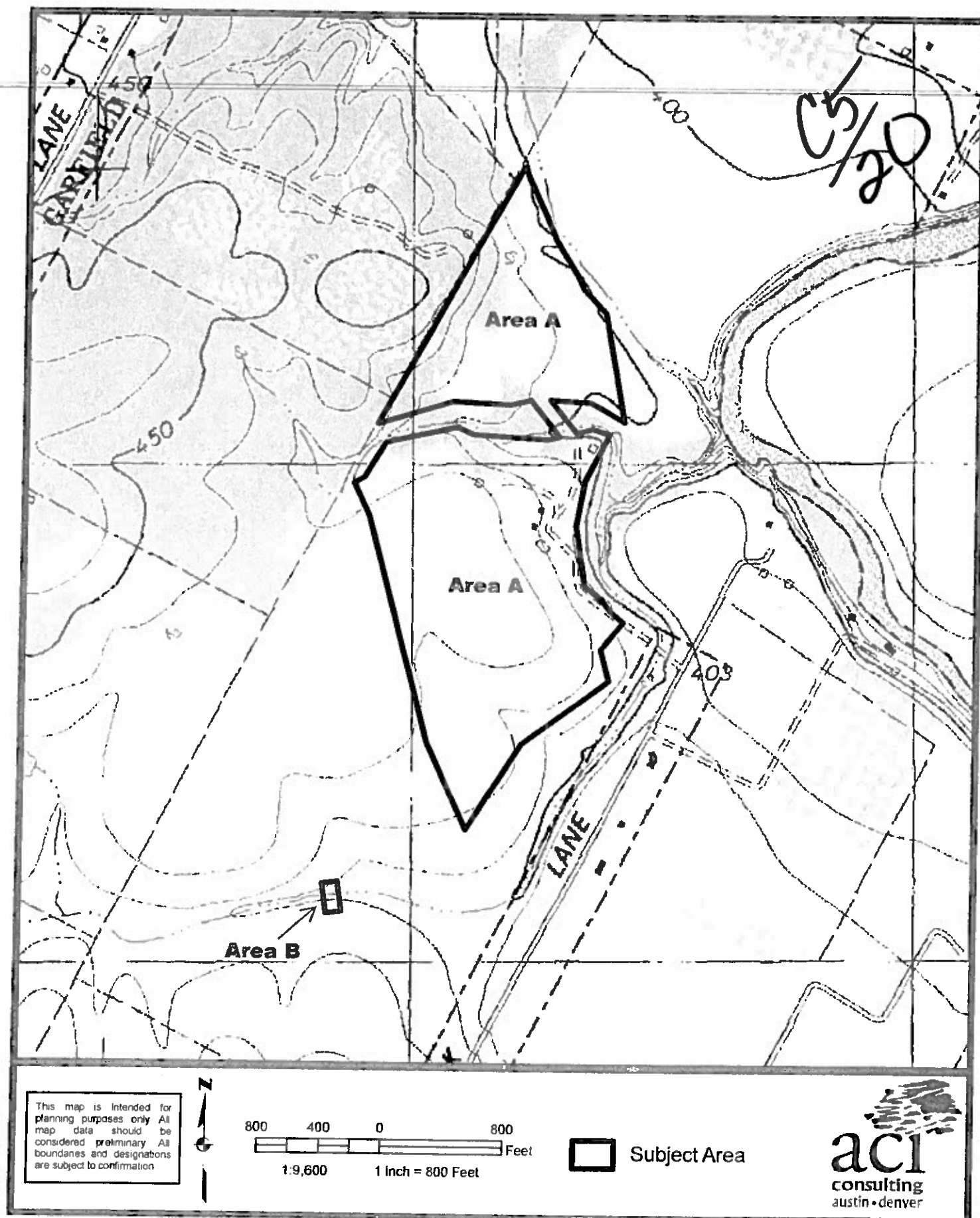


Apac Texas-Buck City of Austin EA
Figure 2: 100-Year FEMA Floodplains

August 2013



Apac Texas-Buck City of Austin EA

Figure 3: USGS 7.5 Minute Topographic Quadrangle: Webberville

August 2013

Area B is located within maintained crops, with no canopy vegetation present. Vegetation observed within **Area B** includes, but is not limited to: maintained crop vegetation, silverleaf nightshade (*Solanum elaeagnifolium*), buffalobur nightshade (*Solanum rostratum*), common sunflower (*Helianthus annuus*), annual sumpweed (*Iva annua*), western ragweed (*Ambrosia psilostachya*), giant ragweed (*Ambrosia trifida*), spotted beebalm (*Monarda punctata*), johnsongrass (*Sorghum halepense*), prairie coneflower (*Ratibida columnifera*), and immature honey mesquite (*Prosopis glandulosa*)

Photographs of typical vegetation of the subject area are included as Appendix A.

The subject area is located in Sector 18 of the City of Austin Biological Resource Sector Map. The Biological Resource Sector Map indicates that priority woodlands may be present along the tributary of the Colorado River running through the central portion of the property.

4.0 CRITICAL ENVIRONMENTAL FEATURES

Section 25-8-1 of the City of Austin LDC defines CEFs as “features that are of critical importance to the protection of environmental resources, and include bluffs, springs, canyon rimrocks, caves, sinkholes, and wetlands.”

On March 1, 2011 and July 24, 2013, **aci consulting** scientists conducted field investigations within the subject area in accordance with the City of Austin LDC. The field investigations were performed by surveying the entire subject area. No CEFs were identified within **Area A**.

A stock pond was identified at the northern end of **Area A**. Water was present at the time of investigation, but there were no indicators of hydric soils. Vegetation present consisted primarily of bermudagrass and retama, with some johnsongrass (*Sorghum halepense*) and woodsorrel (*Oxalis* spp.) and other forbs. It was determined unlikely that this stock pond is a CEF wetland.

2013 Update: No CEFs were identified within **Area B**.

5.0 SPECIES INCLUDED UNDER THE CITY OF AUSTIN ENDANGERED SPECIES ORDINANCE

The City of Austin Endangered Species Ordinance ("COA ESO") requires that an endangered species habitat survey be conducted prior to application for site development of a parcel of land (LDC §25-8-695). Plant and animal species for which habitat surveys must be conducted include: bracted twistflower (*Streptanthus bracteatus*), canyon mock-orange (*Philadelphus ernestii*), black-capped vireo (*Vireo atricapillus*) ("BCVI"), golden-cheeked warbler (*Dendroica chrysoparia*) ("GCWA"), whooping crane (*Grus americana*), Barton Springs salamander (*Eurycea sosorum*), Austin blind salamander (*Eurycea waterlooensis*), and six species of karst invertebrates including: the Tooth Cave pseudoscorpion (*Microcregris texana*), Tooth Cave spider (*Neoleptoneta myopica*), Tooth Cave ground beetle (*Rhadine persephone*), Kretschmarr Cave mold beetle (*Texamoauirops reddelli*), Bee Creek Cave harvestman (*Texella reddelli*), and Bone Cave harvestman (*Texella reyesi*).

A habitat survey in accordance with LDC §25-8-695 and the City of Austin Environmental Criteria Manual was also conducted by aci consulting scientists. Descriptions of the habitat within the subject area and potential habitat for each endangered species are included below.

5.1 Bracted Twistflower

This annual plant has delicate pink flowers and usually grows no taller than three feet. Bracted twistflower occurs on thin clay soils blanketing limestone. All Travis County populations occur in oak-juniper woodland with a canopy cover of 25 to 100 percent, and most known sites are in areas that contain thick brush which appears to provide protection from deer. Plants that occur in association with bracted twistflower include evergreen sumac (*Rhus virens*), Mexican silktassel (*Garrya ovata* var. *lindheimeri*), shin oak (*Quercus sinuata* var. *breviloba*), and myrtlecroton (*Bernardia myricifolia*) (BAT 1990).

Field investigations indicate that the subject area lacks the requisite components to be considered bracted twistflower habitat. Thick brush was not abundant within the subject area, nor was the majority of plant species associated with the bracted twistflower. No observations of this plant species were made during the site visits.

5.2 Canyon Mock-orange

This plant can be found growing on Cow Creek, Edwards Limestone, and a few strata of Glen Rose Limestone. These two formations both contain holes and solution cavities, which often give the rock a "honeycombed" appearance. Canyon mock-orange can be found in both xeric and mesic juniper woodland and typically grows in full shade to full sun along cliffs in humid canyons. It is found in association with the following plants: elbowbush (*Forestiera pubescens*), shrubby boneset (*Eupatorium havanense*), shin oak (*Quercus sinuata* var. *breviloba*), fragrant sumac (*Rhus aromatica*), Mexican silktassel, Texas mulberry (*Morus microphylla*), Ashe juniper, and yaupon holly (*Ilex vomitoria*) (BAT 1990).

Limestone cliffs with holes or solution cavities are not present within the subject area nor are the majority of plants associated with the canyon mock orange. No observations of this plant species were made during the site visits.

5.3 Black-capped Vireo

The black-capped vireo (BCVI) is a migratory bird present in Texas only during its breeding season from March through September. BCVI habitat generally consists of shrub vegetation that extends from the ground to approximately 8 feet high, covering 30 to 60 percent or greater of the total area. Typical BCVI habitat in the Edwards Plateau Region includes vegetation species such as shin oak, evergreen sumac, Texas persimmon (*Diospyros texana*), and agarita (*Mahonia trifoliolata*). Although Ashe juniper is often part of the vegetative composition in BCVI habitat, preferred areas have a low density and low cover of juniper (Campbell 1995).

As verified during the field investigation, the subject area does not possess the structural and compositional vegetative elements necessary for preferred BCVI habitat. The probability of BCVI utilizing the subject area is highly unlikely.

5.4 Golden-cheeked Warbler

The GCWA is a migratory songbird endemic to Texas and only present during its breeding season of early March through early August. GCWA habitat typically consists of mature Ashe juniper woodlands interspersed with deciduous species. The areas most likely to be utilized by GCWA consist of nearly continuous cover of trees with 50 to 100 percent closed canopy (Campbell 2003). Deciduous species common in GCWA habitat include escarpment black cherry (*Prunus serotina*), Texas black walnut (*Juglans microcarpa*), ash (*Fraxinus* spp.), Texas oak (*Quercus texana*), and cedar elm.

USFWS protocol for performing habitat assessments for GCWA (USFWS 2010) recognizes three categories of potential GCWA habitat, as published in a section of the Texas Parks and Wildlife management guide for Texas endangered species titled "Management Guidelines for the Golden-cheeked Warbler in Rural Landscapes" (Campbell 2003). The three categories of potential GCWA habitat include:

1. **Vegetation associations where GCWAs are expected to occur** ("high quality habitat") include woodlands with mature Ashe juniper in a natural mix with oaks, elms, and other hardwoods in relatively moist areas including steep canyons, slopes, and adjacent uplands. The guidelines detail mature Ashe juniper trees to be those that are at least 15 feet in height with a diameter-at-breast height (dbh) of approximately 5 inches. These areas should have a nearly contiguous canopy cover of trees with 50-100 percent canopy closure and an overall woodland canopy height of 20 feet or more (Campbell 2003).
2. **Vegetation associations that may be used by GCWAs** include four additional types of areas that may be used by warblers, but are not representative of what is typically thought of as "best" warbler habitat:

- Stands of mature Ashe juniper with shredding bark with scattered live oaks (≥ 10 percent total canopy cover), where the total canopy cover exceeds 35 percent and overall woodland canopy height is ≥ 20 feet.
 - Bottomlands along creeks and drainages which support deciduous trees with at least 35 percent canopy cover with an average canopy height of 20 feet. Mature Ashe juniper must be present at the bottom or on nearby slopes.
 - Mixed stands of post oak and/or blackjack oak with 10-30 percent canopy cover, with scattered mature Ashe juniper where total canopy cover exceeds 35 percent overall woodlands canopy height is 20 feet.
 - Mixed stands of shin oak with 10-30 percent canopy cover with scattered mature Ashe juniper where total canopy cover exceeds 35 percent overall woodlands canopy height is 20 feet. (Campbell 2003)
3. **Vegetation associations where GCWAs are not expected to be found** include areas where GCWA are not expected to occur, unless adjacent to warbler habitat areas. The five areas are:
- Stands of small Ashe juniper, averaging less than 15 feet in height and 5 inches dbh. These areas are often dry and relatively flat, lacking oaks and other broad-leaved trees and shrubs. These areas often include open rangelands, previously cleared areas, and old fields.
 - Pure stands of larger Ashe juniper greater than 15 feet in height and 5 inches dbh with few or no oaks or other hardwoods.
 - Open park-like woodlands or savannahs (even with old junipers) where canopy cover is less than 35 percent. These areas often have scattered live oaks and other trees.
 - Small junipers and other trees coming up along existing fencelines.
 - Small junipers less than 15 feet tall coming up under larger hardwoods where junipers have been removed in the last 20 years. (Campbell 2003)

Area A consists of open agricultural land with scattered live oak, cedar elm, and retama around stock ponds and along fence lines. This vegetation does not correspond to any of the vegetation associations for potential GCWA habitat.

2013 Update: **Area B** consists of open crop land with no canopy vegetation. This vegetation does not correspond to any of the vegetation associations for potential GCWA habitat.

5.5 Whooping Crane

The whooping crane is a migrant species whose flyway crosses the northeastern portion of Travis County, an area characterized as the Blackland Prairie ecoregion. The whooping crane utilizes a variety of habitat during migration; croplands are preferred for feeding, and vast wetland areas are selected for feeding and roosting, preferring secluded areas removed from human disturbance (Campbell 2003).

The proximity of the subject area to human disturbance is not ideal for whooping cranes. The probability of whooping cranes feeding or roosting in the subject area is considered very low.

5.6 Barton Springs Salamander and Austin Blind Salamander

The Barton Springs salamander is an entirely aquatic and neotenic amphibian known only to occur around four spring outlets within Zilker Park, Austin, Texas. The springs are collectively known as Barton Springs and consist of Parthenia, Eliza, Old Mill, and Upper Barton Springs [62 FR 23377] (USFWS 1997). The salamander is concentrated near the spring openings where food sources are abundant, water chemistry and temperature are relatively constant, and where the salamander has access to both surface and subsurface habitat. The primary threat to the Barton Springs salamander is degradation to the quality and quantity of water that feeds Barton Springs from Barton Springs watershed.

The Barton Springs and Austin blind salamanders are known to exist only in four spring outlets within the Barton Springs segment of the Edwards aquifer. The subject area does not lie within the Edwards aquifer recharge, contributing, or transition zone, and is approximately 10 miles from Barton Springs. Therefore, the probability of occurrence of these species within the subject area is considered very low.

5.7 Karst Invertebrates

Karst invertebrates are subterranean species that have adapted to areas with consistent humidity and temperature levels with a continual influx of nutrients from the surface. The caves in which the invertebrates occur were formed as a result of dissolution of the limestone formations making up the Edwards aquifer.

No karst features that could potentially contain habitat for endangered karst species were identified during field investigations. The probability of endangered karst invertebrates utilizing the subject area is highly unlikely.

6.0 STATEMENT OF FINDINGS

No critical environmental features were identified during site investigations. Habitat within the subject area is unlikely to be regularly utilized by the bracted twistflower, canyon mock-orange, BCVI, GCWA, whooping crane, Barton Springs salamander, Austin blind salamander, and endangered karst invertebrates.

7.0 REFERENCES

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- McMahan, C.A., R.G. Frye, and K.L. Brown. 1984. The Vegetation Types of Texas. Texas Parks and Wildlife. Austin, Texas.
- (SCS) Soil Conservation Survey. 1974. Soil Survey of Travis County, Texas. United States Department of Agriculture. Texas Agriculture Experiment Station.
- (TCEQ) Texas Commission on Environmental Quality. 2001. "Edwards Aquifer Protection Program, Chapter 218 Rules - Recharge Zone, Transition Zone, Contributing Zone, and Contributing Zone within the Transition Zone." Map. Digital data. November 28, 2001. Austin, Texas.
- (USFWS) U.S. Fish and Wildlife Service. 1997. Final Rule to List the Barton Springs Salamander as Endangered. Federal Register, vol. 62, p. 23377
- (USFWS) U.S. Fish and Wildlife Service. 2010. USFWS Section 10(a)(1)(A) Scientific Permit Requirements for Conducting Presence/Absence Surveys and Habitat Assessments for Endangered Golden-cheeked Warblers (last updated 01/13/10). U.S. Fish and Wildlife Service, Ecological Services Field Office. Austin, Texas.

APPENDIX A
Photographs of Typical Vegetation

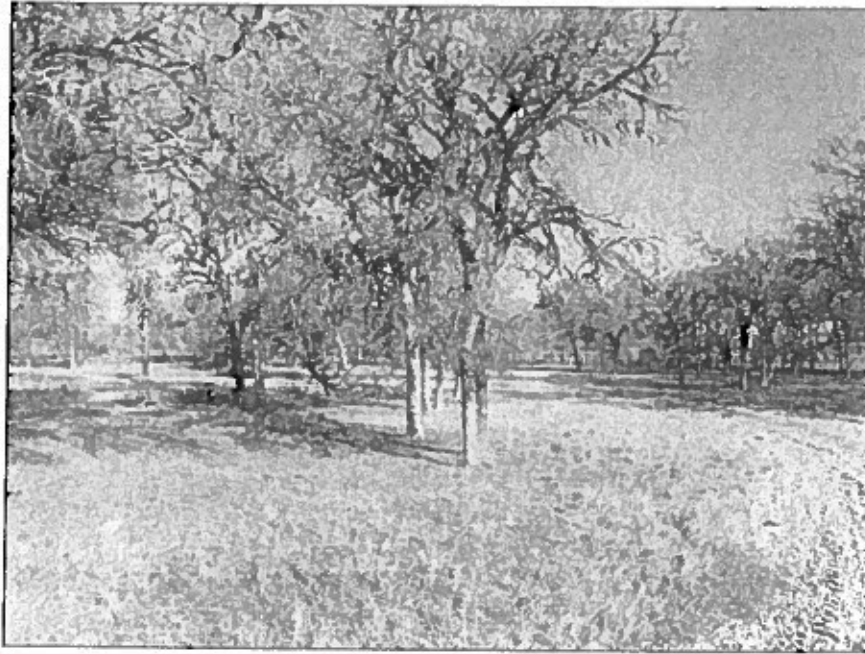


Photo 1: Typical vegetation at central portion of Area A.



Photo 2: Stock pond and vegetation at northern portion of Area A.



Photo 3: Typical vegetation near pond looking at the northeast portion of Area A.



Photo 4: Typical vegetation at southern portion of Area A.

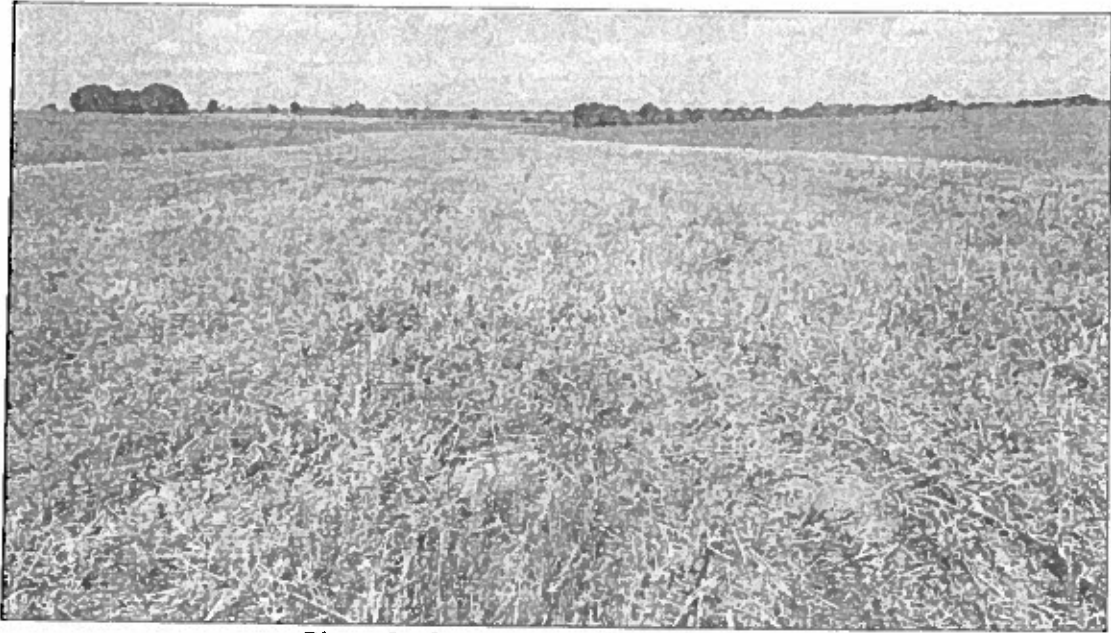


Photo 5: Center of Area B, facing west.



Photo 6: Center of Area B, facing east.

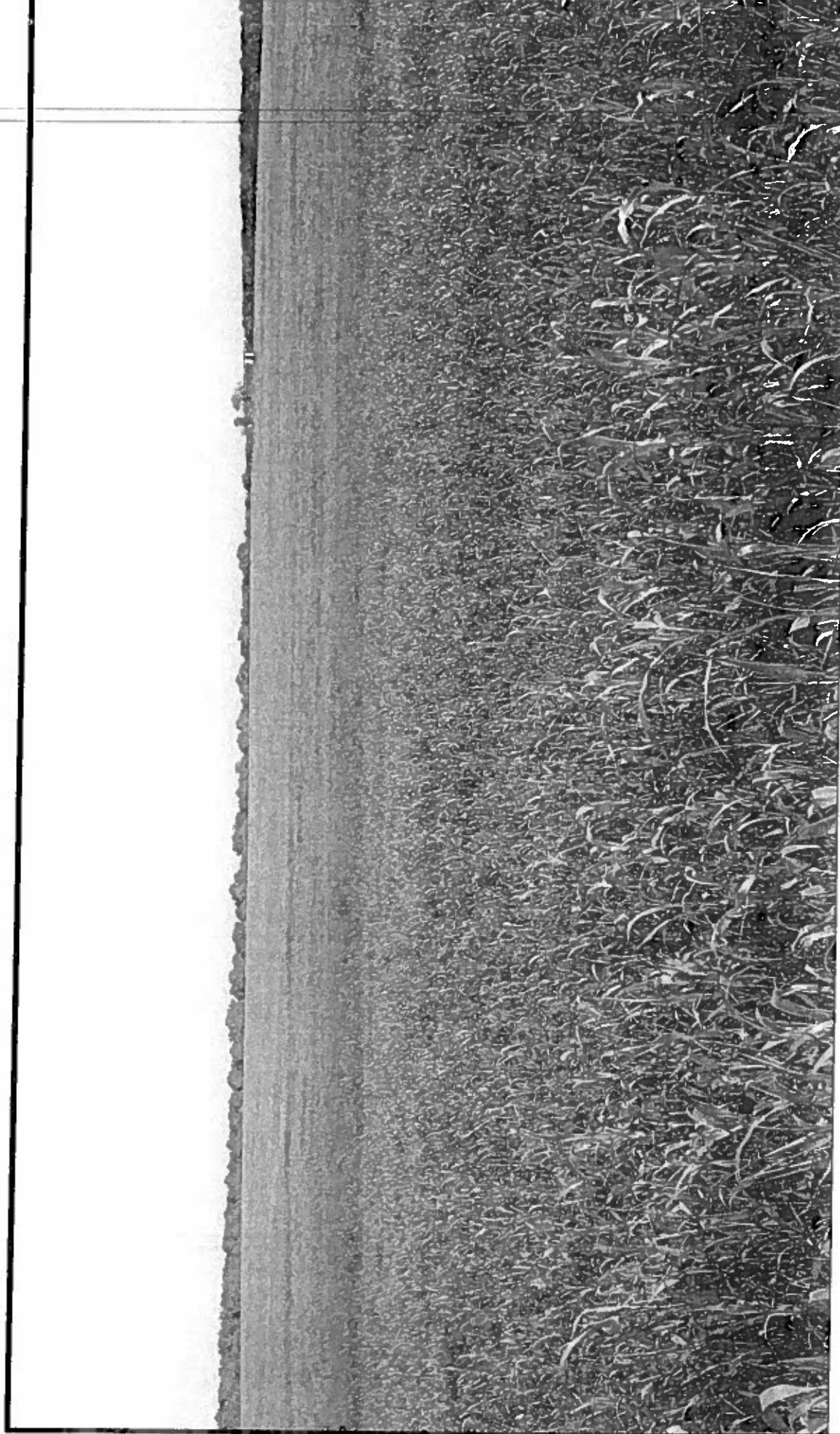


Photo 7: Northeastern portion of **Area B**, facing southwest.



Photo 8: Northwestern of **Area B**, facing southeast.

APPENDIX B
City of Austin Site Review CEF Worksheet



Murfee Engineering Company

APAC TEXAS - BUCK
SITE PHOTO 1
VIEW TO NORTH ACROSS CWOZ

CS
2/2

1101 Capital of Texas Highway South, Building D, Suite 110, Austin, Texas 78746 (512) 327-9204

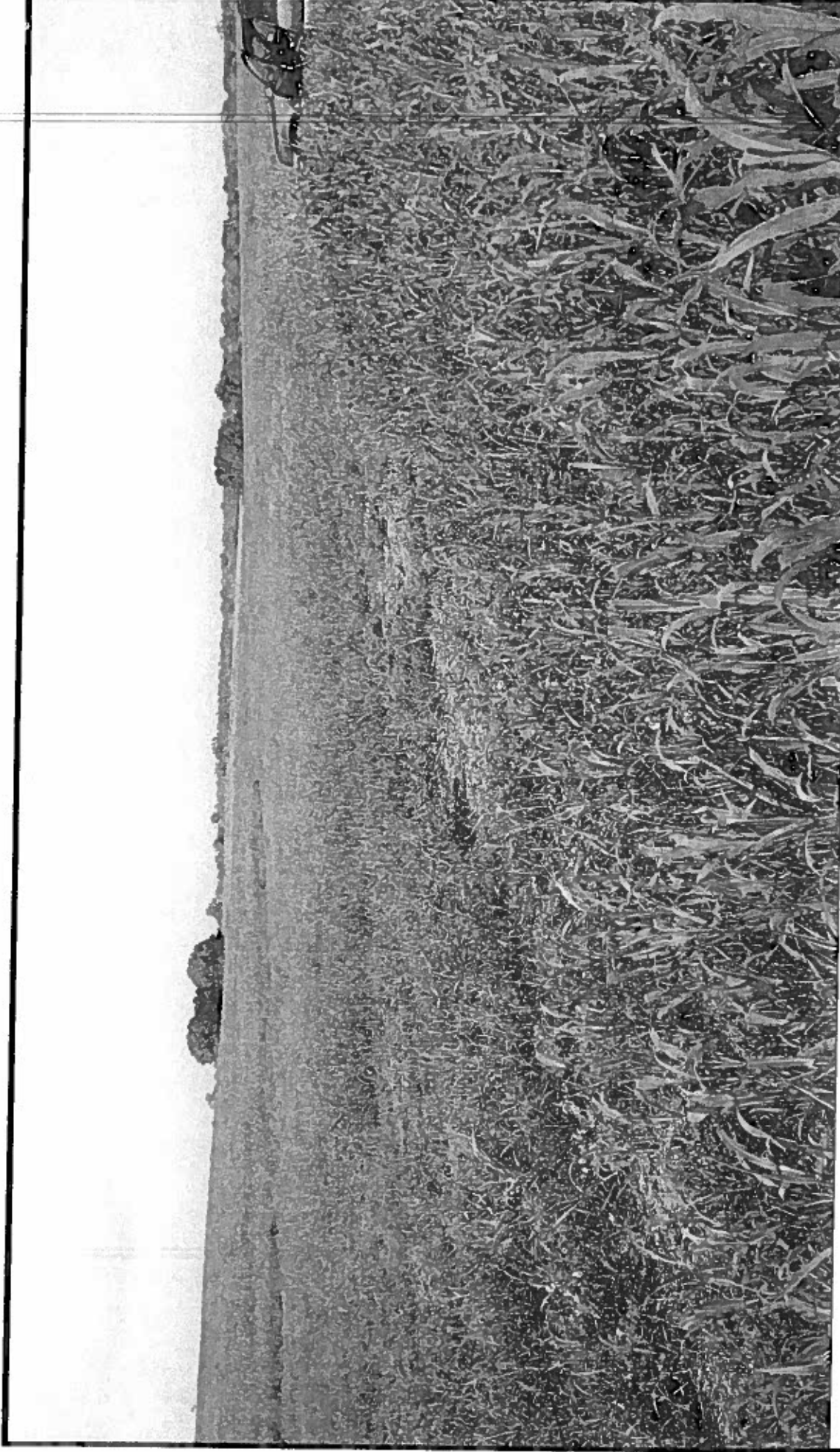
Texas Registered Engineering Firm F-353

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PHOTO DATE: 9/18/2013

DATE: 9/20/2013

DRAWN: RWH



Murfee Engineering Company

APAC TEXAS - BUCK
SITE PHOTO 2
VIEW UPSTREAM IN "CHANNEL"

35/35

1101 Capital of Texas Highway South, Building D, Suite 110, Austin, Texas 78746 (512) 327-9204

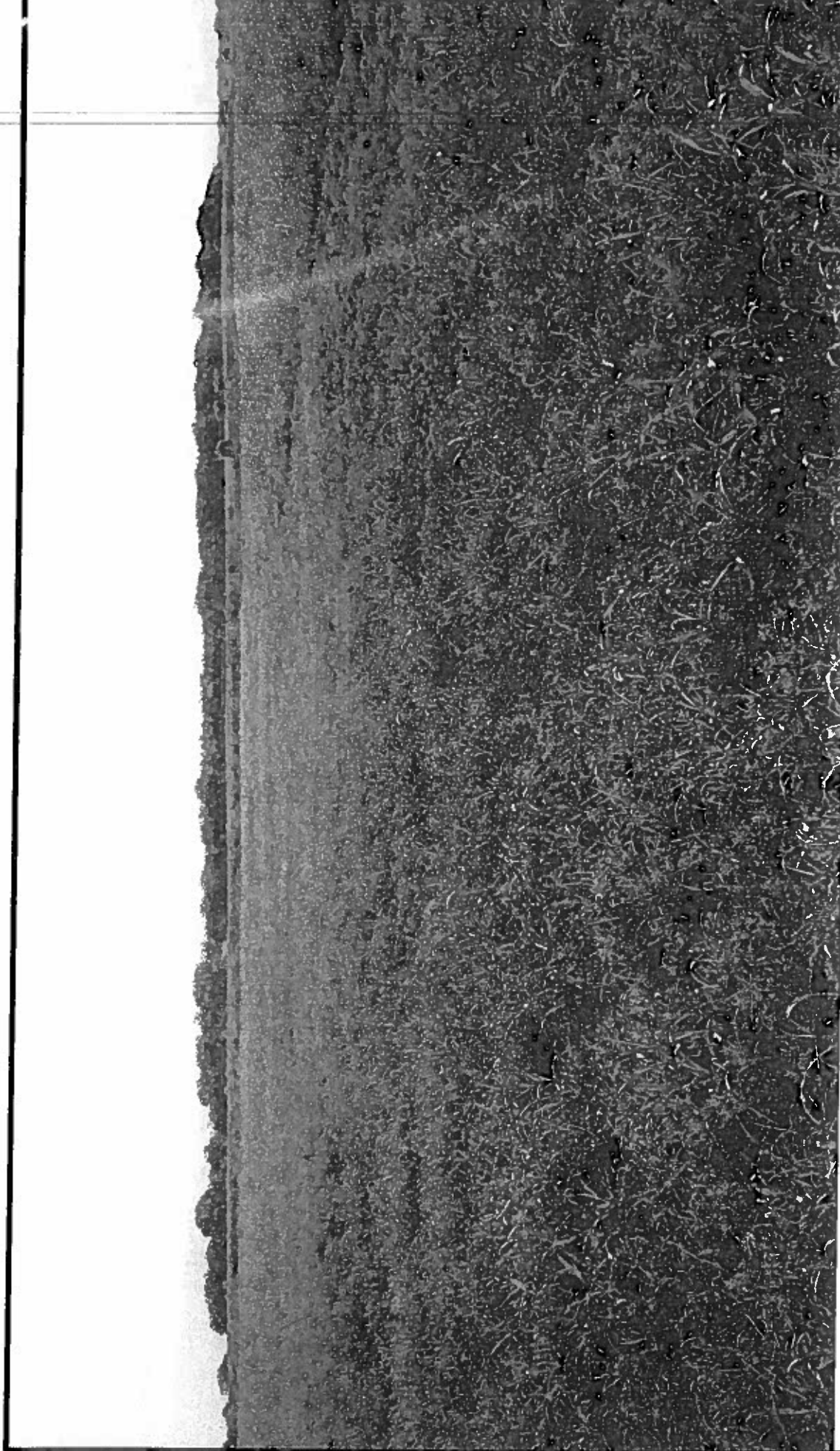
Texas Registered Engineering Firm F-353

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PHOTO DATE: 9/18/2013

DATE: 9/23/2013

DRAWN: RWH



CS
36

APAC TEXAS - BUCK
SITE PHOTO 3
VIEW DOWNSTREAM IN "CHANNEL"

1101 Capital of Texas Highway South, Building D, Suite 110, Austin, Texas 78746 (512) 327-0204

Texas Registered Engineering Firm F-353

FILE(LAYOUT): 0:11106012811-001.35-VAR-EX04.dwg (PHOTO3) DATE: 9/23/2013 DRAWN: RHH

PHOTO DATE: 9/18/2013

**CITY OF AUSTIN ENVIRONMENTAL ASSESSMENT
FOR THE
APAC TEXAS-BUCK TRACT
(FORMERLY SHUMAKER-BUCK II TRACT)**

Travis County, Texas

March 2011
UPDATED August 2013

Submitted to:

Murfee Engineering Company, Inc.
1101 S. Capital of Texas Highway, Suite D110
Austin, Texas 78746

By:

aci consulting
1001 Mopac Circle
Austin, Texas 78746

aci project #:
19-11-011-1

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Environmental Assessment in Accordance with the City of Austin Land Development Code for the Apac Texas-Buck Tract in Travis County, Texas

March 4, 2011, Updated August 6, 2013

1.0 PURPOSE

The purpose of this environmental assessment is to evaluate:

- **Area A** - the approximately 94.1-acre Apac Texas-Buck tract (formerly Shumaker-Buck II tract), and
- **Area B** – the approximately 0.5-acre limits of construction (LOC) of an at-grade crossing in the Critical Water Quality Zone (CWQZ). **Area B** is 100 feet wide by 200 feet long, and is located south of **Area A** (Figure 1).

For the purposes of this environmental assessment, **Area A** and **Area B**, in combination, are referred to as the subject area.

This environmental assessment evaluates the subject area in accordance with the City of Austin Land Development Code (“LDC”) §25-8-121. Specifically, this environmental assessment evaluates the subject area for the occurrence of critical environmental features (CEFs) as defined in the LDC and for potential endangered species habitat.

A site investigation was performed by **aci consulting** scientists on March 1, 2011 for **Area A**. A subsequent site investigation was performed by **aci consulting** scientists on July 24, 2013 for **Area B**.

2.0 PROJECT LOCATION

The subject area is located along Buck Lane approximately 0.9 miles north of Highway 71 between the towns of Garfield and Wyldwood, in Travis County, Texas (Figure 1).

3.0 EXISTING ENVIRONMENT

The subject area is currently an active cattle and agricultural operation. Two occupied residential houses and various agricultural buildings are located in the central part of the subject area.

3.1 Hydrology

The subject area lies within the Colorado River watershed and within the City’s Suburban Watershed regulation area. According to Edwards aquifer recharge zone maps, the subject area

does not lie within the recharge, transition, or contributing zones of the Edwards aquifer (TCEQ 2001). The eastern extent of **Area A** lies within the Federal Emergency Management Agency (FEMA) 500-year floodplain. The 100-year floodplain lies due east of **Area A**. **Area B** does not lie within the FEMA floodplain; however, it crosses a USGS blue line, which is identified as a tributary of the Colorado River. See Figure 2 for mapped FEMA 100-year flood zones near the subject area.

3.2 Topography

According to the *Webberville* USGS 7.5-minute topographic quadrangle, the elevation of the subject area ranges from approximately 400 feet to 450 feet above mean sea level (Figure 3). Drainage generally slopes from west to east towards the Colorado River.

3.3 Geology

The subject area is underlain by Fluvatile terrace deposits (Qt) (Barnes 1974). Fluvatile terrace deposits consist of three or more levels which may correspond to coastal Pleistocene units. The unit consists of gravel, sand, silt, and clay in various proportions. Along the Colorado River this unit consists mostly of dolomite, limestone, quartz, chert, and various igneous and metamorphic rocks from the Llano region and dolomite, limestone, and chert from the Edwards Plateau.

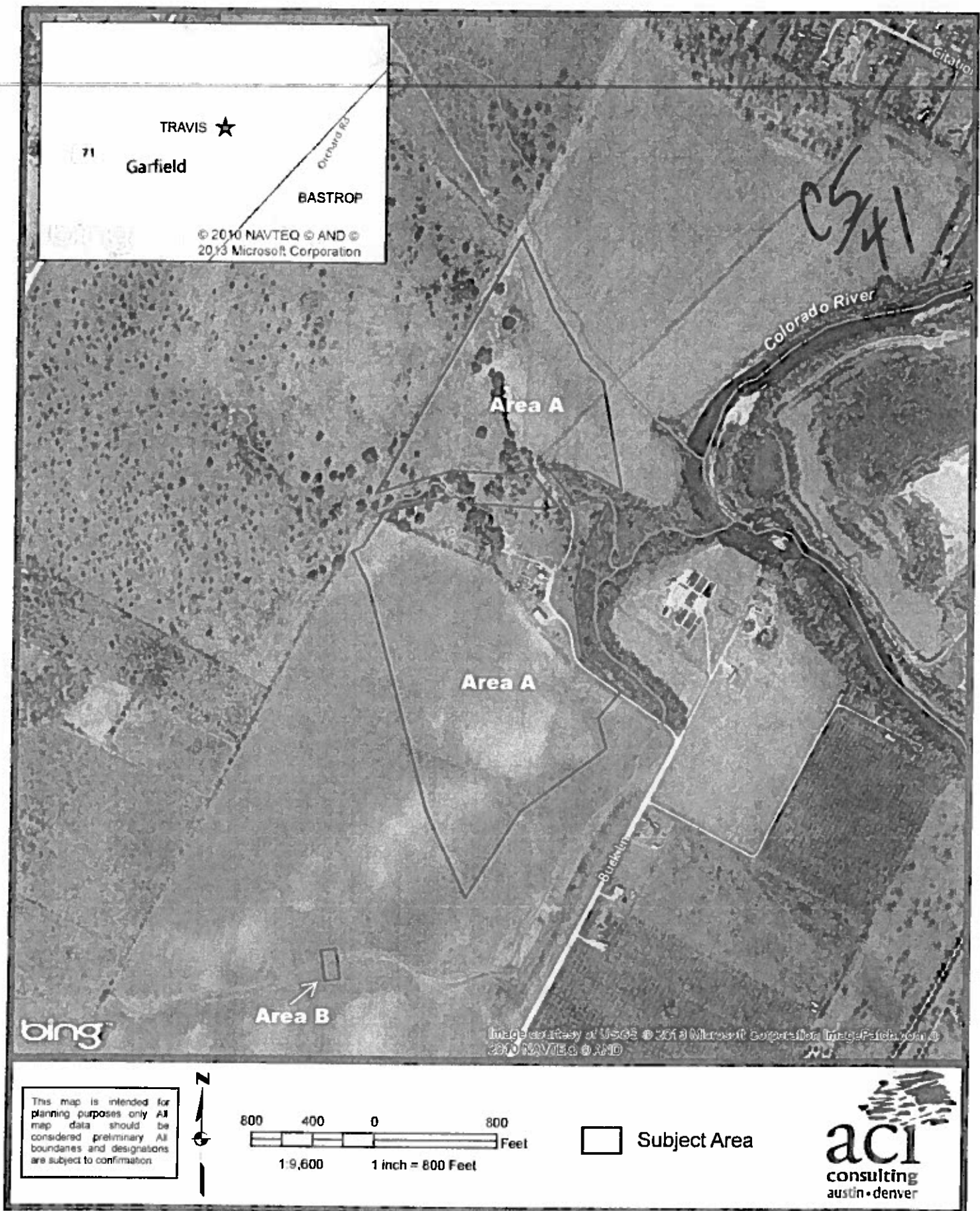
3.4 Soils

Soils in this area are classified as Bergstrom-Norwood, which are found on terraces and flood plains adjacent to the Colorado River and are described as deep, calcareous, loamy soils overlying recent and old alluvium (SCS 1974). Seven soils units are located within **Area A**: Altoga silty clay, 1 to 3 percent slopes (AgB), Altoga silty clay, 3 to 6 percent slopes, eroded (AgC2), Chaney fine sandy loam, 2 to 5 percent slopes, eroded (ChC2), Bergstrom silt loam, 1 to 3 percent slopes (BeB), Bergstrom silty clay loam, 0 to 1 percent slopes (BgA), Dougherty loamy sand, 0 to 2 percent slopes (DoA), and Houston Black clay, 0 to 1 percent slopes (HnA). One soil unit, AgB, is located within **Area B**.

3.5 Vegetation

The subject area lies within the 'crops' designation, as noted on the Texas Parks and Wildlife "Vegetation Types of Texas" map (McMahan et al. 1984). According to McMahan et al. crops are defined as areas including cultivated cover crops or row crops used for the purpose of producing food and/or fiber for either man or domestic animals. Field investigations determined that the vegetation within the subject area is consistent with this designation.

Canopy vegetation observed within **Area A** includes: live oak (*Quercus virginiana*), cedar elm (*Ulmus crassifolia*), and retama (*Parkinsonia aculeata*). The tree layer within **Area A** has a height range of approximately 20 to 25 feet and a canopy cover of approximately five percent. Canopy cover is kept in a park-like state with little or no understory layer. The herbaceous layer vegetation observed within **Area A** is composed of primarily bermudagrass (*Cynodon dactylon*) and various other grasses and forbs.



Apac Texas-Buck City of Austin EA
Figure 1: Subject Area

August 2013