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Cultural Resources Survey of a Proposed Reverse Osmosis Water Treatment Plant, El Paso County, Texas

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Texas Antiquities Permit No. 7366

Submitted to:

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VERSAR

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ABSTRACT

On July 31, 2015 Versar Inc. performed a linear pedestrian survey which followed the standards outlined under THC's *Archaeological Survey Standards for Texas* and *Rules of Practice and Procedure for the Antiquities Code of Texas* on 8.8 acres of land in east El Paso, El Paso County, Texas. The proposed survey parcel is positioned between Global Reach Drive and the Kay Bailey Hutchison Desalination Plant, north of Montana Avenue (U.S. Highway 62/180). The area of potential effect is on property owned by El Paso International Airport, a sub-entity of the City of El Paso. The project goal was to identify all prehistoric and historic archaeological sites in the survey parcel and make National Register of Historic Places (NRHP) eligibility recommendations for any newly discovered sites. The survey documented no cultural resource sites and only seven isolated finds; the isolated finds were fully documented and are not eligible for a NRHP recommendation. Due to the lack of cultural resources and a general absence of geomorphic/cultural context, no further work is recommended for the APE proposed for the reverse osmosis water treatment plant.

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Chapter 1.
INTRODUCTION

On July 31, 2015 archaeologists with Versar Inc. conducted a pedestrian survey of 8.8 acres in east El Paso, El Paso County, Texas. The proposed survey parcel is positioned between Global Reach Drive and the Kay Bailey Hutchison Desalination Plant, north of Montana Avenue (U.S. Highway 62/180). The area of potential effect is on property owned by El Paso International Airport, a sub-entity of the City of El Paso. The proposed impact to the City of El Paso lands has generated the requirement for a Texas Antiquities Permit and cultural resource inventory. As such, the project goal is to identify all prehistoric and historic archaeological sites in the survey parcel and develop National Register of Historic Places (NRHP) eligibility recommendations for any newly discovered sites (Figure 1 and 2).

This project was carried out in two phases. During the first phase Versar conducted a pedestrian survey on the 8.8 acre parcel. The survey employed a pedestrian transect method for documenting artifact concentrations and features which represent potential sites. This method used global positioning system (GPS)-based locational data, along with integrated ArcPad Software and tabulated attribute pull-down menus. The integration of the pedestrian survey and digital recording techniques provided a complete and consistent inventory of visible cultural resources within the survey parcel. The inventory identified no archaeological sites and only seven isolated occurrences.

The second phase of the project entailed subsurface testing. Subsurface investigations were limited to the excavation of shovel test pits (STP). Three STPs were excavated to expose stratigraphy sequence and provide insight into both geomorphic and cultural context. Environmental factors such as vegetative cover, microtopographic and geomorphic contexts, and evidence of disturbance were also documented to aid in determining integrity.

As such, this document presents the methods and results of the investigations conducted during the 8.8-acre survey. As presented, Chapter 1 provides a general summary of the undertaking. Chapter 2 presents a brief overview of the environmental setting of the study area. Chapter 3 contains the culture history of the local region and summarizes previous work conducted on the site and the methods utilized during this project. Chapter 4 presents the results of the survey and Chapter 5 includes a summary of these investigations and recommendations for future work. Isolated Occurrence data are presented in Appendix A. Appendix B provides the United States Geological Survey (USGS) 1:24,000 scale map with site locations.

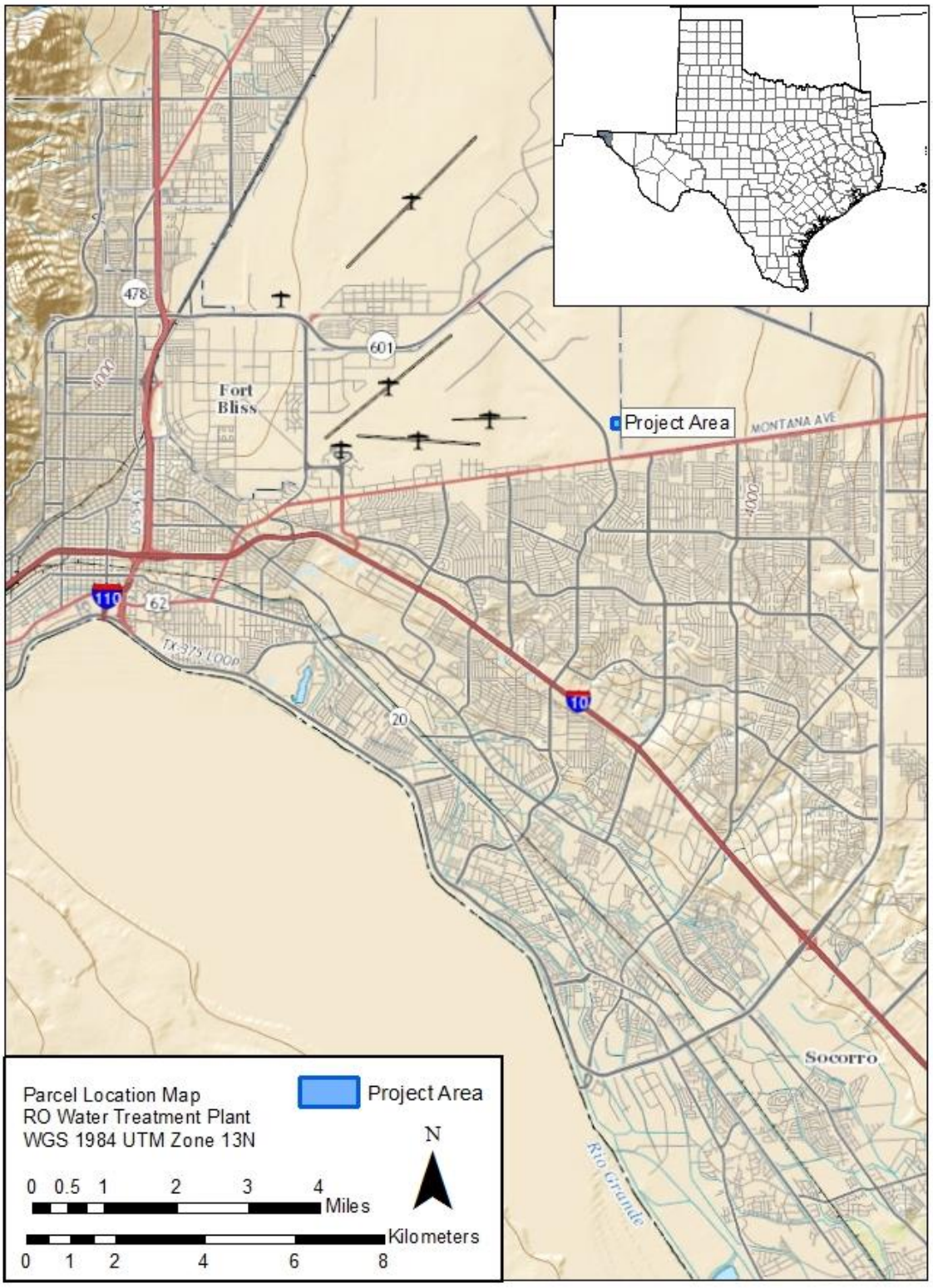

Figure 1. Map showing the project location within El Paso County, Texas.

Figure 2. Map showing the survey parcel within El Paso County, Texas.

Chapter 2.
ENVIRONMENTAL, GEOMORPHIC, AND CULTURAL CONTEXT

A cultural and environmental overview of the project area has been presented in several previous publications. For a more detailed overview of the regional prehistory and historical sequences associated with the region, the reader is referred to Whalen (1977), Stowe et al. (2007), Miller, Kenmotsu, and Landreth (2009). In brief, the project area lies in the Hueco Bolson, an internally draining, low-lying landform bordered to the east by the Sacramento Mountains and to the west by the San Andres Mountains. The survey parcel falls within the Mexican Highland Section of the Basin and Range physiographic province (Fenneman 1931) and prehistorically within the Jornada Mogollon region of south-central New Mexico (Lehmer 1948).

Current landforms consist of mesquite-stabilized dune fields, areas of interdunal deflation, and shallow sand sheets. Impacts to the parcel currently noted result from ongoing eolian deflation and previous infrastructure development. The soils throughout the project area consist of unconsolidated eolian sediments, light tan sandy loams, and low to moderate amounts of caliche gravels.

The vegetative community in the area is described as a desert scrubland and is dominated by mesquite (*Prosopis glandulosa*). The mesquite is generally found on coppice-dune formations, which range from 2-to-3 m in height. Other vegetation includes four-wing saltbush (*Atriplex canescens)*, soaptree yucca (*Yucca elata*), tarbush (*Flourensia cernua*), broom snakeweed (*Gutierrezia sarothrae*), Russian thistle (*Salsola kali*), and dropseed *(Sporobolus cryptandrus)* (Powell 1998).

The proposed construction will impact 8.8-acres of land adjacent to the intersection of Global Reach Drive and Montana Avenue. (U.S. Highway 62/180). The parcel is bounded to the east by the Kay Bailey Hutchison Desalination Plant. The Fort Bliss Military Installation is located east and north of the survey parcel while property owned by the El Paso International Airport is west of the proposed project area; residential developments are south of the water treatment plant footprint (see Figure 2). Current landforms consist of mesquite-stabilized dune fields, areas of interdunal deflation, and shallow playas. Impacts to the parcel are currently noted, resulting from past development and public access. The property is currently fenced with active security measures in place.

Chapter 3.
PREVIOUS RESEARCH AND METHODOLOGY

BACKGROUND HISTORY AND ESTIMATED SITE COUNTS

Previous investigations are primarily limited to surveys covering the lands adjacent to the proposed inventory parcel (Whalen 1977; Lukowski and Stuart 1996; Holmes et al. 1999; Perez et al. 2006; Miller et al. 2006; and Stowe et al. 2007; Condon ARMS electronic database query 15 July 2015). The most relevant being a 2007 survey carried out by Geo-Marine, Inc. on 903 acres north of the current survey parcel; 14 archaeological sites were identified during this project (Stowe et al. 2007). Three archaeological sites (41EP2572, 41EP2573, and 41EP1222) unrelated to the 903-acre survey fall within a one-half mile radius of the proposed project area, the closest being 41EP2572 (~200-m distant). No previously recorded sites are present in the current survey parcel.

FIELD SURVEY AND SITE DOCUMENTATION PROCEDURES

In accordance with the intensive survey parameters set forth by the CTA and approved by the Texas THC, the following field procedures were implemented during the survey.

Prefield Research

The staff at Versar Inc., El Paso, Texas conducted a comprehensive search of the online Texas Atlas database, obtaining existing Texas Archaeological Research Laboratory site files and researching pertinent literature to identify any previously recorded prehistoric and historic sites within the survey parcel. In addition, aerial photographs, USGS 7.5- minute quadrangles, geologic maps, and soil survey maps were examined prior to the field investigation. These additional research avenues augmented the background research and provided relevant information on topography, soils, vegetation, geology, the local environment, and levels of development within the vicinity of the project area. An initial search revealed 15 sites within one-half mile of the proposed survey parcel. Included in this search is 41EP2572, a small prehistoric site located less than 200-m northwest of the survey parcel.

Pedestrian Transect Survey

Versar carried out the pedestrian survey using a 10-m (~32 ft.) transect interval anchored to the southwestern corner of the parcel. Survey crews worked in a north-to-south direction. Transect widths were contiguous, leaving no unsurveyed areas remaining between transects. The amount of area covered, including recording time, did not exceed a rate of 15 acres per person, per eight hour day calculated for the entirety of the project. Ground visibility in the parcel approximates 80 percent.

In order to effectively accomplish the survey Versar provided two experienced personnel to carry out this task: one Project Archaeologist and one field technician. Each crew member was equipped with a Trimble XT handheld GPS unit with integrated ArcPad data dictionaries to document cultural materials. The Versar personnel who participated in the survey completed the Versar mandated onsite safety training. In addition, each member read and understood the safety protocol outlined for this project (e.g., orange safety vests, eye protection, and safety tail gate meetings).

Since the location of this project is in proximity to landforms conducive to past human activity and relatively rapid sediment accumulation, limited subsurface investigations were introduced. Subsurface testing followed guidelines presented under THC guidelines. A *minimum* of three shovel test pits, each measuring 50-cm by 50-cm in dimension were excavated within the 8.8 acres. The depth of each shovel test pit was determined by the observable stratigraphic sequence and the presence or absence of cultural deposits. No shovel test pits exceed a depth of 1.0-m below ground surface. Excavation terminated upon reaching sterile soils and/or bedrock caliche. Each shovel test pit was photographed and documented. Sediments were screened through 1/8-inch hardware mesh. No cultural materials were encountered; no collections were warranted. As presented under the Texas Antiquities Permit-Terms and Conditions and TAC Title 13, Part 2, Chapter 26.C.26.17; however, Versar is responsible for preparing all original field notes, maps, drawings, and photographs for curation at the Texas Archaeological Research Laboratory, Austin, Texas. A curation form, curation packet with original forms, and final technical report deliverables will be sent to TARL, Austin, Texas upon review and concurrence by the THC.

Chapter 4.
RESULTS OF INVESTIGATION

This project entailed an intensive pedestrian survey of 8.8 acres in El Paso County, Texas. The survey was confined to the established APE. While the landform was protected by fencing, the condition of the parcel was generally disturbed, primarily from development of the adjacent desalination plant or possible past road improvement projects. In addition, eolian deflation has, over time, removed intact soils leaving exposed calcic paleosols throughout the project area. The isolated occurrences were primarily restricted to these deflated interdunal areas. Low-to-medium sized mesquite stabilized coppice dunes anchoring sediments in the parcel. Ephemeral rills and several shallow arroyos have impacted the landscape. Dune margins and exposed dune faces were closely examined for evidence of buried cultural deposits.

No archaeological sites were identified; seven isolated finds were documented. Of the seven finds, six were burned caliche fragments restricted to surface context (Appendix A). Each measured less than 6-cm in diameter. In addition, a single quartzite flake fragment was identified on the ground surface. This fragment measured 6.5 cm in length, 4.2 cm in width, and 0.6 cm in thickness, with the dorsal surface retaining approximately 20 percent cortex. No flake scars or modification was noted on the piece.

Three 50-cm by 50-cm STPs were excavated in the parcel; one in the south half of the project area and two in the north half (Figure 3). The northern half of the parcel exhibited greater sediment accumulation, and tentatively, a higher probability of buried cultural deposits. The STPs were also excavated to obtain an accurate characterization of the subsurface soils and assess the geomorphic integrity of the APE.

STP 1 was placed west of a north/south oriented access road and east of Isolated Occurrence 1 in an area characterized by accumulated sands. This shovel test pit was excavated to a depth of 35 cm below ground surface (bgs). The soil sequence included 24 cm of unconsolidated reddish yellow (7.5YR6/8) sand sediments overlying 9 cm of compact, reddish-brown (7.5YR8/2) silty loam with caliche filaments. This basal soil rested upon bedrock caliche (Figure 4). No artifacts were recovered from the screened fill, and no buried features were encountered during excavation of the shovel test pit.

STP 2 was placed in the north half of the parcel, west of the north/south access road and in an area of coppice dunes and accumulated sands. This shovel test pit was excavated to a depth of 37 cm bgs. The soil sequence included an 8 cm thick layer of light tan (7.5YR6/4)-unconsolidated surface sands that blanketed a 27 cm thick reddish yellow (7.5YR6/8) sandy loam deposit. This compact matrix contained noticeable caliche filaments. Directly beneath the second stratum was a shallow compact reddish (7.5YR6/4) loam unit with clear calcic inclusions. This 3 cm thick basal soil rested upon bedrock caliche (Figure 5). No artifacts were recovered from the screened fill and no buried features were encountered during excavation of the shovel test pit.

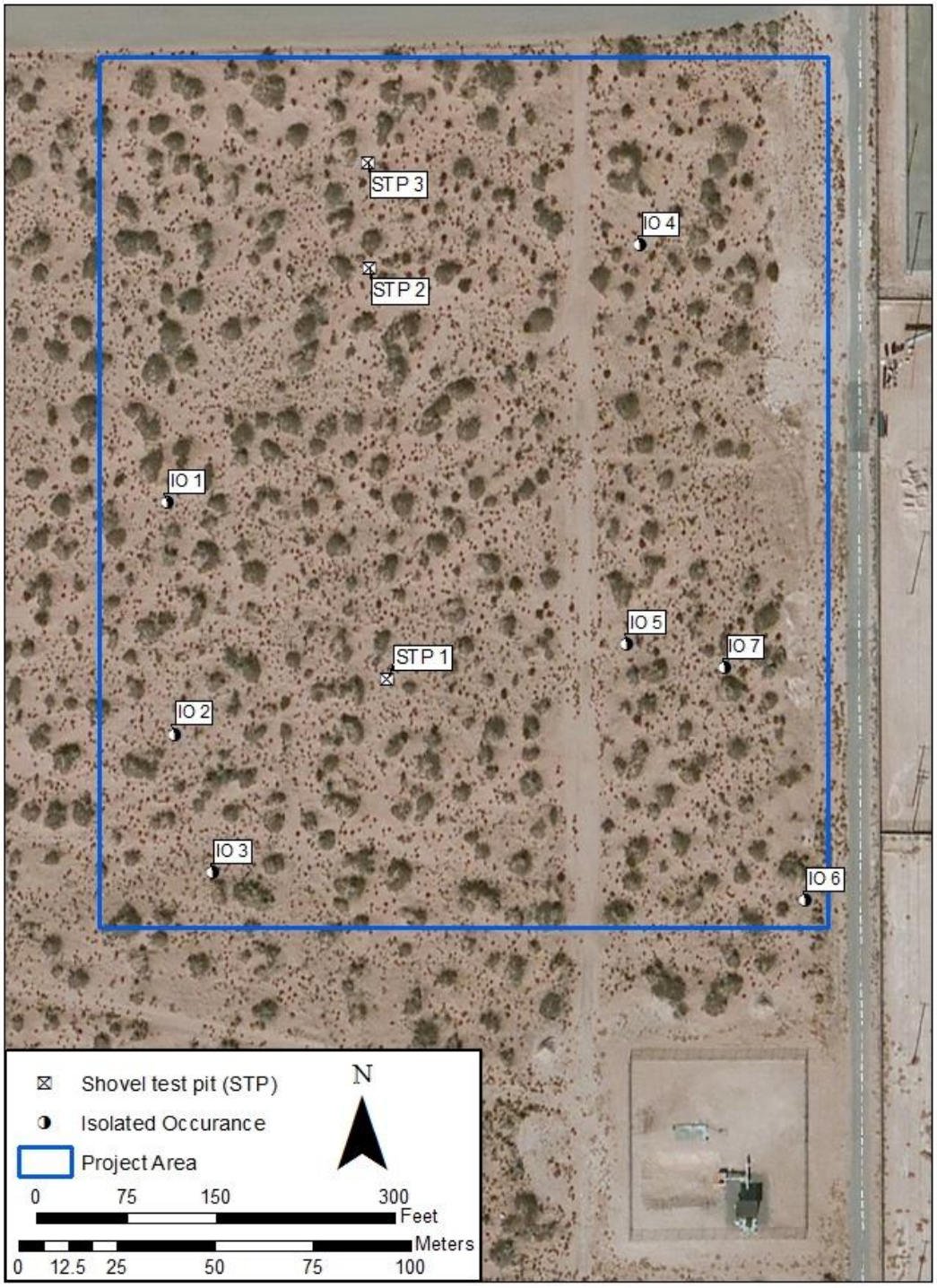

Figure 3. Map showing location of isolated occurrences and shovel test pits within the project area.

Figure 4. Shovel test pit 1, looking north.

Figure 5. Shovel test pit 2, looking north.

STP 3 was placed approximately 25 m north-northwest of STP 2, west of the north/south access road, again in an area of coppice dunes and accumulated sands. This shovel test pit was excavated to a depth of 39 cm bgs. The soil sequence included a 10 cm thick layer of light tan (7.5YR6/4)-unconsolidated surface sands which blanketed a 25 cm thick reddish yellow (7.5YR6/8) sandy loam deposit. This compact matrix contained noticeable caliche filaments. Directly beneath the second stratum was a shallow compact reddish (7.5YR6/4) loam unit with clear calcic inclusions. This 4 cm thick basal soil rested upon bedrock caliche (Figure 6). No artifacts were recovered from the screened fill, and no buried features were encountered during excavation of the shovel test pit.

Figure 6. Shovel test pit 3, looking north.

Chapter 5.
SUMMARY AND RECOMMENDATIONS

On behalf of ESSCO Environmental, Inc., Versar, Inc. carried out an intensive archaeological survey and limited shovel test excavations of 8.8 acres between Global Reach Drive and the Kay Bailey Hutchison Desalination Plant, north of Montana Avenue (U.S. Highway 62/180). The survey parcel encompassed an area of low-lying basin landforms which were characterized by deflation and the redistribution of sediments. As documented in Lukowski and Stuart (1996), Holmes et al. (1999), and Stowe et al. (2007), this dynamic environment has been influenced by both eolian and modern disturbances resulting in the movement and displacement of sediments and artifacts. The general absence of cultural materials within the survey parcel potentially points toward the accelerated deflation and removal of artifacts away from their original context and into the low-lying interdunal areas. The absence of subsurface cultural deposits, as defined by the subsurface investigations, combined with the lack of archaeological features and the highly reworked and eroded nature of the project area, indicates that this parcel holds little contextual integrity in regard to the presence and preservation of human activity. As such, the intensive survey resulted in the recording of no archaeological sites and only seven isolated occurrences. The isolated occurrences are not significant and are not eligible for inclusion in the NRHP.

It is recommended that the information potential of the isolated occurrences has been exhausted through documentation, and no further work is merited. Based upon the results of this process, Versar recommends that the proposed development of the reverse osmosis water treatment plant will not have an adverse effect on historic properties within the proposed 8.8 acre APE.

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Appendix A.
ISOLATED OCCURRENCES

Isolated Occurrences

Information Removed

Appendix B.
LOCATION MAP USGS 1:24,000

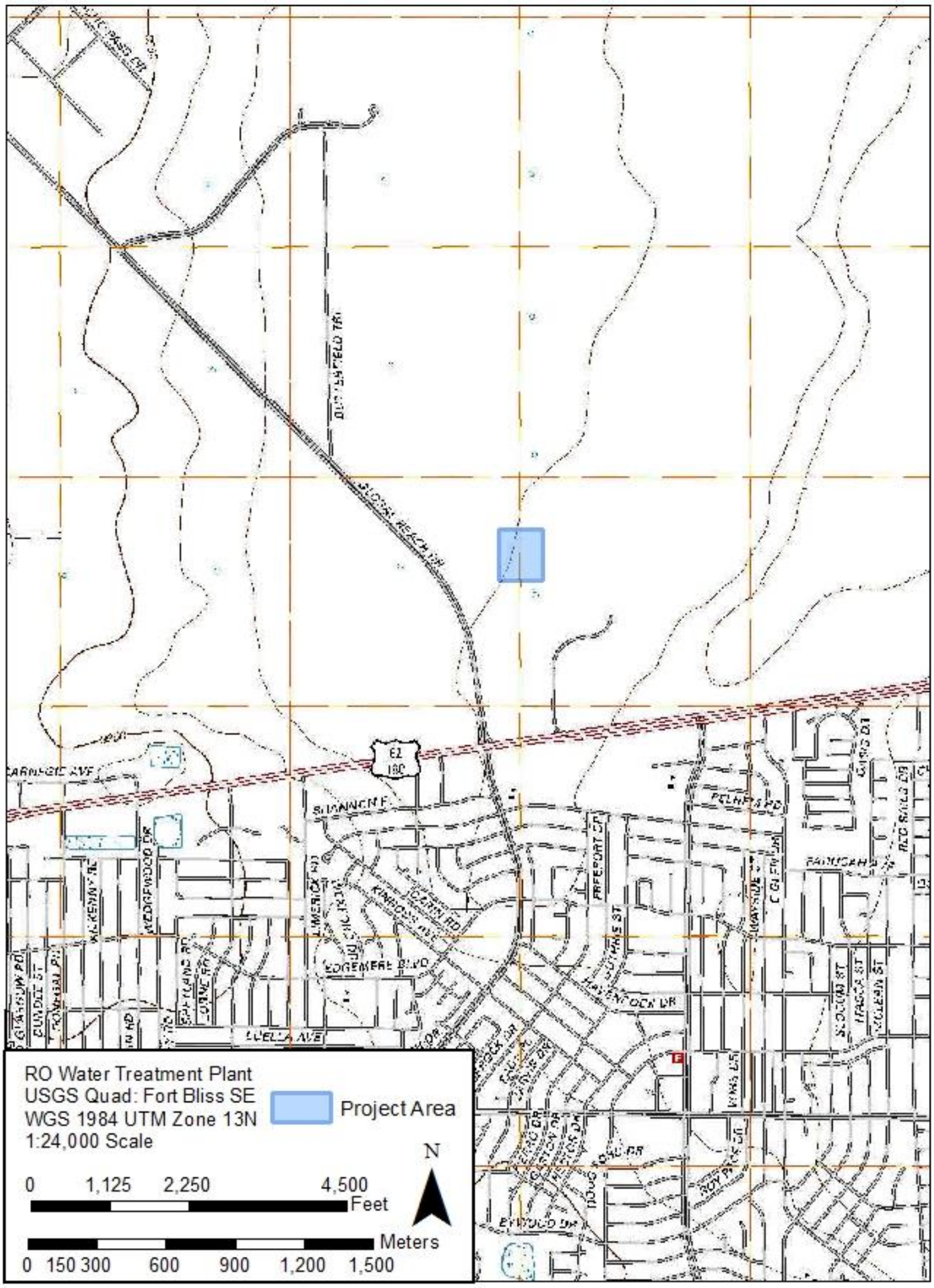

Figure 7. Map showing location of the 8.8-acre parcel at 1:24,000 scale.