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Intensive Cultural Resources Survey of an Approximately 14.7-Acre Proposed Solar Array Near Calaveras, Wilson County, Texas

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Intensive Cultural Resources Survey of an Approximately 14.7-Acre Proposed Solar Array Near Calaveras, Wilson County, Texas

ANTIQUITIES CODE OF TEXAS PERMIT NO. 9400

JULY 2020

PREPARED FOR
DG Central 1, LLC

PREPARED BY
SWCA Environmental Consultants

Redacted

**INTENSIVE CULTURAL RESOURCES SURVEY OF AN
APPROXIMATELY 14.7-ACRE PROPOSED SOLAR ARRAY
NEAR CALAVERAS, WILSON COUNTY, TEXAS**

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Antiquities Code of Texas Permit No. 9400

SWCA Project No. 58575.01

SWCA Cultural Resources Report No. 20-336

July 2020

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ABSTRACT

On behalf of DG Central 1, LLC (DG Central 1), a subsidiary of NextEra Energy Resources, LLC, SWCA Environmental Consultants (SWCA) conducted a cultural resources survey of an approximately 14.7-acre parcel proposed for the Calaveras Solar Project (Project). The Project is proposed to occur on a parcel located immediately east of the intersection of County Road 128 and Farm-to-Market Road 775, near the community of Calaveras, Wilson County, Texas. The proposed Project will consist of a main solar array and ancillary facilities all constructed within the 14.7-acre parcel. Expected Project impacts include widespread surficial modifications with deeper impacts in location of pilings, foundations, and utilities. The maximum depth of impact is not expected to exceed 10 feet below the ground surface. The Project Area is located on the *Saspamco* and *Floresville, Texas*, U.S. Geological Survey (USGS) 7.5-minute quadrangle maps (USGS 2020).

The parcel on which the Project is proposed to occur is entirely owned by the Floresville Independent School District, and therefore the project is subject to the Antiquities Code of Texas (ACT). Based on the current project understanding, no federal regulatory compliance is involved. To comply with requirements of the ACT, SWCA conducted an intensive cultural resources survey with shovel testing of the Project Area.

The cultural resources investigations consisted of a background and historical map review of the Project Area and a 0.5-mile buffer (Study Area), followed by intensive pedestrian survey augmented by shovel testing within the Project Area. The file search and literature review identified four previously conducted cultural resource surveys conducted within the 0.5-mile Study Area, the closest survey to the Project Area was recorded 0.2 miles to the north. Two previously recorded archeological sites (41WN74 and 41WN120) were identified within the Study Area; however, the closest mapped resource (41WN74) is located approximately 0.31 miles west of the Project Area. No National Register of Historic Places (NRHP) properties, State Antiquities Landmarks (SALs), Official Texas Historical Markers, Registered Texas Historic Landmarks, or local neighborhood surveys were identified within either the Project or Study Areas (THC 2020). Additionally, the historical map review did not identify any potential historical structures have been depicted within the Project Area (USGS 2020).

An SWCA archaeologist conducted an intensive archaeological survey augmented by shovel testing on April 30, 2020. SWCA archaeologists excavated a total of 16 shovel tests within the Project Area; of which, one proved positive for cultural material with a single tertiary chert flake fragment. A total of eight shovel tests were excavated around the positive shovel test, with two shovel tests in each of the cardinal directions at 15-meter (49.2 ft) intervals. No further cultural material was found within the shovel tests; therefore, the single flake does not rise to the level of an archaeological site and is considered to be an isolated find, which will not require avoidance or mitigation. No further cultural resources were identified on the ground surface or within any of the excavated shovel tests within the Project Area.

In accordance with the ACT, SWCA has made a reasonable and good faith effort to identify archaeological resources within the Project Area. No properties were identified within the Project Area that meet the criteria for listing as a SAL or a NRHP property. As such, SWCA recommends that no additional cultural resources investigations are warranted within the Calaveras Solar Project Area, as currently defined.

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INTRODUCTION

On behalf of DG Central 1, LLC (DG Central 1), a subsidiary of NextEra Energy Resources, LLC, SWCA Environmental Consultants (SWCA) conducted a cultural resources survey of an approximately 14.7-acre parcel proposed for the Calaveras Solar Project (Project) (Figure 1). The Project involves the construction of a primary solar array and all associated ancillary facilities within the proposed parcel in Wilson County, Texas (Figure 2). The Project is proposed to occur on a parcel located immediately east of the intersection of County Road 128 and Farm-to-Market Road (FM) 775, near the community of Calaveras, Wilson County, Texas (Project Area). The Project Area is located on the *Saspamco* and *Floresville, Texas* U.S. Geological Survey (USGS) 7.5-minute quadrangle maps (USGS 2020).

The parcel on which the Project is proposed to occur is entirely owned by the Floresville Independent School District, and therefore the project is subject to the Antiquities Code of Texas (ACT). Based on the current project understanding, no federal regulatory compliance is involved. To comply with requirements of the ACT, SWCA conducted an intensive cultural resources survey with shovel testing of the Project Area.

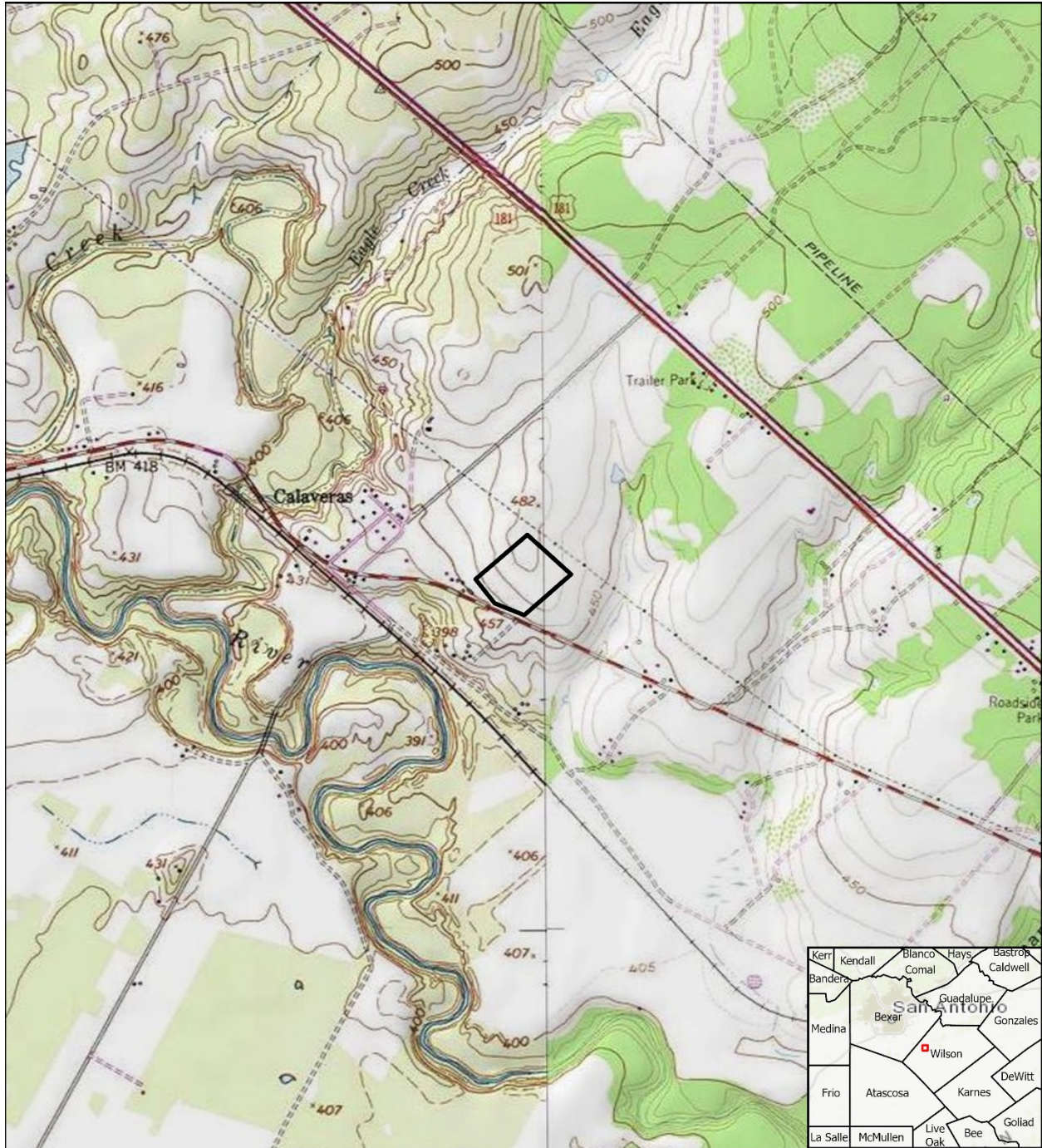
The goal of this investigation was to locate all prehistoric and historic cultural resources within the Project Area, establish vertical and horizontal site boundaries, as appropriate, within the Project Area, and evaluate the significance and eligibility of cultural resources for listing on the National Register of Historic Places (NRHP). This investigation complied with Secretary of Interior standards and followed the guidelines and procedures outlined in the Council of Texas Archeologists (CTA) standards for cultural resources investigations, as outlined in the Texas Historical Commission's (THC's) *Rules of Practice and Procedure for the Antiquities Code of Texas*.

Project Personnel

Christopher Shelton, M.A., served as the Principal Investigator for the duration of the Project, overseeing overall logistics and organization, managing reporting, and agency consultation. SWCA archaeologist Rachel Jensen conducted the archaeological survey on April 30, 2020. Jason Kainer produced field and report maps for the Project, and Lauri Logan provided technical editing and document preparation.

PROJECT AREA DESCRIPTION

DG Central 1 is preparing to develop an approximately 14.7-acre parcel of undeveloped land located immediately to the north of County Road 128, approximately 0.23 miles southeast of the intersection of County Road 128 and County Road 775. The Project Area is positioned south of and directly adjacent to the Floresville North Elementary School, near the community of Calaveras. The proposed Project consists of a primary solar array and all associated ancillary facilities to be constructed and installed entirely within the 14.7-acre parcel. Ancillary facilities may include above- and below-ground collection lines, access roads, and temporary construction workspaces. The parcel is currently in pasture, and proposed impacts are expected to include widespread surficial modifications with deeper impacts in location of pilings, foundations, and utilities. During construction of the Project, vegetation clearing and ground-disturbing activities would be required across the Project Area. The pilings will incur the deepest subsurface impacts and are expected to range between 6 and 10 feet below the ground surface.





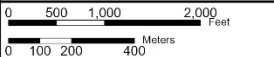
 <p>SWCA ENVIRONMENTAL CONSULTANTS</p>	<p>CALAVERAS SOLAR SITE</p> <p>PROJECT LOCATION WILSON COUNTY, TEXAS</p>	 Calaveras Project Area	<p>1:24,000</p> <p>Created By: jkainer Project Number: 58575 Date: 5/14/2020</p> 
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Figure 1. Project Area location.

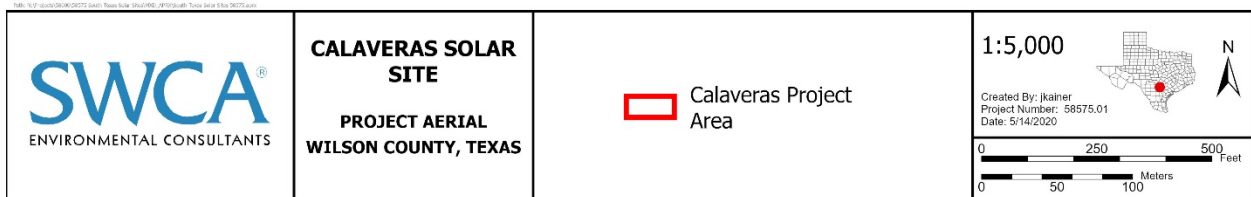


Figure 2. Project Area on aerial imagery map.

Geology and Soils

The Project Area is depicted on the *Saspamco* and *Floresville* USGS 7.5-minute topographic quadrangle maps. The nearest prominent waterway is the San Antonio River, approximately 0.29 mile to the southwest. The surface geology is entirely Eocene Carrizo Sand formation, which includes light yellow, orange, and brown-colored, medium to very coarse grained sandstones between 141 and 200 feet thick (Barnes 1989). The landscape is nearly level uplands, with the main topography of the region deriving from downcutting streams.

Soils mapped within the Project Area include the Aluf and Hitilo soils, undulating. The Aluf soils formed in the sandy sediments of the Carrizo Sand Formation and are found on level to gently undulating uplands with a 0 to 5 percent slope (Figure 3) (NRCS 2020). The upper profile is a pale brown (10YR 6/3) fine sand to a maximum depth of 38 centimeters (15 in) below surface (cmbs). Beneath this is a very pale brown (10YR 7/4) fine sand that extends to 127 cmbs (50 in). In comparison, the Hitilo series is very deep and moderately well drained sandy soil that may have been modified by aeolian processes; these soils are also located on level to gently undulating uplands with slopes ranging from 0 to 5 percent. The upper profile of the Hitilo soils is a pale brown (10YR 6/3) fine sand to a maximum depth of 25 cmbs (9.8 in). Beneath this is a pink (7.5YR 8/4) sand that extends to 117 cmbs (46 in).

BACKGROUND AND HISTORICAL MAP REVIEW

Prior to field efforts, SWCA completed desktop reviews of the project. The Study Area includes the approximately 14.7-acre Project Area plus an additional approximately 0.5-mile area around the project components. The review used the Texas Archeological Sites Atlas online database (THC 2020) for previously conducted surveys and known sites within the Study Area. The review also consulted historical topographic maps available through the USGS Historical Topographic Map Explorer (USGS 2020), the Texas Historic Overlay (Foster et al. 2006), and modern aerial imagery to identify land use practices that may indicate the potential for or presence of cultural resources within the Project Area. No previously recorded archaeological sites or potentially historic-age structures are depicted within the current Project area.

The file search and literature review identified four previously recorded cultural resource surveys within the Study Area; however, the previous investigations do not intersect with the Project Area. Two linear transportation corridor surveys were conducted along FM 3444. The first was conducted on behalf of the Federal Highway Administration in 1989 and is located approximately 0.2 miles north of the Project Area (THC 2020). The second was conducted on behalf of the State Department of Highways and Public Transportation (SDHPT) in 1991 and is located approximately 0.29 miles northeast of the Project Area (THC 2020). Cynthia M. Munoz from The University of Texas at San Antonio - Center for Archaeological Research (UTSA-CAR) completed an area survey for the proposed Helton Nature Park under Antiquities Permit No. 5716. The Helton Nature Park survey was funded by the San Antonio River Authority (SARA), is located approximately 0.3 miles northwest of the Project Area. Finally, in 2014, under Antiquities Permit No. 6849, David Nickels with Tierras Antiguas completed a cultural resources survey for the Flatrock Engineering and the City of Poth, which was located approximately 0.48 miles northwest of the Project Area.

The file search and literature review identified two recorded archeological sites (41WN74 and 41WN120) within the Study Area; neither of these cultural resources overlap with the Project Area (Figure 4). In addition, no NRHP properties, State Antiquities Landmarks (SALs), Official Texas Historical Markers (OTHMs), Registered Texas Historic Landmarks (RTHLs), or local neighborhood surveys were identified within either the Project or Study Areas.



Figure 3. Project Area soils map.

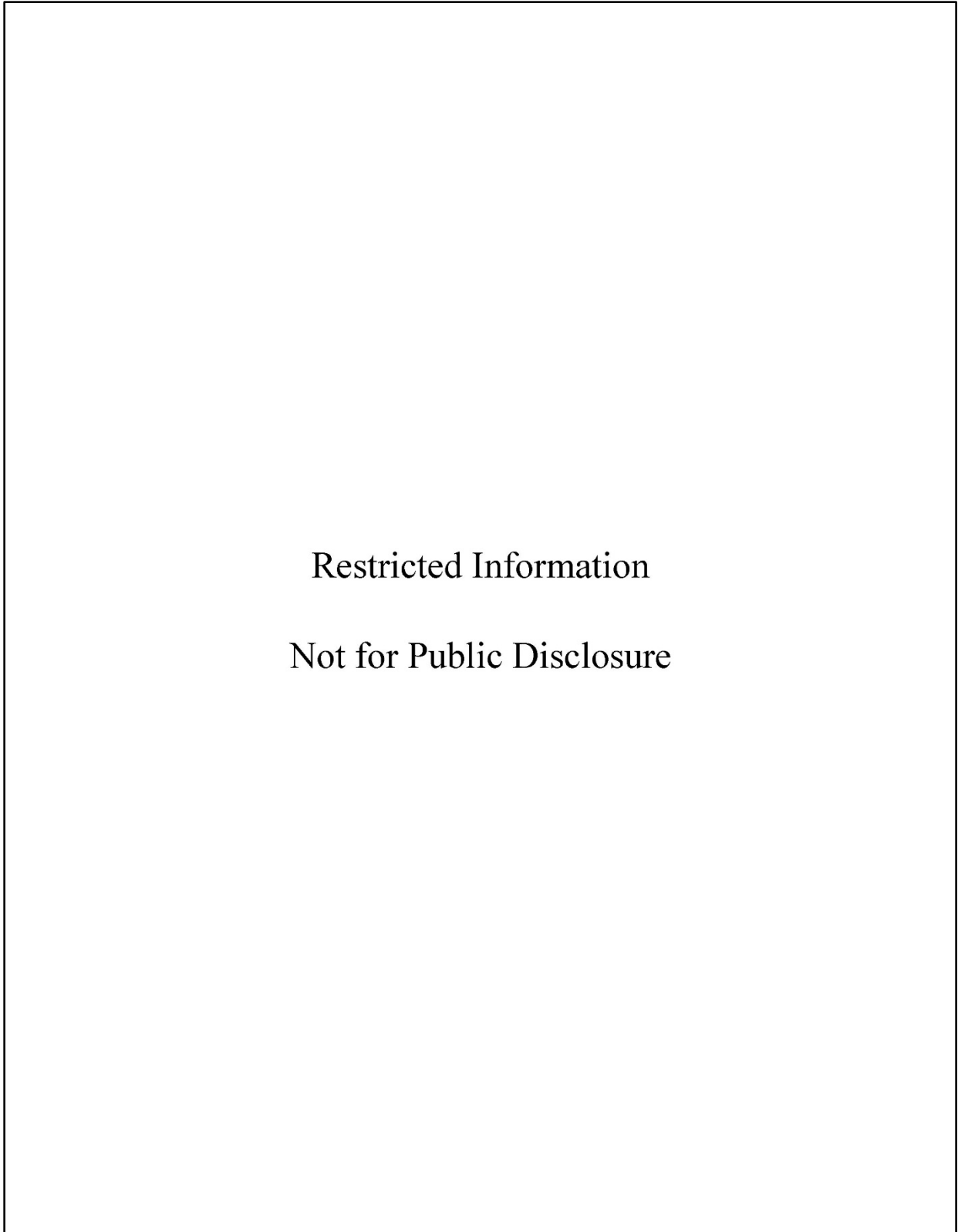


Figure 4. Background review results map.

Site 41WN74 consists of a historic house located approximately 0.31 miles to the west of the current Project Area (see Figure 4). It was identified by Damon Crawford from the State Department of Highways and Public Transportation in 1984. According to the investigators, the brick house and associated out buildings likely date to the 1890's. However, no NRHP eligibility recommendations were submitted (THC 2020).

Site 41WN120 is also located 0.35 miles to the west of the current Project Area, west of the intersection of County Road 128 and FM 775 (see Figure 4). It was identified by Cynthia M. Munoz from the UTSA-CAR in 2010 during a cultural resources survey conducted for the Helton Nature Park; this work was funded by SARA under Antiquities Permit No. 5716. According to the initial investigations, which included shovel testing, hand auger testing, and backhoe trenching:

This site consists of a low density surface scatter of lithic and historic building debris; buried prehistoric and historic cultural material (from 0-60 cm below surface (cmbs) in shovel tests, up to 130 cmbs in backhoe trench, and from 0 to 80 cmbs in a cutbank); a wood pier and beam house; and the brick ruins of an historic structure. One diagnostic artifact, a Refugio dart point, was recovered from this multi-component site on a dirt road skirting the plowed field. This point places the site in the Archaic Period. Historic artifacts excavated from within the brick ruin indicate occupation from the late 1800s into the mid-1900s. Graffiti on the ruin dates to 1913 and 1926. The brick was made locally in the 1890s. The site also contains a wood pier and beam house that appears to have been constructed in the 1940s. (THC 2020)

FIELD SURVEY METHODS

The goal of the investigation was to locate all prehistoric and historic cultural resources within the Project Area, establish vertical and horizontal site boundaries as appropriate within the Project Area, and recommend NRHP and SAL eligibility of any cultural resources located within the Project Area. This investigation followed the guidelines and procedures outlined in the CTA standards for cultural resources investigations, as outlined in the THC's *Rules of Practice and Procedure for the Antiquities Code of Texas*. For project areas between 10 and 100 acres in size, the THC/CTA survey standards require a minimum of one shovel test per every 2 acres, which equates to minimally eight shovel tests across the 14.7-acre Project Area. Additional shovel testing may be required to delineate cultural resources. Factors such as disturbances, site probability, and exposures may also affect shovel testing intensity.

The intensive pedestrian survey consisted of a qualified SWCA archaeologist walking and inspecting the Project Area using a series of parallel 30-m-wide (98.4 ft) transects. The survey examined the ground surface for cultural material and features, documented features of the landscape, documented modifications and disturbances in the area, and used shovel tests and erosional exposures, where present, to assess the potential for subsurface archaeological deposits. Shovel tests were excavated in areas that did not show signs of extensive prior disturbance, consisted of soils believed to have a potential for buried deposits close enough to the surface to be detected through this method of subsurface investigation, and had less than 30 percent ground surface visibility. Shovel tests were excavated in 20-cm (7.9 in) arbitrary levels to a depth of 1 meter (39.4 in) unless soil conditions or argillic horizon precluded reaching that depth. All matrix was screened through ¼-inch mesh for artifact recovery. SWCA plotted each shovel test location using a sub-meter accurate global positioning system (GPS) receiver and recorded each test on appropriate field forms during survey investigations.

FIELD SURVEY RESULTS

SWCA conducted an intensive archaeological survey of the proposed 14.7-acre Project Area on April 30, 2020. The survey included ground surface inspection augmented with shovel testing and the inspection of any available surface exposures. The Project Area consists of undeveloped, open parcel situated on an upland rolling hill. The peak of the hill begins in the northeast corner of the Project Area and continues as a small ridge to near the center, then gently slopes from the small ridge to the east and southwest corner of the Project Area. Vegetation within the Project Area consists of short grasses with the occasional mesquite, scrub brush, and cacti (Figures 5 and 6). Ground surface visibility ranged between 20 and 40 percent. A brush pile located on the northern edge of the Project Area suggests previous vegetation clearing. A dense concentration of limestone gravels with occasional unmodified chert gravels was present on the surface across the southwest portion of the Project Area. A paved, private road follows the northwest and southwest boundaries and a fence follows the northeast boundary.

Subsurface examination of the Project Area involved the excavation of 16 shovel tests (i.e., RJ01–RJ16) (Table 1; Figure 5). The investigation exceeded the THC’s standards for shovel testing for projects of this size. Shovel tests typically contained a light yellowish brown (10YR 6/4) to pale brown (10YR 7/4) sand to depths ranging between 30 and 100 cmbs (11.8 and 39.4 in), overlying a yellowish brown (10YR 5/6) to light brownish grey (10YR 6/2) sandy clay. All of the sand layers contained 1 to 2 percent angular eroded limestone gravel inclusions. Additionally, the sandy clay layers contained red (2.5YR 5/8) and yellow (10YR 7/8) mottling with occurrence ranging between 5 and 20 percent.

The Project Area is located approximately 0.25 miles southeast topographically upslope of a mapped Holocene terrace deposit associated with the San Antonio River. These lowland areas have deep and relatively recently deposited soils with a high potential for containing deeply buried cultural material. Due to the proximity of the Project Area in the upland valley margin to the river and the associated soils, care was taken to ensure these deep, recently deposited soils did not encroach within the Project Area. The soils encountered in the shovel tests throughout the Project Area were consistent with the descriptions for Hilito and Aluf soils series that have been modeled for the area (Figures 3 and 7) (NRCS 2020). These soils are formed in uplands and are not found within floodplains or terraces, which is expected given the upland landform setting of the Project Area. Angular degrading limestone gravels were found within the sandy deposits, suggesting shallow limestone bedrock in the area. Additionally, the sandy clay soils underlying the sandy soils contained a high degree of iron oxidation (Figure 8), further suggesting older, possibly pre-Holocene age soils. Through this evidence, SWCA determined the encountered soils within the Project Area represents older upland deposits situated on shallow limestone bedrock; therefore, the Project Area has a low potential for deeply buried cultural materials.

Of the 16 excavated shovel tests, one (RJ08) contained cultural material (Figure 5). A single tertiary chert flake was found between 30 and 40 cmbs (11.8 and 15.7 in). The flake material is a dark brown chert and it terminates in a hinge fracture (Figure 9). There is no evidence of flake utilization or retouching on the margins. The positive shovel test is located on the shoulder of the central hill in the Project Area, just outside of a small concentration of mesquite trees (Figure 10). Eight additional shovel tests were excavated around the positive shovel test, with two shovel tests in each of the cardinal directions, spaced at approximately 15-meter (49 ft) intervals (see Figure 6). No additional cultural materials were observed within the shovel tests. As the single flake does not rise to the level of an archaeological site, the artifact is considered to be an isolated find (IF01) and does not require avoidance or mitigation measures.

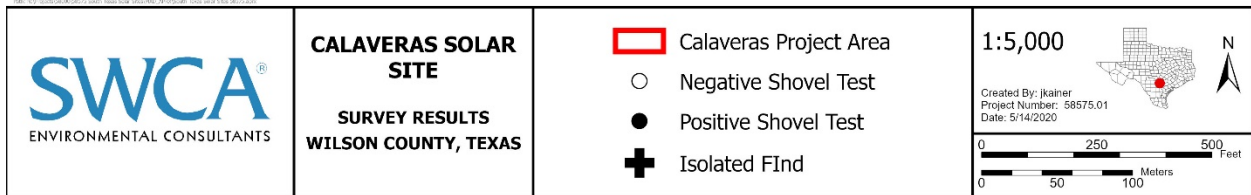
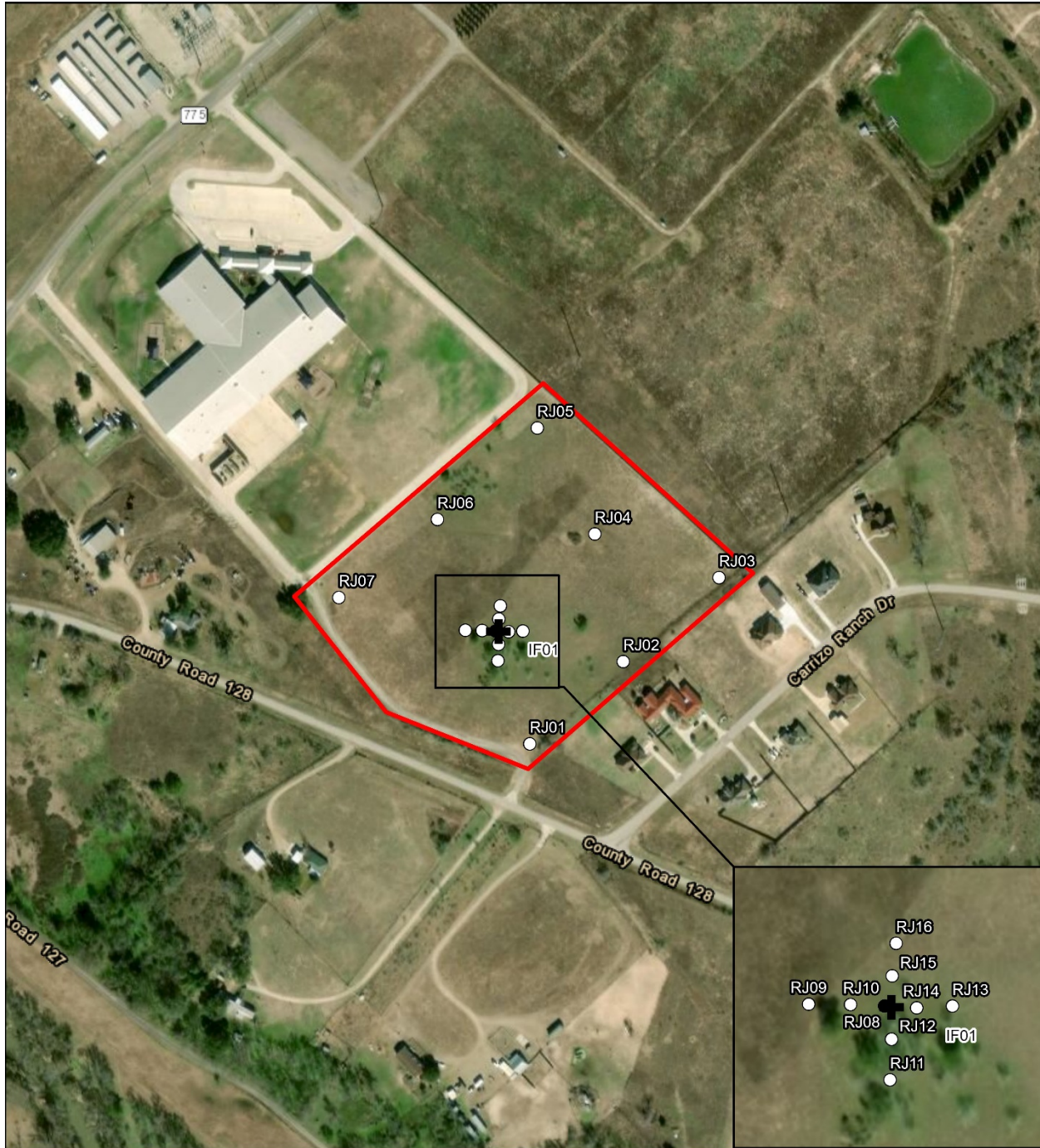


Figure 5. Cultural resources survey results map.



Figure 6. Overview of landscape and vegetation throughout Project Area, facing west.



Figure 7. Shovel test RJ01 represents the typical shovel test excavated within the Project Area.

Table 1. Shovel Test Data

Shovel Test No.	Site	Depth (cmbs)	Munsell Value	Soil Color	Soil Texture	Inclusions	Negative/Positive	Comments/ Reason for Termination
RJ01	-	0-40	10YR 7/4	Very pale brown	Sand	3% limestone fragments	Negative	10 meters northeast of a paved road. Terminated at depth.
		40-100	10YR 6/4	Light yellowish brown	Sand	2% limestone fragments	Negative	
RJ02	-	0-50	10YR 7/4	Very pale brown	Sand	1% gravels	Negative	Terminated at clay compaction.
		50-60	10YR 7/2	Light gray	Sandy clay	15-20% clay mottles at 2.5YR 5/8 and 10YR 7/8	Negative	
RJ03	-	0-40	10YR 7/4	Very pale brown	Sand	2% gravels	Negative	Terminated at clay compaction.
		40-100	10YR 6/4	Light yellowish brown	Sand	1% natural chert	Negative	
RJ04	-	0-100	10YR 7/4	Very pale brown	Sand	1% gravels	Negative	Terminated at depth.
RJ05	-	0-50	10YR 6/4	Light yellowish brown	Sand	1% gravels	Negative	Terminated at clay compaction.
		50-60	10YR 7/2	Light gray	Sandy clay	15-20% clay mottles at 2.5YR 5/8 and 10YR 7/8	Negative	
RJ06	-	0-30	10YR 6/4	Light yellowish brown	Sand	1% gravels	Negative	Terminated at clay compaction.
		30-35	10YR 7/2	Light gray	Sandy clay	15-20% clay mottles at 2.5YR 5/8 and 10YR 7/8	Negative	
RJ07	-	0-40	10YR 7/4	Very pale brown	Sand	2% gravels	Negative	Terminated at clay compaction.
		40-70	10YR 6/4	Light yellowish brown	Sand	1% gravels	Negative	
		70-100	10YR 5/6	Light gray	Sand	1% gravels	Negative	
RJ08	IF01	0-30	10YR 7/4	Very pale brown	Sand	1% gravels	Negative	Terminated at clay compaction.
		30-40	10YR 6/4	Light yellowish brown	Sand	1% gravels	Positive	
		40-45	10YR 7/1	Light gray	Sandy clay	15-20% clay mottles at 2.5YR 5/8 and 10YR 7/8	Negative	
RJ09	IF01	0-30	10YR 6/4	Light yellowish brown	Sand	1% gravels	Negative	Terminated at clay compaction.
		30-40	10YR 5/6	Yellowish brown	Sandy clay	-	Negative	
RJ10	IF01	0-40	10YR 6/4	Light yellowish brown	Sand	1% gravels	Negative	Terminated at clay compaction.
		40-45	10YR 5/6	Yellowish brown	Sandy clay	-	Negative	
RJ11	IF01	0-40	10YR 6/4	Light yellowish brown	Sand	1% gravels	Negative	Terminated at clay compaction.
		40-45	10YR 5/6	Yellowish brown	Sandy clay	20% clay mottles at 2.5YR 5/8 and 10YR 7/8	Negative	
RJ12	IF01	0-30	10YR 6/4	Light yellowish brown	Sand	1% gravels	Negative	Terminated at clay compaction.
		30-35	10YR 6/2	Light brownish gray	Sandy clay	20% clay mottles at 2.5YR 5/8 and 10YR 7/8	Negative	

Shovel Test No.	Site	Depth (cmbs)	Munsell Value	Soil Color	Soil Texture	Inclusions	Negative/Positive	Comments/ Reason for Termination
RJ13	IF01	0-40	10YR 6/4	Light yellowish brown	Sand	–	Negative	Terminated at clay compaction.
		40-50	10YR 6/2	Light brownish gray	Sandy clay	20% clay mottles at 2.5YR 5/8 and 10YR 7/8	Negative	
RJ14	IF01	0-40	10YR 6/4	Light yellowish brown	Sand	–	Negative	Terminated at clay compaction.
		40-50	10YR 6/2	Light brownish gray	Sandy clay	20% clay mottles at 2.5YR 5/8 and 10YR 7/8	Negative	
RJ15	IF01	0-50	10YR 6/4	Light yellowish brown	Sand	–	Negative	Terminated at clay compaction.
		50-70	10YR 6/2	Light brownish gray	Sandy clay	20% clay mottles at 2.5YR 5/8 and 10YR 7/8	Negative	
RJ16	IF01	0-40	10YR 6/4	Light yellowish brown	Sand	–	Negative	Terminated at clay compaction.
		40-50	7.5YR 5/8	Strong brown	Sandy clay	5% clay mottles at 2.5YR 5/8	Negative	



Figure 8. Example of the iron oxidation within the sandy clay subsoils, from shovel test RJ02.



Figure 9. IF01, tertiary chert flake found in shovel test RJ08.



Figure 10. Overview photograph of IF01 location, facing east.

SUMMARY AND RECOMMENDATIONS

On behalf of DG Central 1, a subsidiary of NextEra Energy Resources, LLC, SWCA conducted a cultural resources survey of an approximately 14.7-acre parcel proposed for the Calaveras Solar Project. The Project involves the construction of a primary solar array and all associated ancillary facilities within the proposed parcel in Wilson County, Texas. Anticipated impacts include widespread surficial disturbances across the Project Area, with the deepest impacts not exceeding 10 feet below the ground surface.

The cultural resources investigation consisted of a background and historical map review of the Project Area and a 0.5-mile Study Area, followed by an intensive archaeological pedestrian survey augmented by shovel testing within the Project Area. The background and historical map review identified no previously recorded archaeological sites or surveys within the Project Area, NRHP properties, SALs, OTHMs, RTHLs, local neighborhood surveys, or cemeteries within the Project or Study Areas (THC 2020). Additionally, the historic map review did not reveal any potentially historic-age structures depicted within the Project Area (USGS 2020).

SWCA archaeologists conducted an intensive archaeological survey augmented by shovel testing on April 30, 2020. During the survey, SWCA archaeologists excavated a total of 16 shovel tests within the 14.7-acre Project Area. A single tertiary chert flake was observed in one of the shovel tests at a depth of approximately 30 to 40 cmbs (11.8 to 15.7 inches). Eight shovel tests were excavated with two shovel tests radiating in each of the cardinal directions from the positive shovel test, at 15-meter intervals (49 ft). All of the additional radial shovel tests proved negative for cultural materials and the single identified flake is considered to be an isolated find. As such, the single flake does not rise to the level of an archaeological site and does not require avoidance or mitigation. No further cultural resources were identified on the ground surface or within any of the excavated shovel tests within the Project Area.

In accordance with the ACT, SWCA has made a reasonable and good faith effort to identify archaeological resources within the Project Area. No properties were identified within the Project Area that meet the criteria for listing as a SAL or a NRHP property. As such, SWCA recommends that no additional cultural resources investigations are warranted within the Calaveras Solar Project Area, as currently defined.

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