A CULTURAL RESOURCES INVESTIGATION FOR THE RAMSEY GAS PLANT EXPANSION PROJECT, REEVES COUNTY, TEXAS

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ABSTRACT

This report details the results of an intensive archaeological survey by SWCA Environmental Consultants (SWCA) for the proposed Ramsey Gas Plant Expansion project located in Reeves County, Texas. Nuevo Midstream, LLC (Nuevo), owns and operates the Ramsey Gas Plant, which is a natural gas processing facility near Orla. The plant currently has three trains with a capacity of 300 million standard cubic feet/day (MMscf/d). The continued development of shale plays in the area has resulted in the need for additional processing and treatment capacity. Consequently, Nuevo is proposing to add an additional three trains to increase the total plant capacity to 900 MMscf/d (Sound Environmental Solutions, Inc. 2014).

The project is subject to Prevention of Significant Deterioration (PSD) review for carbon monoxide, nitrogen oxides, volatile organic compounds including hazardous air pollutants, particulate matter, and sulfur dioxide by the Texas Commission on Environmental Quality (TCEQ) and review of greenhouse gases by the U.S. Environmental Protection Agency (EPA). The requirements for these permits include emission controls and standards that meet the TCEQ and EPA Best Available Control Technology guidelines. The proposed facilities will use emission controls that satisfy all requirements of the PSD as described in the permit applications (Sound Environmental Solutions, Inc. 2014). Per EPA regulations, any cultural resources located within the expansion footprint must be addressed before the expansion work can begin.

Sound Environmental Solutions, Inc., selected SWCA to conduct an archaeological survey of the project area, hereafter referred to as area of potential effect (APE). The project APE totals approximately 30.3 acres. Additionally, a100-foot. 9.1-acre buffer on the east, west, and south sides of the APE was surveyed to assess the possibility of indirect (secondary) impacts to cultural resources outside the APE in the form of increased human traffic and erosion from project construction activities. All work will take place on property owned by Nuevo using existing access roads and temporary work areas.

The background literature review determined that no cultural resources have been identified within the APE, and none are documented within a 1-mile radius of the APE (Texas Historical Commission 2014a). The nearest previously documented archaeological site is approximately 6.25 miles east-northeast of the APE, near Red Bluff Reservoir, and few cultural resources surveys have been conducted in the project vicinity. Based on these data, areas in the region with a higher probability for archaeological resources would likely coincide with permanent or ephemeral water sources.

SWCA archaeologists surveyed the 30.3-acre APE and the 9.1-acre 100-foot buffer on the east, west, and south sides of the APE; no archaeological sites or isolated finds were identified. The buffer area has not been disturbed, but the area within the Ramsey Gas Plant property boundary has been subjected to considerable previous and ongoing disturbance due to plant construction work and maintenance. The indirect/visual APE (visual effects) analysis was conducted to address potential indirect impacts that could occur to historic properties from power station construction and maintenance and from construction of the interconnected activities; the project would not visually affect historic properties that are eligible for inclusion to the NRHP. It is recommended that a finding of No Historic Properties Affected be applied to this undertaking in respect to visual effects. Based on these findings, SWCA recommends a finding of no historic properties affected for the proposed expansion of the Ramsey Gas Plant. No further archaeological work is recommended; however, if previously undocumented or buried cultural resources are identified during ground-disturbing activities, all work in the immediate vicinity of the discovery should stop until the find can be evaluated by a professional archaeologist.

MANAGEMENT SUMMARY

Report Title. A Cultural Resources Investigation for the Ramsey Gas Plant Expansion Project, Reeves County, Texas

Report Date. May 27, 2014

SWCA Project Number. 29179

Agency Name. U.S. Environmental Protection Agency

Permit No. N/A

Project Description. SWCA Environmental Consultants (SWCA) conducted an archaeological background review and intensive pedestrian survey of the proposed expansion of the Ramsey Gas Plant to determine whether the undertaking will impact any significant archaeological resources.

Project Location. The project area of potential effect (APE) is located within the existing Ramsey Gas Plant approximately 10 miles northwest of Orla in Reeves County, Texas. The APE may be found on the Screw Bean Draw NE U.S. Geological Survey 7.5-minute quadrangle (31104-H1).

Number of Acres Surveyed. 30.3 acres of APE and 9.1 acres of cultural resources survey buffer, for a total of 39.4 acres.

Principal Investigator. Matthew Bandy, Ph.D.

Dates of Work. April 2–3, 2014

Purpose of Work. Nuevo Midstream, LLC, proposes to expand its Ramsey Gas Plant located in Reeves County, Texas, by adding an additional three trains to increase the total plant capacity from 300 million standard cubic feet/day (MMscf/d) to 900 MMscf/d.

Number of Sites. No sites or isolated finds were identified during this survey.

Eligibility of Sites. No sites or isolated finds were found within the APE.

Curation. No artifacts were collected.

Comments. No sites were observed.

DEFINITION OF STUDY AREA

Nuevo Midstream, LLC, (Nuevo) currently owns and operates the Ramsey Gas Plant consisting of three permitted gas trains and associated equipment (Ramsey I, II, and III). Nuevo proposes to expand the facility to include an additional three trains (Ramsey IV, V, and VI), a change that triggers Prevention of Significant Deterioration (PSD) permitting. The Ramsey Gas Plant is approximately 10 miles northwest of Orla, Texas, and approximately 2.4 miles west of U.S. Highway 285. The project is located in the Screw Bean Draw NE U.S. Geological Survey (USGS) 7.5-minute quadrangle (31104-H1). Specifically, the coordinate for the front gate of the Ramsey Gas Plant is latitude 31.927337° and longitude -104.021693° (North American Datum 83) (Figure 1). By definition, the assessment's action area is the area that is directly or indirectly affected by the proposed expansion.

The Ramsey Gas Plant is located on an approximately 50-acre rectangular site. The currently permitted and operating trains occupy about 21.6 acres on the north half of the property. The expansion (Ramsey IV–VI), also known as the area of potential effect (APE), will be located on approximately 30.3 acres to the south of the existing facilities (Figure 1 and Figure 2). This area has already been cleared and graded, as it was used as laydown and temporary work space during the construction of Ramsey II and III. The cultural resource survey included a 9.1-acre, 100-foot buffer on the east, west, and south sides of the APE.

Because the expansion will take place on an existing site adjacent to existing facilities, there are no additional linear features associated with the expansion, as the access roads and pipelines are already in place and the existing site is large enough to accommodate any temporary workspaces and laydown areas. In addition, air modeling demonstrated that there are no parameters above their respective Significant Impact Levels (SILs) outside the Ramsey Gas Plant's property boundary. Therefore, for the purposes of the cultural resources survey, the APE was determined to be the expansion area where Ramsey IV–VI would be located with a 100-foot buffer on the west, east, and south sides to be conservative (see Figure 2).

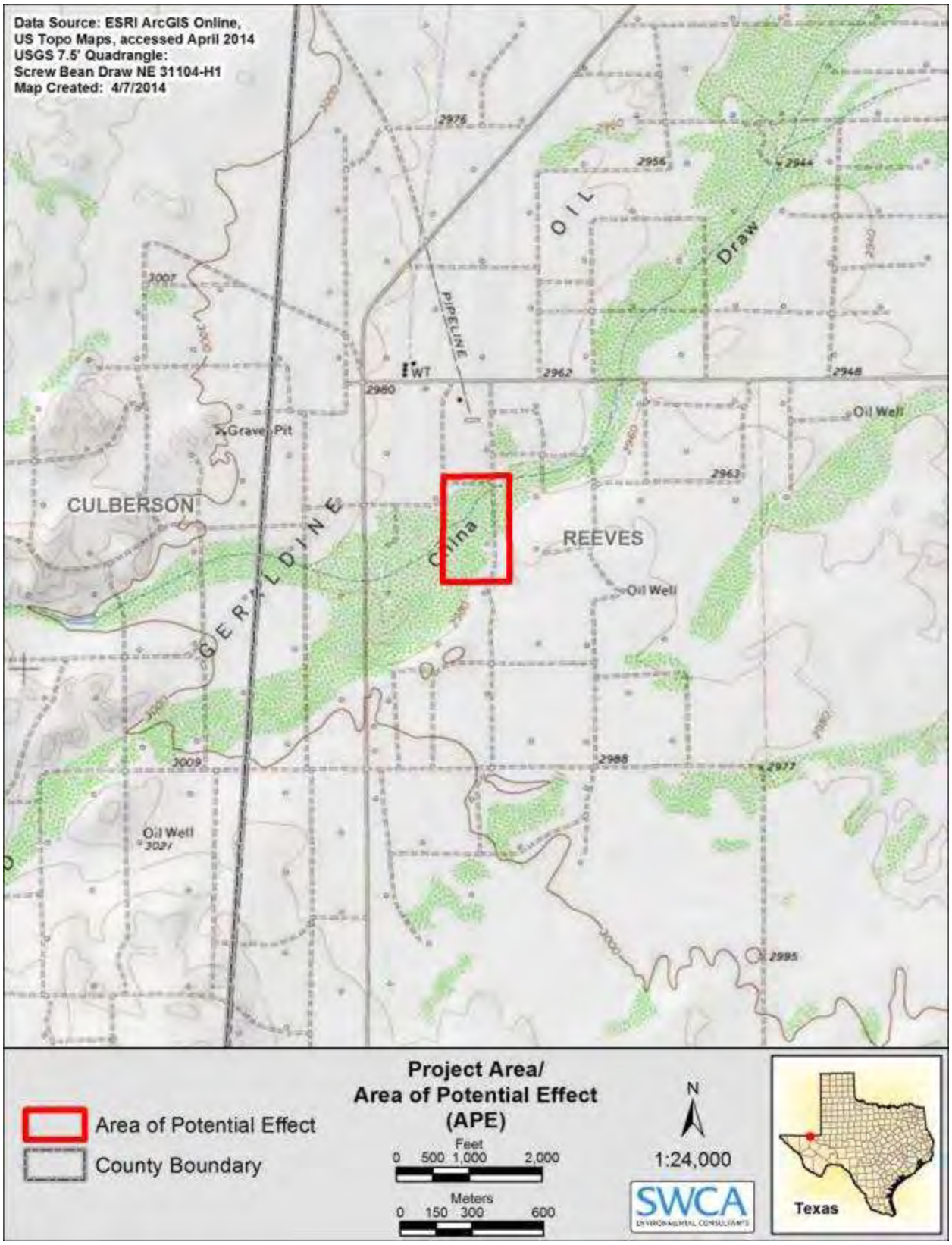

Figure 1. Project area/area of potential effect location map.

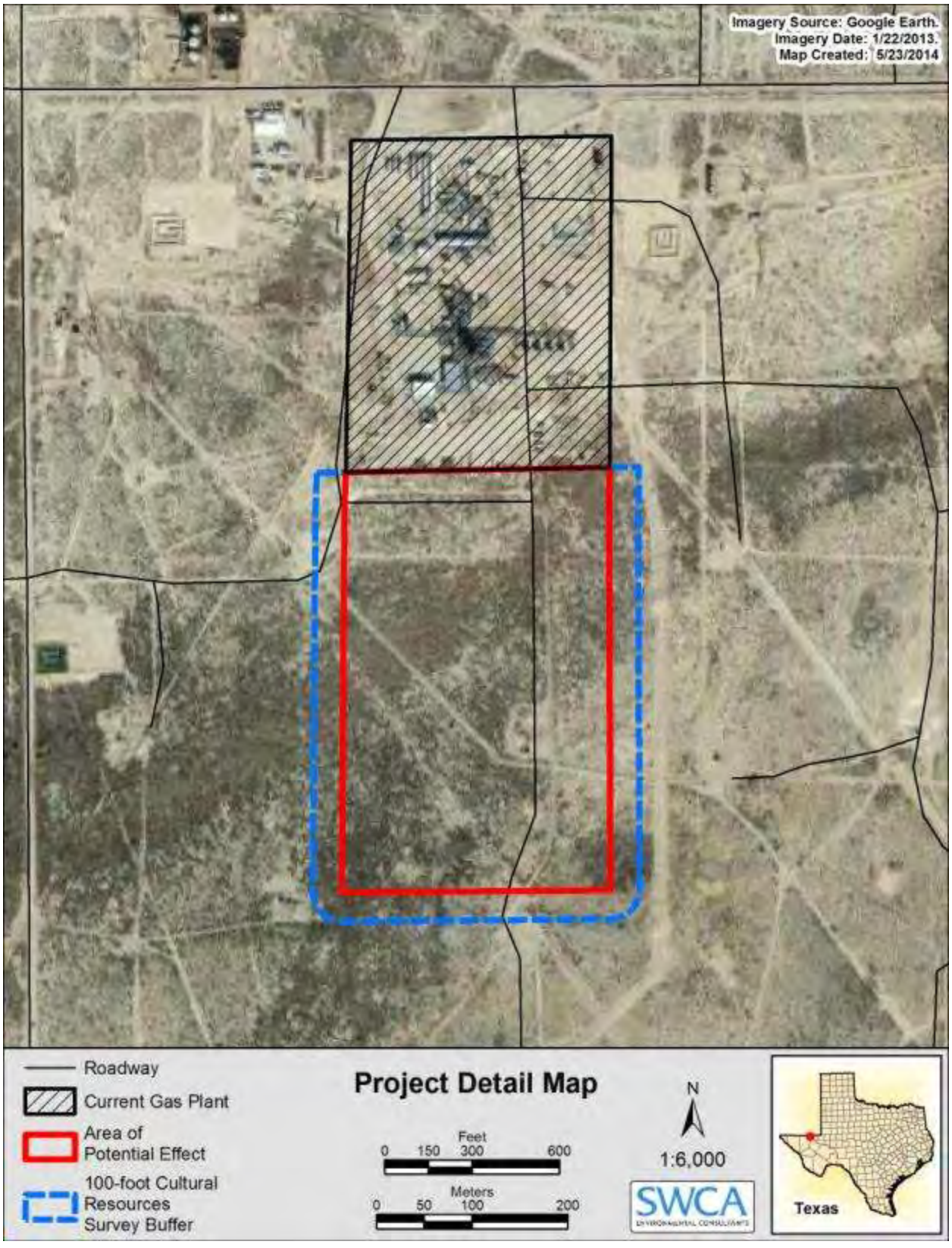

Figure 2. Project detail map.

NATURAL SETTING

The project area is in the Interior Plain Geologic Province. The USGS reports that

> The Interior Plains is a vast region that spreads across the stable core (craton) of North America. This area had formed when several small continents collided and welded together well over a billion years ago, during the Precambrian. Precambrian metamorphic and igneous rocks now form the basement of the Interior Plains and make up the stable nucleus of North America. With the exception of the Black Hills of South Dakota, the entire region has low relief, reflecting more than 500 million years of relative tectonic stability. *(USGS 2014)*

The northern portion of the APE is composed of older alluvial deposits, a Pleistocene alluvium, and caliche on surfaces dissected by modern drainages in Trans-Pecos areas; the southern portion of the project area is defined by alluvium, Holocene deposits along streams of sand, silt, clay, and gravel (USGS 1997). Approximately 25.4 acres/83.8 percent of the APE soils are defined as Reakor association, a nearly level, well-drained, moderately alkaline loam from 0 to 8 inches with moderately alkaline, clay loam from 8 to 60 inches underneath. The remaining approximately 4.91 acres/16.2 percent in the southeast corner of the APE is composed of Hoban-Reeves-Holloman association, a well-drained, nearly level moderately alkaline, clay loam from 0 to 18 inches underlain by moderately alkaline, silty clay loam from 18 to 72 inches. Within the 100-foot, 9.1-acre survey buffer, 5.6 acres/62.3 percent are defined as Reakor association, while the remaining 37.7 acres/3.4 acres composed of Hoban-Reeves-Holloman association (Natural Resources Conservation Service 2014) (Figure 3). Vegetation observed in the project area includes Texas prickly pear, honey mesquite, and creosotebush. Animals found in the area include jackrabbit and cottontail, some deer, pronghorn, various rats and mice, coyote, snakes, turtles, quail, and badger.

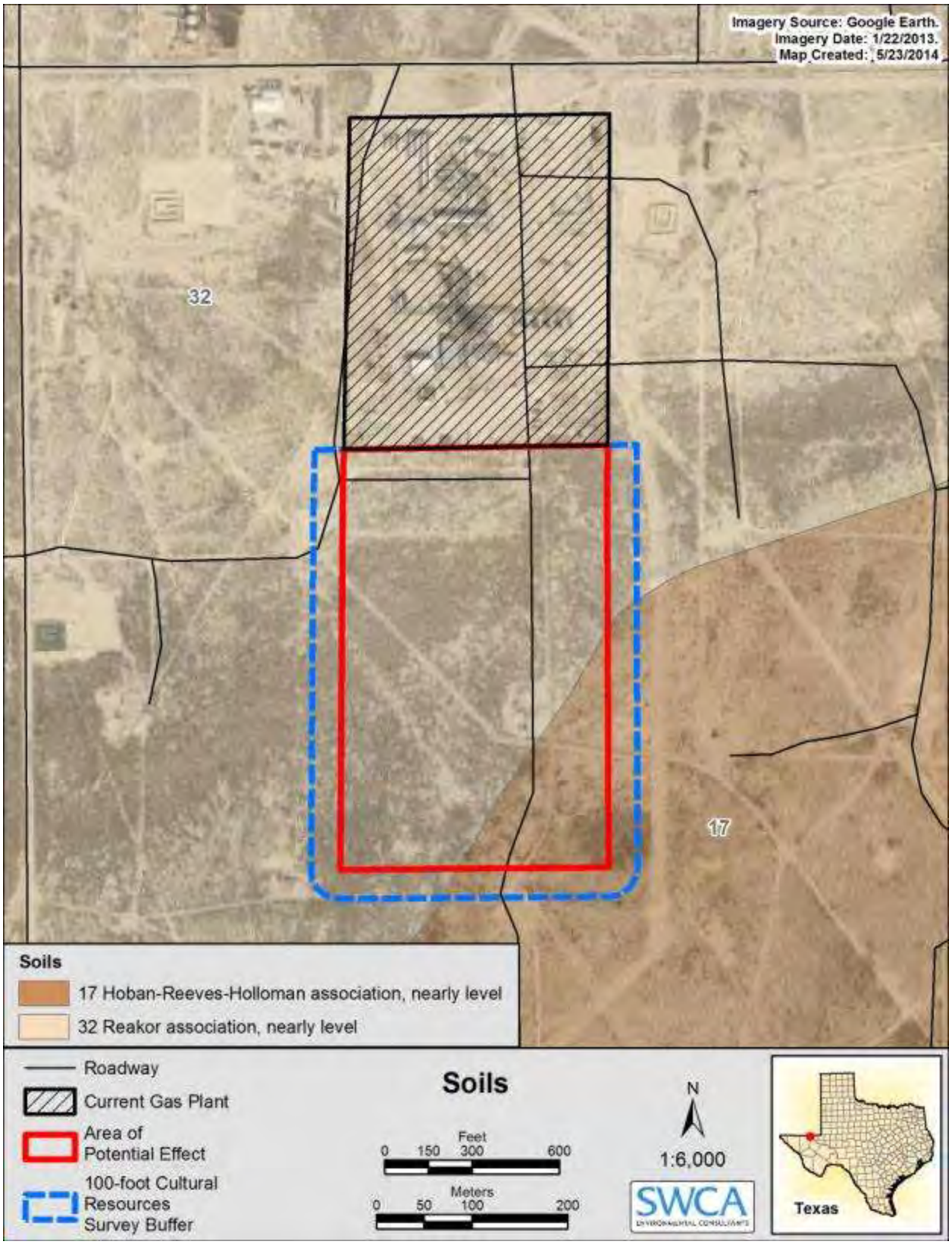

Figure 3. Soils map of the APE and cultural resources survey buffer.

CULTURAL RESOURCES RECORDS REVIEW AND FINDINGS

Cultural Setting

The region has a long history of human use. The earliest remains date to the end of the Pleistocene, and Native American populations were living in the region, primarily along rivers, when the Spanish first entered the area. A more detailed overview of prehistory of the Jornada Mogollon area can be found in O'Laughlin and Martin (1993).

Paleoindian Period

The earliest occupants of the Jornada Mogollon region are associated with the Paleoindian period (9000–6000 B.C.). Few remains associated with these early people have been identified in the region. Their presence is most often documented by the discovery of isolated projectile points that distinguish these people from later times. Points are commonly lanceolate and fluted. Paleoindians are generally thought to have lived in small bands. They hunted late Pleistocene megafauna, including mammoth and bison, and consumed other animals as well as plants. The earliest Paleoindians are associated with the Clovis tradition. Clovis points and sites are few in the general area. Subsequent Paleoindian traditions include the Folsom and Plano traditions. Remains of these later groups are generally more common (O'Laughlin and Martin 1993:17–19).

Archaic Period

The Archaic period in the region is generally dated between 6000 B.C. and A.D. 200. During this time there was a shift from subsistence economies focused on hunting to diversified subsistence economies based on a mix of hunting small game and extensive and intensive use of wild plant resources. Between 4,000 and 2,000 years ago, an environment much like today was established. This was initiated with a prolonged drying period, an increase in winter precipitation, and intensification of the summer monsoon season. This impacted settlement and subsistence patterns (Carmichael 1986; Van Devender and Spaulding 1979).

Despite the documentation of a well-established Archaic period occupation of the region, primarily through surface finds, excavations have been limited. This has made it difficult to document the cultural and subsistence changes that occurred during this extended period of time. Additionally, the excavation and chronometric data at hand are often conflicting. Archaic populations in the region peaked during the Late Archaic period. During this time, cultigens are introduced to and used in the area. Radiocarbon dates indicate corn was introduced between 1665 and 1225 B.C. (Upham et al. 1986), and squash and beans were in use by the end of the Late Archaic period (MacNeish and Beckett 1987). However, it does not appear that cultigens played a major part in the overall diet of Late Archaic peoples.

For the most part, Archaic period sites are identified by the presence of distinctive projectile point types and the presence of slab metates and handstones or one-hand manos. In west Texas, the Late Archaic period is also referred to the Hueco phase (O'Laughlin and Martin 1993:19–22).

Formative Period

The Formative or ceramic period is divided into three phases and defined as the Jornada branch of the Mogollon culture (Lehmer 1948). Study of the Jornada Mogollon languished for decades until the inception of cultural resource management and enforcement of Section 106 of the National Historic Preservation Act. Numerous large-scale surveys and excavations in both the Hueco and Mesilla bolsons resulted in a proliferation of new data that challenge existing paradigms and basic units of analysis. However, as a result new questions and problems arose, many of which are still topics of current research.

MESILLA PHASE

The Mesilla phase is defined by the appearance of ceramic technology, the introduction of the bow and arrow, and the appearance of deep pithouses. Other than the appearance of these traits, in many ways the early Mesilla phase represents a continuum of the Late Archaic lifeway. The diagnostic ceramic type associated with this phase is El Paso Brown, which can be identified by distinctive rim forms. Despite the introduction of pithouses, both round and rectangular, Mesilla phase populations appear to have remained fairly mobile, moving seasonally (O'Laughlin 1980; Whalen 1981a). However, by the end of the Mesilla phase, villages became larger and populations less mobile as settled village life set in with the adoption of agriculture as the primary source of food. Late in the Mesilla phase there is evidence of interregional interaction with the appearance of some Mimbres wares in Mesilla phase contexts. However, this seems limited. It is likely Mesilla phase villages consisted of nuclear or extended families, and there is no evidence of any significant social differentiation within groups (Whalen 1981b). The phase is generally dated ca. A.D. 1 to 1100 (O'Laughlin and Martin 1993:25–30).

DOÑA ANA PHASE

The Doña Ana phase is the least well understood of the three Formative period phases in the Jornada area. As initially defined (Lehmer 1948), the phase is seen as a transitional phase between the earlier Mesilla phase and the subsequent El Paso phase. It is said to exhibit traits of both, and it is dated between A.D. 1100 and 1200. Both residential sites and camp sites make up the settlement system for the Doña Ana phase. Ceramics associated with this phase include El Paso Brown, El Paso Bichrome, and an early version of El Paso Polychrome. Some deep pithouses with unplastered floors and floor features, such as hearths, have been identified. Shallow pit rooms with aboveground adobe walls have also been identified. These are non-contiguous but arranged in a linear fashion and can be seen as precursors to El Paso phase pueblo architecture. There is some evidence to suggest an increase in social and socio-religious complexity. Some rooms are larger than average. These are thought to have functioned as communal rooms. Social groups probably continued to be kin-based nuclear or extended families. There is a continued dependence on agriculture, although hunting and gathering continued to supplement the diet (O'Laughlin and Martin 1993:30–34).

EL PASO PHASE

The El Paso phase is the last prehistoric phase of the Formative period in the Jornada area (Lehmer 1948). Initially dated between A.D. 1200 and 1400, there is some evidence that the phase did not begin until sometime around A.D. 1250, which suggests the Doña Ana phase lasted longer than originally thought. The El Paso phase is defined by the presence of a late variety of El Paso Polychrome; a variety of intrusive ceramics, including Chihuahuan, Salado, and Mogollon types; and adobe-walled pueblos. El Paso phase architecture, once thought to be exclusively aboveground adobe-walled pueblos, also includes pit structures, which probably functioned as field houses. The majority of El Paso phase adobe-walled pueblos are small, with rooms arranged in a linear fashion. Large pueblo sites with enclosed plazas are also known.

The presence of a late variety of El Paso Polychrome distinguishes El Paso phase ceramic assemblages. In general, there is an elaboration of El Paso phase material culture. Not only are intrusive ceramics common, so is a variety of non-local exotic items such as shell, turquoise, and obsidian, indicating that El Paso phase peoples were participating in regional exchange networks. Additionally, variation in site and room size has been interpreted as evidence of social differentiation within and between El Paso phase social groups. There is also evidence for increased ceremonialism and socio-religious integration. This elaboration of material culture is likely related to the florescence of the Casas Grandes culture to the south in Chihuahua, Mexico (O'Laughlin and Martin 1993:36).

A sedentary lifeway appears to be the norm for El Paso phase peoples. Villages are common, and the subsistence base is dominated by several varieties of corn, beans, squash, and bottle gourd. Nevertheless, the role of wild-plant foods remains important. To name a few, mesquite, datil, acorns, cheno-ams, and cacti contributed to the diet. Hunting of small game, rabbit and hares, deer, pronghorn, and other small to medium-sized mammals also continued to contribute to the diet (O'Laughlin and Martin 1993:36).

The Formative period in the region ends with the demise of the El Paso phase sometime around A.D. 1400. Prehistoric agricultural peoples appear to have abandoned the area. It is not known whether this represents a collapse due to climatic shifts that overwhelmed agriculturalists, or whether the collapse was tied to events in the Casas Grandes area and the decline of the Casas Grandes regional system, or both. There is little evidence for occupation of the area after the El Paso phase (O'Laughlin and Martin 1993:38).

Protohistoric and Early Historic Period

Early Spanish accounts document the presence of semi-nomadic horticultural groups in west Texas. In 1598, Don Juan de Oñate encountered a group that became known as Mansos on the Rio Grande just below El Paso. Subsequent chronicling in the 1600s indicates the Mansos exhibited a highly flexible settlement and subsistence systems that made them well adapted to the region. This seems true for most native groups (e.g., Raydos, Ryas, Pataros, Patarueyes, Jumanso, Mansos, and Sumas) living along the Rio Grande in the vicinity of El Paso and southward to La Junta (Camilli et al. 1988:3-37–3-39). In general, the protohistoric and early historic period remains located in the bolsons and plains away from the rivers are difficult to distinguish from earlier hunter-gatherer remains because these areas were used almost exclusively for hunting and gathering throughout human occupation.

Ysleta del Sur

Ysleta del Sur is approximately 145 miles east of the project APE and is the closest Native American reservation in Texas. In 1680, Native American and Spanish refugees of the Pueblo Revolt in New Mexico resettled in the area now called El Paso. Refugees who wished to keep moving south were prevented from doing so and missions were established for the different groups: Senecu (for Piros and Tompiros), Socorro (for Piros, Janos, and Jemez), and Ysleta (for Tiguas). The Ysleta Mission was constructed in 1682 in present-day El Paso and became a permanent settlement in 1692. In 1751, the Tigua Indians received the Ysleta Grant from the King of Spain. The Spanish "del Sur" was added to the name to distinguish it from its mother pueblo of Isleta, located near Albuquerque. Ysleta del Sur is the southernmost of the pueblos that extend northward to Taos Pueblo in New Mexico. Despite several relocations due to consolidation, flooding, and fire, the Ysleta del Sur Pueblo remains one of the oldest communities in Texas and is still very active today (Ysleta del Sur Pueblo 2006).

Historic Orla

Orla, Texas, is the nearest settlement, approximately 10 miles southeast of the APE. According to Smith (2010a):

> Orla is on the Atchison, Topeka and Santa Fe line, U.S. Highway 285, and Farm Road 652, five miles southeast of Red Bluff in northwestern Reeves County. The name is Spanish for "border" and refers to the countryside around the settlement. Orla was established as a section house on the Pecos River Railroad in 1890. A post office was opened there in 1906. By 1933 Orla reported the post office, a business, and a population of ten. Its population remained at ten until after World War II, but the number of businesses increased to two in 1943. The town grew between the late 1940s and the 1950s, the population to forty and then to sixty, and the number of

businesses to three. In the mid-1960s Orla became a rural oil supply center. By the end of the decade its population had reached 250, and it had twelve businesses. From 1970 through 2000 its population was reported at 183, and it had variously anywhere from one to sixteen businesses. In 1990 Orla still supplied equipment for production in nearby Permian Basin oilfields)

Historic Pecos

Pecos, Texas, is the closest large town to the project area and is the county seat of Reeves County, adjacent and to the west of the Pecos River, approximately 46 miles southeast of the project APE. Initially, the settlement was east of the Pecos River, used as camp for cattle drives. The growing town moved to the west side of the Pecos River and George Knight "offered Texas and Pacific Railway a location for a depot and a gift of several town blocks. The railroad accepted his offer and built its tracks through the area in 1881. The town was called first Pecos Station, then Pecos City, and finally Pecos" (Smith 2010b). The population steadily grew with a population of 150 in 1885, 639 in 1904, and 1,856 by 1914. At its incorporation in 1929, Pecos had 4,000. During World War II, the Pecos Army Air Field and a number of other military installations in the vicinity brought in new residents, with the population growing steadily and in 2000 the population was 9,501. Today, Pecos is a ranching, farming, and oilfield center and is home to the annual West of the Pecos Rodeo and the West of the Pecos Museum (Smith 2010b).

Background Review

SWCA Environmental Consultants (SWCA) performed a cultural resources file records review on March 27, 2014, to determine whether the APE has been previously surveyed for cultural resources and whether any archaeological sites have been recorded in or near the APE. To conduct this review, SWCA project manager Christopher Carlson searched the Texas Historical Commission (THC) Texas Archeological Sites Atlas (THC 2014a) database and site files at Texas Archeological Research Laboratory. These sources provide information on the nature and location of previously conducted archaeological surveys, previously recorded cultural resource sites, locations of National Register of Historic Places (NRHP) properties, sites designated as State Archeological Landmarks (SALs), Official Texas Historical Markers, Registered Texas Historic Landmarks, cemeteries, and local neighborhood surveys.

Native American Tribal Interests

The Comanche Nation of Oklahoma and the Tonkawa Tribe of Oklahoma are specifically identified on the THC (2014b) dataset as including Reeves County in their area of interest. Nineteen additional tribes have a known interest in Texas, but their territorial-interest extent is not listed (Table 1). Discussed in detail in Cultural Setting, above, Ysleta del Sur is approximately 145 miles east of the project APE and is the closest Native American reservation in Texas.

Table 1. Native American Tribes with Possible Territorial Interests in the Area of Potential Effect

Alabama-Coushatta Tribe of Texas	Kialegee Tribal Town	Seminole Nation of Oklahoma
Alabama-Quassarte Tribal Town	Kickapoo Traditional Tribe of Texas	Thlopthlocco Tribal Town
Apache Tribe of Oklahoma	Kickapoo Tribe of Oklahoma	Tunica-Biloxi Tribe
Caddo Nation	Kiowa Tribe of Oklahoma	United Keetoowah Band of Cherokee Indians
Cherokee Nation of Oklahoma	Mescalero Apache Tribe	Wichita and Affiliated Tribes
Coushatta Tribe of Louisiana	Poarch Band of Creek Indians	
The Delaware Nation	Quapaw Tribe of Oklahoma	

Field Methods

The goal of the archaeological survey was to locate all prehistoric and historic archaeological sites in the defined APE, establish vertical and horizontal site boundaries as appropriate, and evaluate the significance and eligibility of any sites recorded for designation as an SAL. The proposed expansion is a block survey consisting of approximately 30.3 acres, which includes a 9.1- acre, 100-foot buffer on the east, west, and south sides, for a total of 39.4 acres of survey. This survey was conducted as an intensive pedestrian survey with 100 percent ground coverage. The survey was conducted at 15-meter intervals in parallel transects within the APE. Temporally diagnostic artifacts, if present, were to be described in detail and photographed in the field. Only especially rare artifacts or discoveries were to be collected.

PROJECT RESULTS AND RECOMMENDATIONS

Background Review

The background literature review determined that no cultural resources or previous archaeological surveys have been identified within the APE, and none are documented within a 1-mile radius of the APE (THC 2014a). The nearest previously documented archaeological site is approximately 6.25 miles east-northeast of the APE, near Red Bluff Reservoir and few cultural resources surveys have been conducted in the project vicinity. Based on these data, areas in the region with a higher probability for archaeological resources would likely coincide with permanent or ephemeral water sources.

The nearest archaeological survey to the APE is a small block-area investigation that found no cultural resources, 16.5 miles to the west-southwest. An Official Texas Historical Marker is 2.6 miles from the APE along U.S. Highway 285, erected in 1936 and commemorating Pope's Crossing, a path across the Pecos River used by emigrants and Southern (Butterfield) Mail, which linked St. Louis with San Francisco in the latter half of the nineteenth century, as well as the 1855 site of a deep water well to a depth of 1,140 feet before the well collapsed in the same area. The marker is 4.9 miles southwest of the actual Pope's Crossing location (now covered by Red Bluff Lake), 6 miles northeast of the APE. No other cultural resources were found on Atlas (THC 2014a).

Survey Results

The archaeological survey found no new archaeological sites or isolated occurrences. The visual effects analysis identified no sensitive historic properties within the indirect/visual effects APE, and only a weak visual contrast that would result from project construction. SWCA recommends a finding of No Historic Properties Affected in regards to visual effect to cultural resources.

Visual Effects Analysis

The indirect/visual APE (visual effects) analysis was conducted to address potential indirect impacts that could occur to historic properties from power station construction and maintenance and from construction of the interconnected activities. Analysis of the indirect/visual APE extended 5 miles from the proposed Ramsey Gas Plant Expansion project (Figure 4). The visual effects analysis area used here is considerably larger than what is normally analyzed, even for visually obtrusive activities such as electrical transmission line construction. Visual effects analysis of recent transmission line projects in the desert Southwest, such as the SunZia project, has typically been limited to a 3-mile buffer surrounding the project centerlines. The analysis conducted here is divided into three stages:

1. Visual contrast. Visual effects to historic properties may be caused by perceived changes in the visual quality of the landscape produced by the construction and maintenance of a proposed facility.
2. Identification of sensitive resources. Visual contrasts produced by proposed activities and facilities may affect the capacity of a resource to convey its significance—in technical terms, its "integrity." Some resource types are more sensitive than others to visual contrast.
3. Assessment of visual effects. In this stage, visual contrast is assessed with respect to specific sensitive resources in order to assess the effects of the project on resource integrity.

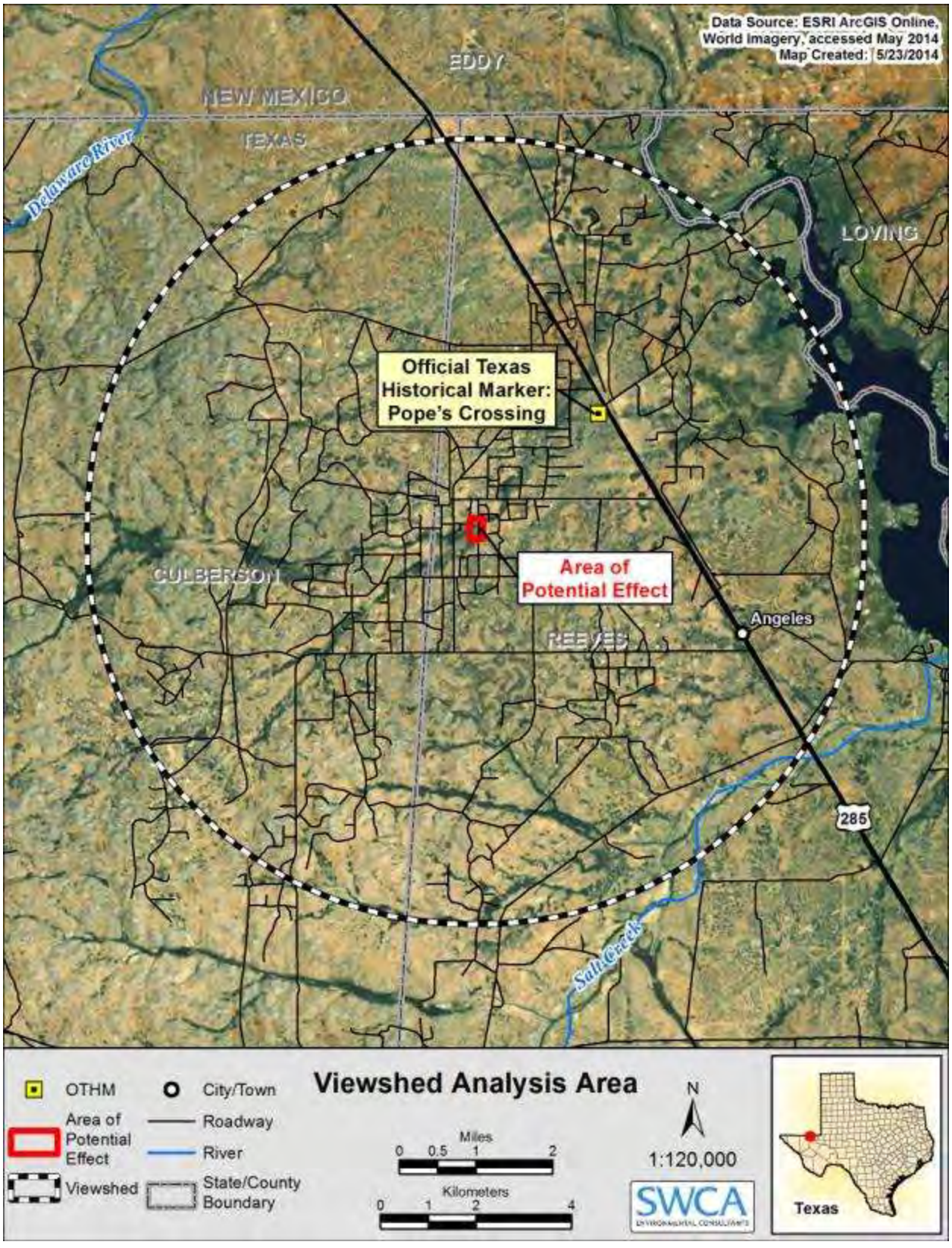

Figure 4. **Ramsey Gas Plant Expansion project APE with the surrounding 5-mile visual effects analysis.**

Visual Contrast

Visual contrast—change in the visual setting—was assessed to gauge the potential impact to the setting and character of historic properties in the surrounding area. The visual contrast effects of the project action are discussed below. To summarize, the Ramsey Gas Plant Expansion project would generally produce only a weak visual contrast to the surrounding landscape.

Identification of Sensitive Resources

Cultural resources are sensitive to visual effects to the extent that the visual character of their surroundings is integral to their integrity—their ability to convey their historical significance. In general, resources can be categorized into low, medium, and high sensitivity to visual effects.

Low Sensitivity: This category includes most archaeological sites and other resources that are significant only for their potential to contribute information to the scientific knowledge of the history or prehistory of an area (Criterion D under the NRHP). An Official Texas Historical Marker for Pope's Crossing along U.S. Highway 285 within the indirect/visual APE is not eligible to the NRHP under any criteria. This resource would not be affected by visual contrast produced by the Ramsey Gas Plant Expansion project.

Medium Sensitivity: This category includes historic trails, structures, homesteads, and transportation and utility properties, as well as rock art sites and archaeological or historical districts. All of these resource types have interpretive potential and historical significance beyond the information they may contain. No medium sensitivity resources are located within the indirect/visual effects APE.

High Sensitivity: This category includes resources with high interpretive value and great historical significance. Examples would include national historic trails, monuments, state or federal historical parks, landmarks, cemeteries, and historical or traditional cultural landscapes. No high sensitivity resources are located within the indirect/visual effects APE.

Assessment of Visual Effects

The development of the Ramsey Gas Plant Expansion project would produce only a weak visual contrast with respect to an existing visual setting already dominated by visually obtrusive structures already in place at the existing Ramsey Gas Plant. Furthermore, no historic properties that could be adversely visually impacted by the project (medium and high sensitivity resources) are known to be located within the indirect/visual APE. The only resources present within the indirect/visual APE is a single Texas Historical Marker for Pope's Crossing along U.S. Highway 285, whose integrity would not be affected by any level of visual contrast. Therefore, the project would not visually affect historic properties that are eligible for inclusion to the NRHP. It is recommended that a finding of No Historic Properties Affected be applied to this undertaking in respect to visual effects.

Field Survey

On April 2 and 3, 2014, SWCA archaeologists Christopher Carlson and Jordan Taher conducted an intensive pedestrian survey of the APE. The entire APE has been subjected to considerable previous and ongoing disturbance due to gas plant construction work and maintenance and has been subdivided into a number of fenced storage lots for different subcontractors, with gates and two-track roads accessing the lots. The APE has been mechanically graded flat and a light layer of gravel has been added to several fenced lots; the estimated ground disturbance from grading ranges between 7.8 and 27.5 inches. The surveyed 100-foot buffer outside the APE was relatively undisturbed, minus a two-track road intersecting the buffer on the west portion of the survey buffer. General survey conditions were good with some areas providing up to 99 percent visibility, while the 9.1-acre survey buffer outside the APE averaged 80

percent visibility. The THC's Survey Standards require shovel testing "whenever there is less than 30 percent ground surface visibility, except on slopes greater than 20 percent" (THC 2014c:2). Since ground visibility ranged between 80 and 90 percent, no shovel tests were warranted. Some of the survey area contained plant equipment and vehicles. Figure 5 and Figure 6 present general overviews of survey conditions within the APE.

Figure 5. Panoramic overview of the APE, facing northwest to northeast.

Figure 6. General APE overview, facing southeast.

SUMMARY AND RECOMMENDATIONS

At the request of Sound Environmental Solutions, Inc., SWCA conducted a cultural resources survey of the proposed expansion of the Ramsey Gas Plant in Reeves County, Texas. Nuevo proposes to expand this plant by adding an additional three trains to increase the total plant capacity from 300 million standard cubic feet/day (MMscf/d) to 900 MMscf/d. The work was performed to determine whether the proposed use of the area would affect significant cultural resources. The archaeological investigation included an archaeological background records review and an intensive pedestrian survey.

The background literature review determined that no cultural resources have been identified within the APE, and none are documented within a 1-mile radius of the APE (THC 2014a). The nearest previously documented archaeological site is approximately 6.25 miles east-northeast of the APE, near Red Bluff Reservoir, and few cultural resources surveys have been conducted in the project vicinity. Based on these data, areas in the region with a higher probability for archaeological resources would likely coincide with permanent or ephemeral water sources. The only cultural resources present within the indirect/visual APE is a single Texas Historical Marker for Pope's Crossing along U.S. Highway 285, whose integrity would not be affected by any level of visual contrast.

During the SWCA field investigation, no archaeological sites or isolated finds were encountered. SWCA recommends a finding of No Historic Properties Affected for use of the survey area for the proposed Ramsey Gas Plant expansion. No further archaeological work is recommended for the APE. However, if previously undocumented buried cultural resources are identified during ground-disturbing activities, all work in the immediate vicinity of the discovery should stop until the find can be evaluated by a professional archaeologist.

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APPENDIX A – PRINCIPAL INVESTIGATOR'S RESUME

MATTHEW S. BANDY, Ph.D.
Principal

Education / Training

- Ph.D., Anthropology, University of California, Berkeley, 2001
- M.A., Anthropology, University of California, Berkeley, 1997
- B.A. with honors, Anthropology, Stanford University, 1992
- Section 106 Essentials, SWCA

Experience Summary

Dr. Bandy is the Principal for SWCA's Albuquerque and Durango offices. He has 23 years of experience in prehistoric archaeology and has designed and managed multiple large-scale, multi-year excavation and survey projects. In addition, he has served as a lithic and ceramic analyst for a variety of projects, and has designed and maintained complex database-driven web applications for numerous clients. He has participated in archaeological and anthropological fieldwork in New Mexico, Colorado, Arizona, California, Wyoming, Montana, and South Dakota, as well as Bolivia, Peru, Mexico, and Greece. He is familiar with all aspects of archaeological research and analysis, and is conversant with the laws, policies, and procedures relating to compliance with Section 106 of the National Historic Preservation Act (NHPA) and related tribal consultation.

Dr. Bandy's work has been published in journals such as Current Anthropology, American Anthropologist, and the Journal of Anthropological Archaeology. He has also contributed chapters to numerous books. He is the editor of a volume currently under contract by the University of Arizona Press, and recently published a book through the Archaeological Research Facility of the University of California, Berkeley. He has presented numerous papers at a variety of national and regional archaeological conferences, as well as at invited seminars at Harvard University and the Amerind Foundation. He has taught archaeology and anthropology at Stanford University, the University of Oklahoma, and Santa Monica College, and has been a research fellow or associate at the Centre National de la Recherche Scientifique in Paris, France; the University of California, Berkeley; and UCLA.

SWCA Project Experience

Alamogordo Regional Water Supply Environmental Impact Statement; Alamogordo, Otero County, New Mexico; City of Alamogordo. SWCA prepared an EIS as a third-party contractor to the BLM for the City of Alamogordo's municipal drinking water supply project: a state-of-the-art water desalination facility. SWCA was responsible for coordinating the NEPA process, developing alternatives, completing impacts analyses, and conducting field surveys for natural and cultural resources on 1,700 acres for proposed project facilities. *Role: Principal Investigator.*

Animas–La Plata Archaeology Project; Durango, La Plata County, Colorado; Ute Mountain Ute Tribe. SWCA provided archaeological services for 10 years for permitting the

Ridges Basin Reservoir with the Bureau of Reclamation for the Ute Mountain Ute Tribe. In addition to extensive excavations, this included coordinating tribal consultation and ethnographic reviews, including of such resources as the Ute Trail/Old Spanish Trail. *Role: Principal Investigator*.

Arrow Pipeline Services; Dunn County, North Dakota; Arrow Midstream Holdings, LLC. SWCA was contracted on an "on-call" basis to conduct natural resource (NR) and cultural resource (CR) surveys, prepare Environmental Assessments (EA), EA addendums, CR reports, and any other documentation or surveys as required by NEPA, the BIA, or other pertinent agencies. *Role: Principal Investigator*.

BLM Archaeological and Cultural Resources Services IDIQ; Multiple Counties, Multiple States; U.S. Bureau of Land Management. Under this 5-year contract, SWCA provides BLM land managers in New Mexico, Texas, Kansas, and Oklahoma the broad spectrum of archaeological and cultural recourses services, including archaeological surveys, computer models, excavations, Native American consultation, architectural documentation, and historical and ethnographic research. *Role: Principal*.

BLM Carlsbad Field Office Resource Management Plan/Environmental Impact Statement Update; Carlsbad, Eddy County, New Mexico; U.S. Bureau of Land Management. SWCA assisted the BLM Carlsbad Field Office with the update of their RMP, producing a Class I Cultural Report, conducting visual resource and travel inventories, and compiling the Socioeconomic Baseline Report. SWCA also facilitated public meetings and alternative development workshops to address issues, and prepared the Draft EIS. *Role: Principal*.

Miles City Field Office Wildlife Monitoring and Protection Plan; Custer County, Montana; U.S. Bureau of Land Management. In 2009, SWCA prepared a progress report and developed a database for the Miles City Field Office Wildlife Monitoring and Protection Plan. The report summarized inventory, monitoring, and research conducted in the Powder River Basin from 2000 to 2009 and measured change in wildlife populations in relation to coal bed natural gas development. *Role: Principal Investigator*.

BLM Permian Basin IDIQ; Multiple Counties, New Mexico; U.S. Bureau of Land Management. Under this 5-year contract, SWCA provides cultural resource services to the Carlsbad and Roswell Field Offices, including archaeological surveys, computer models, excavations, Native American consultation, architectural documentation, and historical and ethnographic research. *Role: Principal/Project Manager*.

BLM SEZ Sample Surveys; Riverside County, California; U.S. Bureau of Land Management. SWCA carried out cultural resource studies for selected Solar Energy Zones (SEZs) across multiple field offices in Arizona, California, and Nevada to assist federal land managers in predicting the density, distribution, and types of resources present in the various SEZs. Coordinating across regional SWCA offices and consulting with in-state BLM personnel,

SWCA developed sampling plans and performed Class II cultural resource inventories and evaluations. *Role: Principal/Project Manager*.

Bulldog Mine Project Cultural Resources Survey; Creede, Mineral County, Colorado; 48 Degrees North, Inc. For the Bulldog Mine Project in the Rio Grande National Forest, SWCA documented mine structural related materials and features representative of the industrial environment, overlaying previous prehistoric sites. Within a 55-acre extent, the area produced one historic water conveyance site; one prehistoric lithic scatter/temporary camp site; one prehistoric lithic scatter and historic artifact scatter site; and one historic marker tree and a protohistoric peeled tree site. *Role: Principal*.

Burro Tanks Site Documentation; Chaves County, New Mexico; U.S. Bureau of Land Management. SWCA completed this BLM project involving the relocation and recordation of LA 12945, LA 32227, LA 100187, and LA 100184. *Role: Project Manager. Project Manager, Field Archaeologist*.

Caprock–Milnesand Pipeline Environmental Services; Roosevelt County, New Mexico; Enhanced Oil Resources, Inc. SWCA provided environmental services for a proposed pipeline and well field development plan in Lea, Roosevelt, and Curry Counties. Services have included cultural resources surveys and reports, biological surveys and reports, and species specific protocol surveys and reports for the lesser prairie chicken and the dunes sagebrush lizard. SWCA is also providing air quality consulting as well as NEPA services. *Role: Principal*.

CDNST Cuba Area Class III Inventory; Sandoval County, New Mexico; U.S. Bureau of Land Management. SWCA conducted a 330-acre cultural resources survey of a new section of the Continental Divide National Scenic Trail on federal lands in northern New Mexico. *Role: Principal Investigator*.

Rands Butte Gas Development Project Environmental Assessment; Sublette County, Wyoming; Cimarex Energy Company. SWCA provided comprehensive environmental and NEPA compliance services. The project installed high voltage power and other facilities in order to develop gas resources from the federal Riley Ridge Unit in southwestern Wyoming. Under the direction of the BLM Pinedale Field Office, SWCA evaluated potential impacts from the project on historic trails, riparian ecosystems and wetlands, paleontological resources, big game winter range, human health and safety, geological

Class III Archaeological Inventory of Martinez and Munoz Sage Thinning; Rio Arriba County, New Mexico; U.S. Bureau of Land Management. SWCA has completed cultural resources surveys in various locations around the state. A sample of completed projects in 2010 and 2011 include several for the Farmington Field Office: Van Hausen and Albino Canyon/Mt. Nebo piñon-juniper thinning and prescribed burn, Martinez Canyon and Munoz sage thinning and seeding, and Crow Canyon patch cut and prescribed burn. *Role: Principal*.

CWPP for Mesa County, CO; Grand Junction, Mesa County, Colorado; Mesa County. SWCA worked collaboratively with Mesa County and surrounding communities to prepare a wildfire protection plan which provides recommendations to abate catastrophic wildfire and minimize their impacts to communities. *Role: Principal.*

Dakota, Minnesota and Eastern Railroad Expansion Project–Powder River Expansion; Minnehaha County, Multiple States; HDR, Inc. SWCA provided cultural resources personnel to support the DME Railroad Expansion Project-Powder River Basin Expansion. SWCA was responsible for coordinating and managing all archaeological, historic architectural, geomorphological, and paleontological subconsultants and field crews across all three project states (South Dakota, Minnesota, and Wyoming). In addition, SWCA also performed NRHP assessments on 31 architectural sites and more than 71 archaeological sites. *Role: Cultural Resources Specialist. Responsible for the preparation of cultural resource treatment plans for South Dakota and Wyoming.*

Embudo Cell Tower Environmental Assessment; Embudo, Rio Arriba County, New Mexico; Commnet Wireless/Allied Wireless Communications (2013) SWCA provided environmental compliance services to Commnet for right-of-way access on lands managed by the BLM Taos Field Office in order to install a communications tower. *Role: Principal.*

Entrega Pipeline Cultural Resources Program and Data Recovery; Multiple Counties, Wyoming; Kinder Morgan, Inc. *Role: Cultural Resources Specialist. Responsible for contributions to the Open Trench Inspection/Monitoring report.*

Estancia Basin Watershed Monitoring; Torrance County, New Mexico; Claunch–Pinto Soil and Water Conservation District (2012) For this 5-year contract, SWCA monitored forest and watershed health in relation to forest thinning on the eastern slopes of the Manzano Mountains to evaluate the effectiveness of thinning treatments. *Role: Principal.*

National Environmental Policy Act and Cultural Resources Tasks for Six Cell Tower Locations; Utah County, Utah; Fidelity Towers, Inc. (2011) SWCA provided NEPA analysis and documentation, site-specific biological resources evaluations, cultural resources evaluation, and tribal consultation for proposed telecommunications sites. *Role: Cultural Resources Specialist. Responsible for field survey, report writing, and project management.*

Galisteo Basin Management Plan and Environmental Assessment; Santa Fe County, New Mexico; U.S. Bureau of Land Management. SWCA developed a management plan and EA for 24 archaeological sites listed for protection, coordinating this effort with the BLM Taos Field Office, the BLM State Office, cooperating agencies such as Santa Fe County and New Mexico State Parks, and 24 pueblos and tribes. *Role: Principal.*

Gore Pass–Windy Gap Transmission Line; Grand County, Colorado; Tri-State Generation & Transmission Association, Inc. SWCA conducted a Class III cultural resource inventory of approximately 58.15 miles associated with the Gore Pass – Windy Gap Transmission Line Project. The project consisted of 19.36 miles of transmission line, 38.79 miles of access roads, and 2.52 acres of block survey for the Gore Pass and Windy Gap Microwave Passive Repeater stations. *Role: Cultural Resources Specialist.*

Granada Transmission Connect; Guadalupe County, New Mexico; Westwood Professional Services. SWCA conducted the ROW cultural resources survey along roughly 9 miles of US 84 along I-40 in support of a transmission line for a solar project. *Role: Principal.*

Guadalupe Mountain Vegetation Treatment Class II; Taos County, New Mexico; U.S. Bureau of Land Management. SWCA conducted the BLM Taos Field Office's pedestrian survey. *Role: Principal.*

Gun Barrel, Madden Deep, and Iron Horse Environmental Impact Statement; Fremont County, Wyoming; Burlington Resources Oil & Gas Company, L.P. SWCA provided full NEPA assistance services to the Bureau of Land Management Lander Field Office for this Environmental Impact Statement. The project was located in Fremont and Natrona Counties, Wyoming and covered three federal oil and gas units encompassing over 146,000 acres. SWCA prepared the EIS and provided all accompanying services, including air quality modeling and assessment, cultural resource inventory, and paleontological studies. SWCA also assisted the BLM with scoping, public involvement, and alternatives development. *Role: Cultural Resources Specialist.*

Gunnison Rising; Gunnison County, Colorado; The Schuck Corporation. *Role: Cultural Resources Specialist. Responsible for field survey.*

Hidalgo–Otero Rangeland Cultural Resources Inventory; Multiple Counties, New Mexico; U.S. Bureau of Land Management. SWCA conducted the pedestrian survey for the BLM Las Cruces Field Office. *Role: Principal.*

High Plains Wind Farm Cultural Survey; Albany County, Wyoming; PacifiCorp. *Role: Cultural Resources Specialist. Responsible for project management, field supervision, and report preparation for a 4,000+ acre Class III cultural resources inventory.*

Historic Context for Oil and Gas Development; Lea County, New Mexico; U.S. Bureau of Land Management. The Bureau of Land Management, Carlsbad Office, manages mineral leases on federal lands in southeast New Mexico, including the fossil-fuel rich Permian Basin geology within the state. BLM commissioned SWCA to produce a Historic Context document on a century of oil and gas exploration, extraction, and production in the region, to guide future leases and cleanups that encounter historic industrial properties. *Role: Principal/Project Manager.*

Keystone XL Pipeline; Multiple Counties, Multiple States; AECOM, Inc. As a third-party contractor, SWCA conducted a cultural resource inventory and paleontological surveys for a 598-mile crude-oil pipeline in eastern Montana and western South Dakota connecting supply fields in Canada to markets in Texas, and Oklahoma, as well as for 300 miles of associated transmission lines to supply power to pump stations. SWCA coordinated with state historic preservation offices, the Bureau of Land Management, and the Department of State (the lead agency). *Role: Principal Investigator*.

La Merced del Manzano CFRP; Torrance County, New Mexico; Claunch–Pinto Soil and Water Conservation District. To support planning, monitoring and compliance activities for a 500 acre forest restoration project in the ponderosa pine forest, SWCA conducted resource studies and assisted with the completion of NEPA, ESA, and NHPA compliance, which lead to a completed categorical exclusion document and a signed FONSI. *Role: Principal*.

Mertz Ranch Class II Inventory; Cibola County, New Mexico; U.S. Bureau of Land Management. SWCA aided the BLM in identifying cultural resources in danger of burning during a prescribed burn for tree thinning within the El Malpais National Conservation Area. *Role: Principal*.

Middle Mile Telecom Project Surveys; Bernalillo County, New Mexico; Towner Services, Inc. SWCA completed the cultural and natural resources documentation to support the objectives of the Statewide Interoperable Radio Communications Internet Transport System (SIRCITS) project, which provides public safety radio communications and reliable and economic data communications to all New Mexico state agencies, as well as digital broadband access to rural communities. *Role: Principal Investigator*.

Montana Power Station Transmission Environmental Services; El Paso, El Paso County, Texas; El Paso Electric. As a third-party contractor, SWCA was tasked with writing two NEPA-compliant Environmental Assessments for El Paso Electric for three proposed 115kV transmission lines on private land in El Paso, Texas. *Role: Cultural Resources Specialist*.

National Historic Property Inventory Initiative; District Of Columbia County, Multiple States; National Conference of State Historic Preservation. On behalf of the National Park Service's National Register of Historic Places and its key national preservation partners, SWCA produced a nationwide, multi-agency analysis and concluding report that detailed current and future capacities for coordinated historic property inventory management. SWCA conducted database manager surveys and interviews, with the final report identifying best practices, capacities, and areas for improvement in existing state, tribal, and federal information systems that retain knowledge of historic properties. *Role: Cultural Resources Specialist. Responsible for data analysis, report writing, and research design*.

Shiprock Road Improvements; San Juan County, New Mexico; Navajo Division of Transportation. SWCA conducted NEPA compliance, archaeological survey and documentation, biological survey and evaluation, drainage studies, and public meetings, coordinating this effort with the NNDFW, the NHPD, the Navajo Nation Environmental Protection Agency, and the NDOT. *Role: Principal.*

Cultural Resources Services; Multiple Counties, New Mexico; New Mexico Department of Transportation. SWCA performed cultural resources services for multiple task orders, including data recovery, for projects along New Mexico highways. *Role: Principal.*

Overland Pass Pipeline Native American Consultation; Sweetwater County, Wyoming; Willbros Engineers, Inc. SWCA coordinated federal tribal consultation on this project across Wyoming, Colorado and Kansas, including coordinating federal meetings and on-sites and providing outreach and follow-up. *Role: Cultural Resources Specialist. Responsible for peer review of the final report.*

Environmental Services; Rio Blanco County, Multiple States; Pearl Field Service. *Role: Cultural Resources Specialist. Served as field supervisor. Responsible for well pad and access road realignment survey.*

Piceance Telecommunications Tower Expansion; Rio Blanco County, Colorado; UBET Wireless. *Role: Cultural Resources Specialist. Responsible for project management.*

Paradise 230-kV Transmission Project Environmental Assessment; Sublette County, Wyoming; GeoEngineers, Inc. SWCA provided Rocky Mountain Power (a division of PacifiCorp) with a third-party Environmental Assessment and environmental compliance services for a new 230-kilovolt (kV) transmission project that provided as much as 180 MW of power to new industrial and commercial customers in Sublette County in southwest Wyoming. *Role: Cultural Resources Specialist. Served as field supervisor. Responsible for Class III cultural resources inventory.*

Red Mesa Wind Project Cultural Resource Surveys; Cibola County, New Mexico; NextEra Energy Resources, LLC. SWCA assisted with Section 106 compliance for over 1,000 acres of private land for a 65-turbine wind farm. *Role: Principal Investigator.*

Ryan Gulch Block Surveys; Rio Blanco County, Colorado; WPX Energy, Inc. SWCA performed both site-specific and block surveys for cultural, biological (wildlife/raptors/rare plants), and paleontological resources as a third-party contractor to the BLM White River Field Office on a large-scale oil and gas well development in Rio Blanco County, Colorado. SWCA tasks included NEPA support compliance and assisting in the preparation of Environmental Assessment and Biological Assessment documents and supporting survey reports for both BLM and USFWS review. *Role: Cultural Resources Specialist. Responsible for report writing and analysis.*

San Juan Supplement Comment Analysis; Durango, La Plata County, Colorado; U.S. Forest Service. SWCA received and coded over 34,000 comments letter using a customized Microsoft Access database; identified 1,000 unique letters, and evaluated them according to the BLM's and USFS's preferred comment coding structure. SWCA prepared an executive summary highlighting issues raised by the public, which was well received by the agencies. *Role: Principal.*

Piceance Creek 3D Seismic; Rio Blanco County, Colorado; St. Croix Seismic, LLC. SWCA performed both site-specific and block surveys for cultural, biological (wildlife/raptors/rare plants), and paleontological resources as a third-party contractor to the BLM White River Field Office on a large-scale oil and gas well development in Rio Blanco County, Colorado. SWCA tasks included NEPA support compliance and assisting in the preparation of Environmental Assessment and Biological Assessment documents and supporting survey reports for both BLM and USFWS review. *Role: Cultural Resources Specialist. Responsible for the preparation of cultural resource sections for EA document.*

Missouri River Black Hills Survey; McKenzie County, Multiple States; S & A Environmental Consultants. SWCA provided cultural and paleontological resource investigations on a 3.7-acre easement on Bureau of Land Management surface for the rehabilitation of a tunnel on the Shell Irrigation Canal, area for spoil storage, and 0.5 mile of access road. *Role: Cultural Resources Specialist. Responsible for review of site forms and field data.*

Williams Overland Pass Natural Gas Line Cultural Services; Multiple Counties, Multiple States; Natural Resource Group, LLC. *Role: Cultural Resources Specialist. Responsible for test excavations at three sites.*

Williams Ryan Gulch 3D/3C Seismic Environmental Assessment; Rio Blanco County, Colorado; Green River Energy Resources, Inc. SWCA performed both site-specific and block surveys for cultural, biological (wildlife/raptors/rare plants), and paleontological resources as a third-party contractor to the BLM White River Field Office on a large-scale oil and gas well development in Rio Blanco County, Colorado. SWCA tasks included NEPA support compliance and assisting in the preparation of Environmental Assessment and Biological Assessment documents and supporting survey reports for both BLM and USFWS review. *Role: Cultural Resources Specialist. Responsible for the preparation of cultural resource sections for Environmental Assessment (EA) document, as well as ceramic analysis and numerous contributions to the Class III survey report.*

Winter Park High Pressure Gas Reinforcement Project Class II; Grand County, Colorado; James Enterprises, Inc. *Role: Cultural Resources Specialist. Responsible for report preparation.*

Zia II Gas Plant Permitting; Lea County, New Mexico; DCP Midstream, LP. SWCA conducted the pedestrian survey and prepared the agency-accepted EA for a sour gas plant facility and associated pipelines in eastern New Mexico. *Role: Principal/Project Manager.*

Entrega Pipeline Data Recovery; Sweetwater County, Wyoming; Natural Resource Group. *Role: Cultural Resource Specialist. Responsible for test excavations at three sites.*

High Plains Wind Energy Project; Albany and Carbon Counties, Wyoming; PacifiCorp. *Role: Cultural Resource Specialist. Responsible for project management, field supervision, and report preparation for a 4,000+ acre Class III cultural resources inventory.*

Pinedale Research Seismic Project; Sublette County, Wyoming; US Air Force. *Role: Cultural Resource Specialist. Responsible for project management.*

Ryan Gulch 3D Seismic Exploration Project; Rio Blanco County, Colorado; Williams. *Role: Cultural Resource Specialist. Responsible for the preparation of cultural resource sections for Environmental Assessment (EA) document, as well as ceramic analysis and numerous contributions to the Class III survey report.*

Piceance Creek 3D Geophysical Exploration Project; Rio Blanco County, Colorado; St. Croix Seismic LLC. *Role: Cultural Resource Specialist. Responsible for the preparation of cultural resource sections for EA document.*

Dakota, Minnesota and Eastern Railroad Expansion Project–Powder River Expansion; South Dakota and Wyoming; HDR, Inc. *Role: Cultural Resource Specialist. Responsible for the preparation of cultural resource treatment plans for South Dakota and Wyoming.*

Overland Pass Pipeline Native American Consultation; Rock Springs County, Wyoming; Natural Resource Group. *Role: Cultural Resource Specialist. Responsible for peer review of the final report.*

Nelson and Fresno Reservoirs Cultural Resource Inventory; Hill and Phillips Counties, Montana; Bureau of Reclamation, Montana Area Office. *Role: Cultural Resource Specialist. Responsible for contributions to the final report.*

Pinedale BLM EA; Pinedale County, Wyoming; Geo Engineers. *Role: Cultural Resource Specialist. Served as field supervisor. Responsible for Class III cultural resources inventory.*

U.S. Army Corps of Engineers (USACE) Missouri River Black Hills Survey; McKenzie County, North Dakota; S & A Environmental Consultants. *Role: Cultural Resource Specialist. Responsible for review of site forms and field data.*

Winter Park High Pressure Gas Reinforcement Project Class II; Grand County, Colorado; James Brechtel–Consulting Archaeologist. *Role: Cultural Resource Specialist. Responsible for report preparation.*

Entrega Pipeline Cultural Resources Program and Data Recovery; Albany, Carbon, Laramie, and Sweetwater Counties, Wyoming; Natural Resource Group. *Role: Cultural Resource Specialist. Responsible for contributions to the Open Trench Inspection/Monitoring report.*

Professional Experience

SWCA Environmental Consultants; Denver, Colorado (2007–present): Responsible for supervising archaeological fieldwork and the preparation of reports, treatments plans, and other documents for projects in Colorado, Wyoming, Montana, North Dakota, and South Dakota. Role: Cultural Resource Specialist.

CNRS UPR 2147; Paris, France (2006–2007): Responsible for writing and research relating to Neolithic demography. Role: Visiting Foreign Researcher (chercheur étranger).

Department of Anthropology, University of Oklahoma (2004–2006): Responsible for teaching courses at the graduate and undergraduate levels, as well as writing and research. Role: Visiting Assistant Professor.

Department of Anthropology, Santa Monica College; California (2004): Responsible for teaching courses at the undergraduate level, as well as writing and research. Role: Lecturer.

Cotsen Institute of Archaeology at UCLA; California (2004–2005): Responsible for writing and research. Role: Research Associate.

Archaeological Research Facility, University of California; Berkeley (2003–2004): Responsible for writing and research. Role: Post-doctoral Fellow.

Department of Anthropological Sciences, Stanford University; California (2001–2003): Responsible for teaching courses at the graduate and undergraduate levels, including field schools, as well as writing and research. Role: Lecturer.

Weddingchannel.com; San Francisco, CA (2000–2001): Responsible for programming, backend integration, database development, and system scripting in support of a major retail website. Role: Systems Integrator.

Listinglink LLC; Santa Monica, CA (1997–1998): Responsible for developing an integrated database system and web backend for the publication of MLS real estate data. Role: Programmer / Database Developer.

Department of Anthropology, University of California; Berkeley (1994–1997): Responsible for assisting in undergraduate instruction. Multiple courses. Role: Graduate Student Instructor.

Department of Anthropology, Stanford University; California (1991): Responsible for assisting in undergraduate instruction. One course. Role: Teaching Assistant.

Classes Taught

- World Prehistory (undergraduate, University of Oklahoma/Santa Monica College)
- Introduction to Archaeology (undergraduate, University of Oklahoma)
- South American Prehistory (undergraduate, University of Oklahoma/Stanford University)
- Archaeological Field Methods (undergraduate field school, Stanford University)
- Archaeology of Early Village Societies (undergraduate seminar, University of Oklahoma)
- Archaeological Ceramics (graduate seminar, Stanford University)
- Early Village Society in Global Perspective (graduate seminar, University of Oklahoma)
- Regional Analysis (graduate seminar, University of Oklahoma)

Previous Research Experience

Taraco Archaeological Project; Peninsula, Bolivia (2003–2006): Excavations on the Taraco Peninsula; Bolivia. Three field seasons. Role: Co-Director.

Greenwood and Associates; Los Angeles, California (2004): Archaeological excavation, survey, and analysis. Role: Lithic Analyst and Field Supervisor.

Pukara Valley Project, Department of Puno; Peru (2002): Formative period temple excavations. Role: Field Supervisor.

Archaeological Survey, Department of Puno; Peru (2000): Archaeological survey and surface collection. Role: Field Supervisor.

Taraco Archaeological Survey; Bolivia (1998–1999): Archaeological survey, surface collection, and laboratory analysis; dissertation research. Role: Director.

Proyecto Arqueológico Taraco; Bolivia (1996–1999): Excavation and laboratory analysis at Chiripa, Bolivia. Three field seasons. Role: Co-Director.

Proyecto Rescate Chen Chen, Museo Contisuyu; Peru (1995): Excavations at Chen Chen, Moquegua Valley, Peru. Dr. Paul Goldstein, director. Role: Excavation Supervisor.

Catastro Arqueológico de Moquegua; Moquegua Valley, Peru (1994–1995): Archaeological survey. Dr. Paul Goldstein, director. Role: Fieldworker.

David Chavez and Associates; Mill Valley, California (1993): Excavation and augering. Role: Fieldworker.

Holman and Associates; San Francisco, California (1993): Test and mortuary excavations. Role: Fieldworker.

Taraco Archaeological Project; Chiripa, Bolivia (1992–1994): Laboratory analysis. Dr. Christine Hastorf, director. Role: Lithic Analyst.

La Plata Archaeological Consultants; Aztec, New Mexico (1992): Settlement survey. Dr. Richard Wilshusen, director. Role: Fieldworker.

Stanford Classics Department; Greece (1991): Excavations at Panakton, Boiotas, Greece. Dr. Mark Munn, director. Role: Fieldworker.

Ethnographic fieldwork in the Tarascan village of San Jose de Gracia; Michoacan, Mexico (1990): Ethnoarchaeological research on ceramic style in modern communities. Role: Independent.

Stanford Summer Field School; New Mexico (1990): Excavations in Zuni, New Mexico. Dr. John Rick, director. Role: Crew Chief.

Pueblo Grande Project, Soil Systems Inc.; Arizona (1989): Excavation in Phoenix, Arizona. Dr. Cory Breternitz, director. Role: Fieldworker.

San Agustin Archaeological Survey; New Mexico (1989): Survey in New Mexico. Dr. Laura Leachpalm, director. Role: Fieldworker.

Crow Canyon Archaeological Center; Cortez, Colorado (1988): Excavation and laboratory analysis. Role: Intern.

Books

Bandy, Matthew. In press. Becoming Villagers. Edited volume to be published by the University of Arizona Press. Senior editor with Jake Fox.

Bandy, Matthew (Senior editor with Christine Hastorf). In prep. Archaeology of the Taraco Peninsula Polity. Edited volume to be published by the Archaeological Research Facility, University of California, Berkeley.

Bandy, Matthew (Senior editor with Christine Hastorf). 2007. Kala Uyuni: An Early Political Center in the Southern Lake Titicaca Basin. Contributions of the Archaeological Research Facility 64. Berkeley: Archaeological Research Facility.

Refereed Publications (many available online at http://andean.kulture.org/bandy/)

Bandy, Matthew. In prep. Characterization of archaeological andesites from the Lake Titicaca Basin. To be submitted to Journal of Archaeological Science.

Bandy, Matthew and Richard Wilshusen. In prep. A neolithic demographic transition in southwestern Colorado. To be submitted to American Antiquity.

Bandy, Matthew, Stephan Naji, and Jean-Pierre Bocquet-Appel. In review. Did the Eastern Agricultural Complex produce a neolithic demographic transition? Submitted to American Antiquity.

Bandy, Matthew. In press. Tiwanaku origins and early development: The political and moral economy of a hospitality state. In Charles Stanish and Alexei Vranich, eds., Contending Visions of Tiwanaku. Los Angeles: Cotsen Institute of Archaeology at UCLA.

Bandy, Matthew. In press. Demographic dimensions of Tiwanaku urbanism. In Charles Stanish and Alexei Vranich, eds., Contending Visions of Tiwanaku. Los Angeles: Cotsen Institute of Archaeology at UCLA.

Bandy, Matthew. 2008. Global patterns of early village development. In Jean-Pierre Bocquet-Appel and Ofer Bar-Yosef, eds., The Neolithic Demographic Transition and its Consequences. New York: Springer.

Bandy, Matthew, Jean-Pierre Bocquet-Appel, and Stephan Naji. 2008. Demographic and health changes during the transition to agriculture in North America. In Jean-Pierre Bocquet-Appel, ed., Recent Advances in Paleodemography: Data, Techniques, Patterns. New York: Springer.

Bandy, Matthew and Christine Hastorf. 2007. An introduction to Kala Uyuni and the Taraco Peninsula Polity. In Matthew S. Bandy and Christine A. Hastorf, eds., Kala Uyuni: An Early Political Center in the Southern Lake Titicaca Basin, pp. 1-12. Contributions of the Archaeological Research Facility 64. Berkeley: Archaeological Research Facility.

Bandy, Matthew. 2007. Kala Uyuni and the Titicaca Basin Formative. Contributions of the Archaeological Research Facility 64. In Matthew S. Bandy and Christine A. Hastorf, eds., Kala Uyuni: An Early Political Center in the Southern Lake Titicaca Basin, pp. 135-144. Contributions of the Archaeological Research Facility 64. Berkeley: Archaeological Research Facility.

Bandy, Matthew. 2006. Early village society in the Formative Period of the southern Lake Titicaca Basin. In William H. Isbell and Helaine Silverman, eds., Andean Archaeology III: North and South, pp. 210-236. New York: Springer.

Bandy, Matthew. 2005. New World settlement evidence for a two-stage neolithic demographic transition. Current Anthropology 46(S):S109-S115.

Bandy, Matthew. 2005. Energetic efficiency and political expediency in Titicaca Basin raised field agriculture. Journal of Anthropological Archaeology 24(3):271-296.

Bandy, Matthew and John W. Janusek. 2005. Settlement patterns, administrative boundaries, and internal migration in the Early Colonial Period. In Charles Stanish, Amanda Cohen, and Mark Aldenderfer, eds., Advances in Titicaca Basin Archaeology-1, pp. 267-288. Cotsen Institute of Archaeology at UCLA: Los Angeles.

Bandy, Matthew. 2004. Trade and social power in the southern Titicaca Basin Formative. In Christina A. Conlee, Dennis Ogburn, and Kevin Vaughn, eds., Foundations of Power in the Prehispanic Andes, pp. 91-111. Archaeological Papers of the American Anthropological Association 14. Washington D.C.: American Anthropological Association.

Bandy, Matthew. 2004. Fissioning, scalar stress, and social evolution in early village societies. American Anthropologist 106(2):322-333.

Hastorf, Christine A., Matthew Bandy, William T. Whitehead, and Lee H. Steadman. 2002. El Período Formativo en Chiripa, Bolivia. Textos Antropológicos 13 (1-2): 17-92, La Paz.

Bandy, Matthew. 1999. The systematic surface collection. In Christine A. Hastorf, ed., Early Settlement at Chiripa, Bolivia, pp. 23-28. Contributions of the Archaeological Research Facility 57. Berkeley: Archaeological Research Facility.

Bandy, Matthew and Christine A. Hastorf. 1999. Excavation methodology and field procedures. In Christine A. Hastorf, ed., Early Settlement at Chiripa, Bolivia, pp. 29-30. Contributions of the Archaeological Research Facility 57. Berkeley: Archaeological Research Facility.

Bandy, Matthew. 1999. The montículo excavations. In Christine A. Hastorf, ed., Early Settlement at Chiripa, Bolivia, pp. 43-50. Contributions of the Archaeological Research Facility 57. Berkeley: Archaeological Research Facility.

Bandy, Matthew and Deborah E. Blom. 1999. Human remains and mortuary practices. In Christine A. Hastorf, ed., Early Settlement at Chiripa, Bolivia, pp. 9-16. Contributions of the Archaeological Research Facility 57. Berkeley: Archaeological Research Facility.

Other Publications

Bandy, Matthew. 2001. ¿Por qué surgió Tiwanaku y no otro centro político del Formativo Tardío? Boletín de Arqueología PUCP 5: 585-604, Pontífica Universidad Católica del Perú, Lima.

Bandy, Matthew. 2001. Population and History in the Ancient Titicaca Basin. Ph.D. dissertation, Department of Anthropology, University of California, Berkeley.

Conference Papers / Organized Symposia

Bandy, Matthew. 2006. Global patterns of early village development. Invited paper presented at the conference The Neolithic Demographic Transition and its Consequences (Jeane-Pierre Bocquet-Appel and Ofer Bar Yosef, organizers). Harvard University, December 10.

Bandy, Matthew. 2006. The Neolithic demographic transition and its consequences. Paper presented at the Amerind Foundation Advanced Seminar Early Village Society in Global Perspective (Matthew Bandy and Jake Fox, chairs). Dragoon, AZ, November 30.

Bandy, Matthew. 2006. Tiwanaku as a hospitality state. Invited paper presented at the conference Contending Visions of Tiwanaku (Charles Stanish and Alexei Vranich, organizers). Cotsen Institute of Archaeology at UCLA, May 20.

Bandy, Matthew. 2006. The Neolithic demographic transition and its consequences. In symposium Early Village Society in Global Perspective (Matthew Bandy and Jake Fox, organizers) at the 71st meeting of the Society for American Archaeology, San Juan, Puerto Rico.

Bandy, Matthew. 2006. Early Village Society in Global Perspective. Symposium organized at the 71st meeting of the Society for American Archaeology, San Juan, Puerto Rico.

Bandy, Matthew and Christine Hastorf. 2005. Multi-community polity formation in the Titicaca Basin Formative: Preliminary results. Paper presented at the 33rd Annual Midwest Conference of Andean and Amazonian Archaeology and Ethnohistory, Columbia, MO.

Bandy, Matthew. 2005. Population history and cultural evolution in the southern Titicaca Basin. Paper presented to the Department of Anthropology, University of Oklahoma.

Bandy, Matthew. 2004. New World settlement evidence for a two-stage Formative demographic transition. In invited working group Formative Period Socio-Political Development in the Lake Titicaca Basin, South-Central Andes (Aimee Plourdes and Andrew Roddick, organizers) at the 69th meeting of the Society for American Archaeology, Montreal, Canada.

Bandy, Matthew and Christine Hastorf. 2004. Multi-community polity formation in the Titicaca Basin Formative: Season 1. Paper presented at the 44th annual meeting of the Institute for Andean Studies, Berkeley, CA.

Bandy, Matthew. 2003. From internal to embedded migration in the Titicaca Basin Formative. In symposium Birth, Death, and Migration: Regional Approaches to Archaeological Demography (Matthew Bandy and Kathleen Hull, organizers) at the 68th meeting of the Society for American Archaeology, Milwaukee, WI.

Bandy, Matthew. 2003. Birth, Death, and Migration: Regional Approaches to Archaeological Demography. Symposium organized at the 68th meeting of the Society for American Archaeology, Milwaukee, WI.

Bandy, Matthew. 2001. When is a polity? Using settlement dynamics to identify political formations in the Lake Titicaca Basin Formative. Paper presented at the Department of Anthropology, University of California, Berkeley.

Bandy, Matthew. 2001. Environmental and political change in the Titicaca Basin Formative. Paper presented at the 66th annual meeting of the Society for American Archaeology, New Orleans, LA.

Bandy, Matthew. 2000. The social embeddedness of Titicaca Basin raised field agriculture. Paper presented at the 65th annual meeting of the Society for American Archaeology, Philadelphia, PA.

Bandy, Matthew. 2000. Population dynamics and polity formation in the southern Lake Titicaca Basin Formative. Paper presented at the 40th annual meeting of the Institute for Andean Studies, Berkeley, CA.

Bandy, Matthew. 2000. The evolution of political economy in the prehistoric Titicaca Basin: Premature speculations. Paper presented at the Department of Anthropology, University of California, Berkeley.

Bandy, Matthew. 1999. Productivity and labor scheduling aspects of Titicaca Basin raised field agriculture. Paper presented at the 64th annual meeting of the Society for American Archaeology, Chicago, Il.

Bandy, Matthew. 1998. Excavations on the Chiripa mound. Paper presented at the 63rd annual meeting of the Society for American Archaeology, Seattle, WA.

Bandy, Matthew. 1998. Bioarchaeology and long-term history at Chiripa. With D. Blom. Paper presented at the 63rd annual meeting of the Society for American Archaeology, Seattle, WA.

Bandy, Matthew. 1998. Using lithic mass analysis to determine depositional context. Paper presented at the Institute of Archaeology, University of California, Los Angeles.

Bandy, Matthew. 1998. Chiripa: Settlement, history and ritual in the Titicaca Basin Formative. With C. Hastorf, et. al. Paper presented at the 38th annual meeting of the Institute for Andean Studies, Berkeley, CA.

Bandy, Matthew. 1997. Chiripa: Asentamiento, historia y rito en el Formativo de los Andes Centro-Sur. Ponencia en el 1er Encuentro de Arqueología del Sur Peruano "Francisco Fahlman", Moquegua, Peru.

Bandy, Matthew. 1996. La historia de asentamiento en Chiripa. Ponencia en el 1er Simposio de Actualizacion de Arqueología Boliviana, Universidad Mayor de San Andres, La Paz, Bolivia.

Bandy, Matthew, A. Cohen, P. Goldstein, A. Cardona R., and A. Oquiche H. 1996. The Tiwanaku occupation of Chen Chen (M1): Preliminary report on the 1995 salvage excavations. Paper presented at the 61st annual meeting of the Society for American Archaeology, New Orleans, LA.

Bandy, Matthew. 1995. La fase Huaracane y el Formativo en Moquegua. Ponencia en el 1er seminario del Instituto Pedagogico "Mercedes Cabello de Carbonera", Historia y Arqueología en la Sub Region Moquegua y su Influencia en el Sur Andino, Moquegua, Peru.

Bandy, Matthew. 1995. The early ceramic periods of Moquegua: A Reappraisal. Paper presented at the 60th annual meeting of the Society for American Archaeology, Minneapolis, MN.

Bandy, Matthew, A. Cohen, and P. Goldstein. 1995. How archaic is that archipelago? The Huaracane Tradition and the antiquity of vertical control in the South Andes. Paper presented at the 35th annual meeting of the Institute for Andean Studies, Berkeley, CA.

Reports

Bandy, Matthew and Carlos Lémuz. 2004. Informe de Investigación Agosto del 2004: Proyecto de Investigación Arqueológica, Normalización de Datos de Asentamiento en la Cuenca Sur del Lago Titicaca. Report submitted to the Unidad Nacional de Arqueología de Bolivia.

Bandy, Matthew and Carlos Lémuz. 2004. Informe de Investigación Enero del 2004: Proyecto de Investigación Arqueológica, Normalización de Datos de Asentamiento en la Cuenca Sur del Lago Titicaca. Report submitted to the Unidad Nacional de Arqueología de Bolivia.

Bandy, Matthew. 2004. Archaeological Evaluation of 5271 Vista San Miguel La Cañada-Flintridge, Los Angeles County, California. Greenwood and Associates. On file, South Central Coastal Information Center, California State University, Fullerton.

Bandy, Matthew. 2004. Archaeological Investigation for Sweetwater Mesa Water Line Construction, Malibu, Los Angeles County, California. Greenwood and Associates. On file, South Central Coastal Information Center, California State University, Fullerton.

Bandy, Matthew. 2004. Analysis of Lithic Artifacts from CA-SLO-2189. In Roberta S. Greenwood, John M. Foster, and Judith Porcassi, Archaeological Testing of CA-SLO-2189: Mission Garden Estates, Inc., San Miguel, California, pp. E9-E14. Greenwood and Associates. On file, South Central Coastal Information Center, California State University, Fullerton.

Bandy, Matthew, Christine Hastorf, Lee Steadman, Katherine Moore, Melissa Goodman Elgar, William Whitehead, Jose Luis Paz, Amanda Cohen, Maria Bruno, Andrew Roddick, Kirk Frye, Maria Soledad Fernadez, Jose Capriles Flores, and Mary Leighton. 2004. Taraco Archaeological Project: Report on 2003 Excavations at Kala Uyuni. Report presented to the Unidad Nacional de Arquología de Bolivia.

Bandy, Matthew, Christine Hastorf, Lee Steadman, Katherine Moore, Melissa Goodman Elgar, William Whitehead, Jose Luis Paz, Amanda Cohen, Maria Bruno, Andrew Roddick, Kirk Frye, Maria Soledad Fernadez, Jose Capriles Flores, and Mary Leighton. 2004. Proyecto Arqueológico Taraco Informe de la Temporada de Campo 2003: Excavaciones en Kala Uyuni. Informe presentado a la Unidad Nacional de Arqueología de Bolivia.

Bandy, Matthew. 2000. Dissertation Research: Collapse and Agricultural Innovation in the Titicaca Basin Formative. Final Project Report for Award #9813395. Report submitted to the National Science Foundation.

Bandy, Matthew. 2000. Informe de las Investigaciones de 1998-1999 del Catastro Arqueologico Taraco. Informe presentado a la Direccion Nacional de Arqueologia e Antropologia. La Paz, Bolivia.

Bandy, Matthew. 2000. Proyecto Arqueológico Taraco 1999 Excavaciones en Chiripa, Bolivia. With Christine Hastorf, Rene Ayon, Robin Beck, Miriam Doutriaux, José Luis Paz, Lee Steadman, and William Whitehead. Informe presentado a la Dirección Nacional de Arqueología e Antropología de Bolivia.

Bandy, Matthew, Christine Hastorf, Rene Ayon, Emily Dean, Miriam Doutriaux, Kirk Frye, Rachel Goddard, Don Johnson, Kate Moore, José Luis Paz, Daniel Puertas, Lee Steadman, and William Whitehead. 1999. Taraco Archaeological Project: 1998 Excavations at Chiripa, Bolivia. Report presented to the Instituto Nacional de Arqueología de Bolivia.

Bandy, Matthew, Christine Hastorf, Rene Ayon, Emily Dean, Miriam Doutriaux, Kirk Frye, Rachel Goddard, Don Johnson, Kate Moore, José Luis Paz, Daniel Puertas, Lee Steadman, and William Whitehead. 1999. Proyecto Arqueológico Taraco: 1998 Excavaciones en Chiripa, Bolivia. Informe presentado al Instituto Nacional de Arqueología de Bolivia.

Bandy, Matthew, Christine Hastorf, Deborah Blom, Emily Dean, Melissa Goodman, David Kojan, Mario Montaño Aragón, José Luis Paz, David Steadman, Lee Steadman, and William Whitehead. 1997. Taraco Archaeological Project: 1996 Excavations at Chiripa, Bolivia. Report presented to the Instituto Nacional de Arqueología de Bolivia.

Bandy, Matthew, Christine Hastorf, Deborah Blom, Emily Dean, Melissa Goodman, David Kojan, Mario Montaño Aragón, José Luis Paz, David Steadman, Lee Steadman, and William Whitehead. 1997. Proyecto Arqueológico Taraco: Excavaciones de 1996 en Chiripa, Bolivia. Informe presentado al Instituto Nacional de Arqueología de Bolivia.

Bandy, Matthew, Christine Hastorf, Sonia Alconini, Sigrid Arnott, Robin Burke, Laurie Butler, Nicholas Jackson, Carol Nordstrom, Claudia Rivera, and Lee Steadman. 1993. Preliminary Report on the 1992 excavations at Chiripa, Bolivia by the Taraco Archaeological Project (Proyecto Arqueologico Taraco-TAP). Report presented to the Instituto Nacional de Arquelogía de Bolivia.

Professional Affiliations / Committees

- Society for American Archaeology
- Institute for Andean Archaeology
- American Anthropological Association

Awards / Honors

- Three-year National Science Foundation research grant, Multi-Community Polity Formation in the Lake Titicaca Basin, Bolivia. ($286,346), with Christine Hastorf, 2003–2006
- Heinz Family Foundation grant, Southern Titicaca Basin Settlement Dataset Normalization. ($7,823), 2003–2004
- Fulbright-Hays Fellowship, dissertation research in Bolivia, 1999
- National Science Foundation doctoral dissertation improvement grant, 1998–1999
- Wenner-Gren Small Grant for dissertation research, 1998–1999
- National Science Foundation Graduate Fellowship, 1993–1997
- Phi Beta Kappa, 1992