

US EPA ARCHIVE DOCUMENT

HRA Gray & Pape

REVISED DRAFT

*PEDESTRIAN CULTURAL RESOURCES SURVEY FOR THE
PROPOSED OXYCHEM MARKHAM ETHYLENE PIPELINE PROJECT
IN SAN PATRICIO, REFUGIO, ARANSAS, CALHOUN, VICTORIA,
JACKSON, AND MATAGORDA COUNTIES, TEXAS*

Lead Federal Agency: Environmental Protection Agency (EPA)

Prepared for:

Occidental Chemical Corporation

Prepared by:

*HRA Gray & Pape, LLC
110 Avondale Street
Houston, Texas 77006*



FEBRUARY 20, 2014

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ABSTRACT

In March, May, and June of 2013, HRA Gray & Pape, LLC, of Houston, Texas, completed pedestrian cultural resources survey and limited shovel testing on portions of a proposed 184-kilometer (114-mile) alignment in preparation for a new 20.3-centimeter (8-inch) diameter ethylene pipeline to be located in San Patricio, Refugio, Aransas, Victoria, Calhoun, Jackson, and Matagorda Counties, Texas. The Phase I survey was conducted on behalf of Tetra Tech, Inc. of Buffalo, New York, under contract with Occidental Chemical Corporation. The Lead Federal Agency for the project (Project) is the Environmental Protection Agency.

To date, 175.7 kilometers (109.2 miles) of Project alignment, or 95.8 percent of the Project, has been surveyed. The amount of surveyed Project area in addition to surveyed areas no longer in consideration for the Project amounts to approximately, 1,399.8 hectares (3,459 acres) of survey coverage. Approximately 7.7 kilometers (4.8 miles) of Project are currently not surveyed. Of that amount HRA Gray & Pape, LLC recommends that 3.7 kilometers (2.3 miles) of marsh not be required for survey. Access is pending for the other 4 kilometers (2.5 miles) of Project alignment that has not been surveyed.

Fieldwork conducted in 2013 was completed over three separate mobilizations carried out from March 6 to 26, May 15 to 29, and June 17 to 21. In addition to work conducted in 2013, a 4.2-kilometer (2.6-mile) portion of the Project was previously surveyed by HRA Gray & Pape, LLC in 2011 and reported on in a separate document (Scott et al. 2013). Field investigation was conducted entirely on privately owned properties and consisted of walkover and limited shovel testing within the Project area. During this investigation 33 cultural resources were identified or confirmed. These include 17 new archaeological sites, one historic structure, five loci of three to ten historic artifacts, six isolated finds, and four previously recorded sites (41RF51, 41RF53, 41RF54, and 41SP256). The location of one additional previously recorded site (41JK111) has yet to be surveyed due to pending property access.

In general, cultural resources identified as the result of field efforts consisted of prehistoric shell middens and campsites, historic occupations and trash dumps, and historic and prehistoric isolate finds. No further work is recommended for 30 of the 33 identified resources as they are either confined to the plow zone, are now outside of the Project area, or offer little information to add to the understanding of the history of the area or for research potential. Of those sites identified within the proposed Project alignment, Sites 41RF54, 41SP268, and 41SP269 are considered potentially eligible for listing on the National Register of Historic Places or as State Archaeological/Antiquities Landmarks. These sites consist of prehistoric occupations and shell middens. HRA Gray & Pape, LLC recommends efforts to avoid these three sites and Project plans are for them to be avoided by horizontal drilling. The location of Site 41JK111 in regard to the project and its eligibility status is currently unknown.

The remaining portions of the proposed Project not surveyed including the location of Site 41JK111, as well as any additional laydown yards and access roads will be included in an addendum report once survey has been completed for those areas.

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1.0 INTRODUCTION

This report presents the results of pedestrian walkover survey and assessments conducted by HRA Gray & Pape, LLC. (HRA Gray & Pape) of Houston, Texas on behalf of Tetra Tech, Inc. (Tetra Tech) of Buffalo, New York, under contract with Occidental Chemical Corporation (OxyChem) for the installation of a new proposed pipeline within 184 kilometers (114 miles) of survey corridor in San Patricio, Refugio, Aransas, Calhoun, Victoria, Jackson, and Matagorda Counties, Texas (Figure A1).

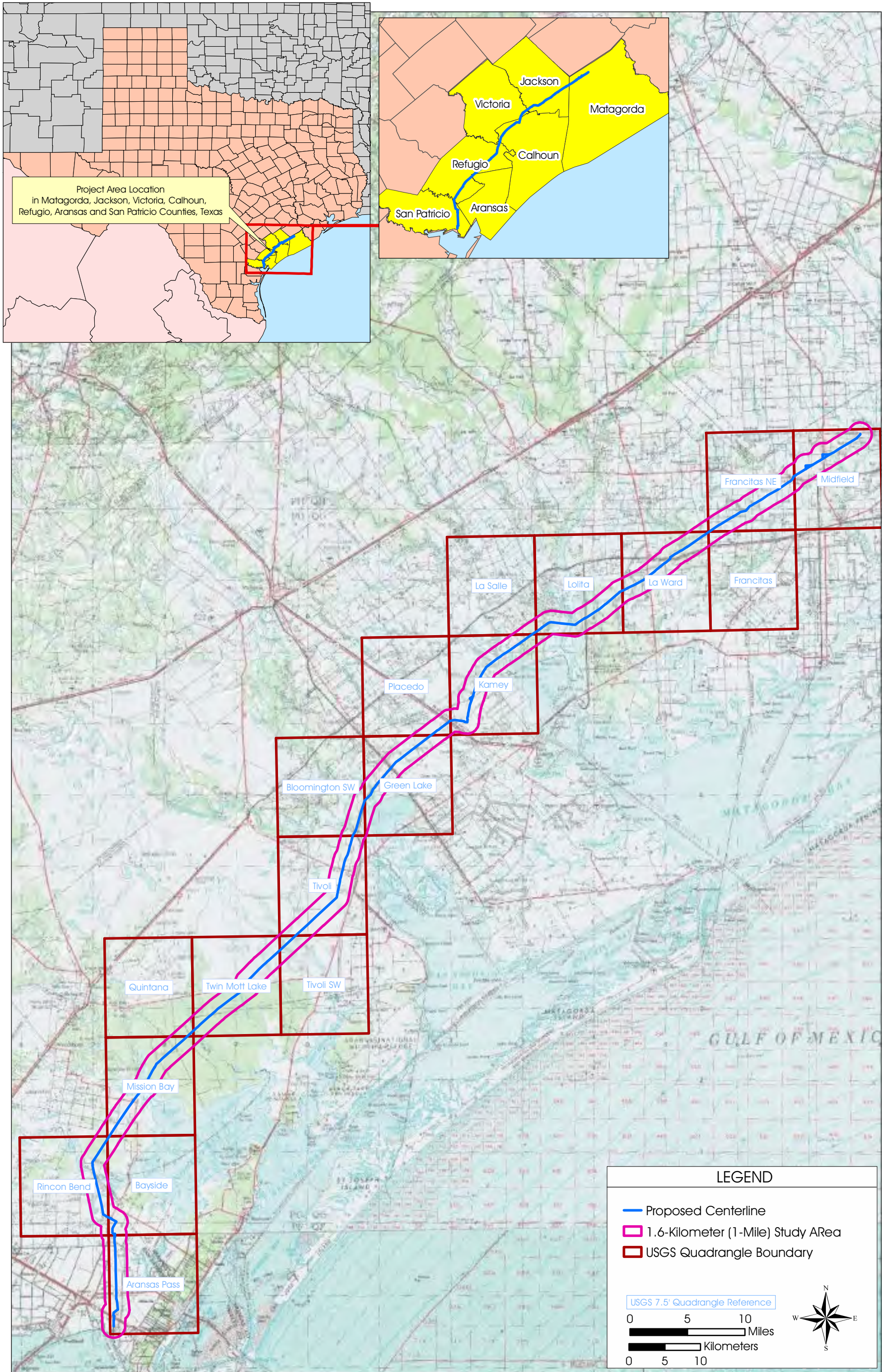
HRA Gray & Pape has completed survey of approximately 171.6 kilometers (106.6 miles) of proposed pipeline row-of-way (ROW). To date, with the exception of a 3.6 kilometers (2.2 miles) of segments for which landowner's permissions were not granted at the time of survey, and 3.2 kilometers (2 miles) of inundated marsh the proposed route has been surveyed. This surveyed length in addition to former Project alignments no longer in consideration for the Project amounts to approximately, 1,399.8 hectares (3,459 acres) of surveyed area. Approximately 93.5 percent of the proposed pipeline centerline has been surveyed. An unknown number of laydown yards, workspaces, and access roads are also expected for the project, but these have yet to be planned. These and the remainder of the pipeline will be included in an addendum report once survey has been completed.

At this time, the Environmental Protection Agency (EPA) is the assumed lead federal agency; therefore, the EPA's issuance of a permit for the Project is considered an undertaking subject to the provisions and review process provided in Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended. An EPA permit number has not yet been assigned for this Project. The goals of the cultural resources survey were to determine if land altering activities required to complete this Project would affect any previously identified historic properties as defined by Section 106 of the NHPA of 1966, as amended (36 CFR 800), and to established whether or not previously unidentified cultural resources were located within the Project's Area of Potential Effects (APE), and if so to provide management recommendations for these resources. All fieldwork and reporting activities were completed with reference to state (the Antiquities Code of Texas [1969, as amended 1997]) and federal (NHPA 1966; United States Department of the Interior [USDI], National Park Service [NPS] 1981, 1983) law and guidance for conducting cultural resources surveys pursuant to Section 106 of the NHPA (Advisory Council on Historic Preservation [ACHP] 2004).

The Project is privately funded and entails privately owned property; therefore, a Texas Antiquities Permit was not required from the Texas Historical Commission (THC) Division of Archeology prior to conducting the archaeological survey.

1.1 Project and Project Area Description

OxyChem proposes to construct, own, and operate an approximately 184-kilometer (114-mile) long, 20.3-centimeter (8-inch) diameter ethylene pipeline. The proposed alignment begins at OxyChem's existing Ingleside Facility located approximately 3.60 kilometers (2.25 miles) west of Ingleside, San Patricio County, Texas, and traverses northeast to the Markham Storage



Proposed OXYCHEM Markham Ethylene Pipeline Project Area Location in Matagorda, Jackson, Victoria, Calhoun, Refugio, Aransas and San Patricio Counties, Texas

Figure 1

Hub located approximately 1.2 kilometers (0.75 miles) west of Clemville in Matagorda County, Texas. Although the final proposed, alignment is in development, the pipeline traverses (from southwest to northeast) San Patricio, Refugio, Aransas, Victoria, Calhoun, Jackson, and Matagorda Counties, Texas. The majority of the pipeline alignment follows and partially overlaps existing pipeline ROW. Typically the survey corridor measures approximately 60 meters (200 feet) wide with 30 meters (100 feet) on each side of the proposed pipeline centerline. This defines the Project's APE. Several realignments or reroutes were surveyed expanding the survey corridor in some areas. For much of the proposed alignment an existing 15-meter (50-foot) wide permanent pipeline ROW parallels the proposed pipeline and is within the 200 feet survey corridor. Additional temporary workspaces and pipe laydown areas will be necessary; however, the locations of these features have yet to be determined.

The survey corridor crosses multiple major waterways and drainages. Major waterways include Aransas River which comprises the boundary between San Patricio and Refugio Counties, Mission River which drains Refugio County, Guadalupe River which drains Victoria County and serves as a boundary between Victoria and Calhoun Counties, Garcitas Creek between Victoria and Jackson counties, Lavaca River and West Carancahua Creek in Jackson County. Project plans for pipeline installation at a number of waterways will be accomplished by horizontal directional drilling (HDD) (Appendix A). The parcels that intersect the survey corridor are almost entirely composed of agricultural fields. The corridor intersects very little area that contains ground cover but these areas likely have been previously plowed.

1.2 Organization of the Report

This report is organized into seven numbered chapters and four lettered appendices. Chapter 1.0 provides an overview of the Project. Chapter 2.0 presents the environmental setting of the area. Chapter 3.0 discusses the cultural history of the region. Chapter 4.0 presents the research design and field methods developed for this survey. The results of research and survey activities are presented in Chapter 5.0. Chapter 6.0 presents the investigation summary and conclusions. A list of professional references cited is provided in Chapter 7.0. Graphics illustrating survey coverage and field survey results are provided in Appendix A. Newly recorded and revisited site sketch maps are provided in Appendix B. Plates are provided in Appendix C. Agency correspondence is documented in Appendix D.

1.3 Acknowledgements

Fieldwork entailed approximately 1,406 person hours and was conducted in three mobilizations by field crews comprised of Archaeological Crew Chiefs Catherine Cael, Jeremiah Hull, Amanda Simmons, and David Treichel, Archaeological Field Technicians Kody Dobecka, Charles William Fee, Alesha Marcum-Heiman, David Ingleman, Martin Boratin, and David Witt. Field work and reporting were performed under the supervision of Project Principal Investigator Tony Scott and Archaeologists David Bruner and Chris Baltz. Archival research was performed by Deborah Dobson-Brown, Melinda Mendoza-Scott, and Erica Howard.

Contents of the report were prepared by Julia E. Balakirova and Tony Scott with contributions by Melinda Mendoza-Scott, David Treichel, Catherine Cael, Charles William Fee, and David Bruner. Julia E. Balakirova and Duncan Hughey prepared the report graphics. Bonnie Locking reviewed and edited the report.

Special thanks are due to Mark Evans of Occidental Chemical Corporation, Bonnie Locking, Peggy Grant, Trey Towers, and Steve Compton of Tetra Tech, and Mark Hebert and Brad and Mark Shillings with Contract Land Staff, LLC (CLS). Their professional skills were invaluable in allowing the Project to run smoothly and their positive attitudes made it a great experience to be a part of the team.

2.0 NATURAL SETTING

2.1 Physiography and Geomorphology

The Project APE falls within Western Gulf Coastal Plains ecoregion and within Texas Coastal Prairie Province of the larger Gulf Coastal Plains (University of Texas, Bureau of Economic Geology [UT-BEG] 2010 and 1996). This is a low, level to gently sloping region extending from Florida to Mexico. The Texas Coastal Prairie reaches as far north as the Ouachita uplift in Oklahoma, and as far west as the Balcones Escarpment in central Texas. The basic geomorphological characteristics of the Texas coast and associated inland areas resulted from depositional conditions influenced by the combined action of sea level changes from glacial advance in the northern portions of the continent and subsequent down cutting and variations in the sediment load capacity of the region's rivers. Regional Pleistocene formations, such as the Lissie and Beaumont, are the result of these processes (Abbott 2001; Van Siclen 1991).

2.2 Soils

The majority of the soils recorded within the Project APE are clayey or loamy soils with parental material of Pleistocene age fluviomarine deposits or Holocene age alluvium. Hydrological conditions of the recorded soils vary based on the locations. Coastal counties crossed by the APE have an abundance of natural resources, with soils being one of them. These soils are generally good for croplands, pastures, and rangelands (Guckian 1988; Guckian and Garcia 1979; Hyde 2002; Miller 1997, 1982; Mowery and Bower 1978). The table below provides general summery of all the soil types within the Project APE and their characteristics.

Table 1. Soils Recorded within the Project APE

SYM	Name/Complex	Parental Material	Location	Land Use	Drainage	County
At	Austwell silty clay, high bottom	Clayey alluvium of Holocene age	Flood plains on delta and coastal plains	Rangeland and wildlife habitat	Poorly drained	Calhoun
Au	Austwell clay	Clayey alluvium of Holocene age	Flood plains on delta and coastal plains	Rangeland and wildlife habitat	Poorly drained	Calhoun
Be	Bacliff clay, 0 to 1 percent slopes	Clayey fluviomarine deposits of Late Pleistocene age	Gilgai on depressions on flats on coastal plains	Cropland and pasture	Poorly drained	Calhoun
Dc	Dacosta-Contee complex, 0 to 1 percent slopes	Clayey fluviomarine deposits of Late Pleistocene age	Flats on coastal plains	Cropland and Rangeland	Poorly to moderately drained	Calhoun
Dn	Dacosta-Contee complex, 1 to 3 percent slopes	Clayey fluviomarine deposits of Late Pleistocene age	Flats on coastal plains	Cropland and Rangeland	Poorly to moderately drained	Calhoun
Ke	Kuy sand (old Kenney) 1 to 5 percent slopes	Loamy and sandy alluvium of Pleistocene age	Terraces, coastal plains, and river valleys	Rangeland	Moderately well drained	Calhoun
La	Laewest clay clay, 0 to 1 percent slopes	Clayey fluviomarine deposits of Late Pleistocene age	Gilgai on flats on coastal plains	Cropland and Rangeland	Moderately well drained	Calhoun

SYM	Name/Complex	Parental Material	Location	Land Use	Drainage	County
Mb	Dacosta clay loam, 0 to 1 percent slopes	Clayey fluviomarine deposits of Late Pleistocene age	Gilgai on flats on coastal plains	Cropland and Rangeland	Moderately well drained	Calhoun
Mc	Dacosta clay loam, low	Clayey fluviomarine deposits of Late Pleistocene age	Gilgai on flats on coastal plains	Cropland and Rangeland	Moderately well drained	Calhoun
Md	Contee-Dacosta complex	Clayey fluviomarine deposits of Late Pleistocene age	Flats on coastal plains	Cropland and Rangeland	Poorly to moderately well drained	Calhoun
Te	Telferner very fine sandy loam	Loamy fluviomarine deposits of Late Pleistocene age	Meander scrolls on coastal plains	Cropland, Rangeland, and pasture	Moderately well drained	Calhoun
Ar	Aransas clay	Clayey alluvium of Holocene age	Flood plains on river valleys on coastal plains	Pasture and wildlife habitat	Poorly drained	Calhoun, Victoria
DvC	Dacosta and Telferner soils, 2 to 5 percent slopes, eroded	Clayey fluviomarine deposits of Late Pleistocene age	Flats on coastal plains	Rangeland	Moderately well drained	Victoria
LaD	Laewest clay, 3 to 8 percent slopes, eroded (old Lake Charles Clay)	Clayey fluviomarine deposits of Late Pleistocene age	Gilgai on flats on coastal plains	Pasture and Wildlife habitat	Moderately well drained	Victoria
Pe	Placedo silty clay loam, frequently flooded	Clayey over loamy alluvium of Holocene age	Flood plains on delta plains on coastal plains	Rangeland and Wildlife habitat	Very poorly drained	Victoria
TeA	Telferner fine sandy loam, 0 to 1 percent slopes	Loamy fluviomarine deposits of Late Pleistocene age	Meander scrolls on coastal plains	Cropland, pasture, and rangeland	Moderately well drained	Victoria
Tr	Trinity clay, frequently flooded	Clayey alluvium of Holocene age	Flood plains on river valleys on coastal plains	Rangeland	Moderately well drained	Victoria
BaA	Bacliff clay, 0 to 1 percent slopes	Clayey fluviomarine deposits of Late Pleistocene age	Gilgai on depressions on flats on coastal plains	Cropland and pasture	Poorly drained	Matagorda
ExA	Edna-Cieno complex, 0 to 1 percent slopes	Loamy fluviomarine deposits of Late Pleistocene age	Flats on coastal plains	Rangeland	Poorly drained	Matagorda
FoB	Fordtran loamy fine sand, 0 to 2 percent slopes	Loamy and sandy alluvium of Pleistocene age	River valleys, terraces, and coastal plains	Rangeland and wildlife habitat	Moderately well drained	Matagorda
KaB	Katy fine sandy loam, 0 to 2 percent slopes	Loamy fluviomarine deposits of Early Pleistocene age	Flats on coastal plains	Cropland, rangeland, pasture, and wildlife habitat	Moderately well drained	Matagorda
LaB	Laewest clay, 1 to 3 percent slopes	Clayey fluviomarine deposits of Late Pleistocene age	Gilgai on flats on coastal plains	Rangeland and wildlife habitat	Moderately well drained	Matagorda
LtA	Livco-Dacosta complex, 0 to 1 percent slopes	Loamy alluvium of Quaternary age	Flats and coastal plains	Pasture and rangeland	Moderately well drained	Matagorda
TfA	Telferner very fine sandy loam, 0 to 1 percent slopes	Loamy fluviomarine deposits of Late Pleistocene age	Meander scrolls on coastal plains	Rangeland, pasture, and cropland	Moderately well drained	Matagorda
DaA	Dacosta sandy clay loam, 0 to 1 percent slopes	Clayey fluviomarine deposits of Late Pleistocene age	Flats on coastal plains	Cropland, Rangeland, and pasture	Moderately well drained	Jackson, Matagorda, Victoria
LaA	Laewest clay, 0 to 1 percent slopes	Clayey fluviomarine deposits of	Gilgai on flats on coastal plains	Cropland, pasture, and	Moderately well drained	Jackson, Matagorda,

SYM	Name/Complex	Parental Material	Location	Land Use	Drainage	County
		Late Pleistocene age		Rangeland		Victoria
EdA	Edna fine sandy loam, 0 to 1 percent slopes	Loamy fluviomarine deposits of Late Pleistocene age	Flats on coastal plains	Rangeland and cropland	Poorly drained	Jackson, Matagorda
FaB	Fordtran loamy fine sand, 0 to 2 percent slopes	Loamy and sandy alluvium of Pleistocene age	Terraces, coastal plains, river valleys	Rangeland and pasture	Moderately well drained	Jackson
LaD3	Laewest clay, 3 to 8 percent slopes, eroded	Clayey fluviomarine deposits of Late Pleistocene age	Gilgai on flats on coastal plains	Rangeland and pasture	Moderately well drained	Jackson
LvA	Livco fine sandy loam, 0 to 1 percent slopes	Loamy alluvium of Quaternary age	Flats on coastal plains	Rangeland, cropland, and pasture	Moderately well drained	Jackson
MaC	Marcado sandy clay loam, 3 to 8 percent slopes	Loamy fluviomarine deposits of Pleistocene age	Flats on coastal plains	Rangeland and pasture	Well drained	Jackson
Pd	Placedo clay, frequently flooded	Clayey over loamy alluvium of Holocene age	Flood plains on delta and coastal plains	Rangeland and wildlife habitat	Very poorly drained	Jackson
Sw	Swan clay, frequently flooded	Loamy alluvium of Quaternary age	Flood plains on delta and coastal plains	Rangeland and wildlife habitat	Very poorly drained	Jackson
TxA	Texana-Cieno complex, 0 to 1 percent slopes	Loamy fluviomarine deposits of Early to Late Pleistocene age	Meander scrolls, coastal plains	Cropland and Rangeland	Poorly to moderately well drained	Jackson
BT	Barrada-Tatton association	Loamy fluviomarine deposits of Holocene Age	Undulating low coastal tidelands	Wildlife habitat	Poorly drained	San Patricio
MoD	Monteola clay, 5 to 8 percent slopes	Clayey fluviomarine deposits	Circular Gilgai on interfluves on coastal plains	Rangeland	Moderately well drained	San Patricio
Od	Odem fine sandy loam	Loamy Alluvium of Holocene Age	Flood plains on river valleys and coastal plains	Cropland, pasture, and rangeland	Well drained soil	San Patricio
Os	Orelia sandy clay loam	Clayey fluviomarine deposits of Late Pleistocene age	Flats on coastal plains	Cropland, pasture, and wildlife habitat	Poorly drained	San Patricio
PaA	Papalote fine sandy loam, 0 to 1 percent slopes	Clayey fluviomarine deposits of Late Pleistocene age	Flats on coastal plains	Cropland and pasture	Moderately well drained	San Patricio
RaA	Raymondville clay loam, 0 to 1 percent slopes	Loamy fluviomarine deposits of Late Pleistocene age	Meander scrolls on coastal plains	Cropland and wildlife habitat	Moderately well drained	San Patricio
RaB	Raymondville clay loam, 1 to 3 percent slopes	Loamy fluviomarine deposits of Late Pleistocene age	Meander scrolls on coastal plains	Cropland and wildlife habitat	Moderately well drained	San Patricio
Or	Orelia fine sandy loam	Loamy fluviomarine deposits of Pleistocene age	Flats on coastal plains	Cropland, pasture, and wildlife habitat	Poorly drained	San Patricio/Refugio
Na	Narta fine sandy loam	Clayey fluviomarine deposits of Late Pleistocene age	Flats on coastal plains	Rangeland and wildlife habitat	Poorly drained	San Patricio/Refugio
MoC	Monteola clay, 3 to 5 percent slopes	Clayey fluviomarine deposits	Circular Gilgai on interfluves on coastal plains	Rangeland and cropland	Moderately well drained	San Patricio/Refugio
Ec	Edroy clay	Loamy fluviomarine deposits of Late Pleistocene age	Open depressions on coastal plains	Rangeland	Poorly drained	San Patricio/Refugio
Ed	Edroy clay,	Loamy fluviomarine	Open depressions on	Rangeland	Poorly	San Patricio/

SYM	Name/Complex	Parental Material	Location	Land Use	Drainage	County
	depressional	deposits of Late Pleistocene age	Coastal Plains		drained	Refugio
Af	Aransas clay, frequently flooded	Loamy fluviomarine deposits of Holocene age	Flood plains on river valleys on coastal plains	Rangeland and wildlife habitat	Poorly drained	San Patricio/Refugio
As	Aransas clay, saline	Clayey alluvium of Holocene age	Flood plains on river valleys on coastal plains	Rangeland and wildlife habitat	Poorly drained	San Patricio/Refugio
VcA	Victoria clay, 0 to 1 percent slopes	Clayey fluviomarine deposits of Late Pleistocene age	Gilgai on flats on coastal plains	Cropland	Well drained	San Patricio/Refugio
VcB	Victoria clay, 1 to 3 percent slopes	Loamy fluviomarine deposits of Late Pleistocene age	Gilgai on flats on coastal plains	Cropland	Well drained	San Patricio/Refugio
Vd	Victoria clay, depressional	Clayey over loamy fluviomarine deposits of Late Pleistocene age	Gilgai flats on coastal plains	cropland	Well drained	San Patricio/Refugio
Ac	Aransas clay, occasionally flooded	Clayey alluvium of Holocene age	Flood plains on river valleys	Pasture and wildlife habitat	Poorly drained	Refugio
Ba	Barrada clay	Clayey over loamy alluvium and storm washover sediments of Holocene age	Wind tidal flats on barrier islands	Wildlife habitat and recreation	Very poorly drained	Refugio
Co	Copano fine sandy loam	Loamy fluviomarine deposits of Late Pleistocene age	Flats on coastal plains	Rangeland	Poorly drained	Refugio
Fd	Faddin fine sandy loam	Loamy fluviomarine deposits of Late Pleistocene age	Meander scrolls on coastal plains	Rangeland	Moderately well drained	Refugio
Mo D4	Monteola clay, 5 to 8 percent slopes, gullied	Clayey fluviomarine deposits	Low hills on coastal plains	Rangeland	Moderately well drained	Refugio
PaB	Papalote loamy fine sand, 0 to 3 percent slopes	Loamy fluviomarine deposits	Hills on coastal plains	Rangeland and pasture	Moderately well drained	Refugio
PtA	Papalote fine sandy loam, 0 to 1 percent slopes	Loamy fluviomarine deposits	Flats on coastal plains	Rangeland, cropland, and pasture	Moderately well drained	Refugio
Va	Victine clay	Clayey fluviomarine deposits of Late Pleistocene age	Gilgai on flats on coastal plains	Pasture and wildlife habitat	Poorly drained	Refugio
Vr	Vidauri fine sandy loam	Loamy fluviomarine deposits of Early Pleistocene age	Flats on coastal plains	Livestock grazing and pastureland	Poorly drained	Refugio

2.3 Climate

The Project area is located within an area consisting of a humid subtropical climate subject to coastal weather conditions, which means prevailing southeasterly winds from the Gulf of Mexico, generally regulate temperatures, and typically removes the potential for wild temperature swings. The average high temperature in summer is 96 degrees Fahrenheit (F) and the average low in winter is 46 degrees F. Peak rainfall occurs in September and October and again in the months of April through June (Guckian and Garcia 1979).

2.4 *Land Use*

The parcels containing the survey corridor are mostly agricultural fields occasionally intermingled with pasturelands, wooded areas, and some wetland type areas. Woods and wetlands are typically located adjacent to waterways and confluences. Portions of some agricultural fields also show the remains of gas well pads (Texas General Land Office [GLO] 2012).

3.0 PREHISTORIC SETTING

3.1 *Cultural Periods*

Researchers have identified four archaeological time periods associated with Native Americans in south and south central Texas; in general, these include the Paleoindian, Archaic (with Early, Middle, and Late subdivisions), Late Prehistoric, and Historic Indian. The Paleo-Indian stage of south Texas has been dated to be between 9,000-6,000 B.C. The Archaic period is believed to have started around 6,000 B.C. and ending sometime around A.D. 800 (Prewitt 1981, 1985; Story 1985; Black 1989). The Late Prehistoric began at the end of the Archaic phase circa 800 A.D. After the Late Prehistoric, the Historic Indian stage began circa 1600 A.D. with the exposure of native populations to European travelers. The chronologies developed by researchers are based primarily on changes in projectile point technologies within the region and the introduction of new technologies. It is generally recognized that a broad-based hunting and gathering lifestyle was utilized throughout all time periods.

3.1.1 **Paleoindian Period**

Evidence is sparse for Paleoindian habitation; much of what is known about the period in the area comes from a compilation of materials gathered from around the state of Texas and across North America. At the close of the Pleistocene, large game hunters crossed the Bearing Strait, and within a few millennia had penetrated into South America (Culberson 1993; Newcomb 1961). The Paleoindian people traveled in small bands and were mega-fauna hunter-gathers with the bulk of their meat protein derived from mammoths, mastodons, giant bison, and giant sloths (Culberson 1993). In the Texas Gulf Coastal Plains, it is highly likely that these small bands migrated from the plains and prairies to the coastal river bottoms in order to obtain new resources (McGraw and Hindes 1987; Campbell 1988). These groups carried with them an easily recognizable stone tool material culture, though little is known about their wooden or bone tools or their clothing types. Diagnostic points such as fluted Clovis, Folsom, and Plainview points can be used to identify the Paleoindian component of a site and the nature of these points demonstrate the nature of the hunting style. These points are large and designed to be attached to a spear. No evidence of bow and arrow hunting has been found associated with this period (Culberson 1993; Newcomb 1961).

3.1.2 **Archaic Period**

After the Pleistocene, the Gulf of Mexico started a transgression onto the Texas coast creating estuaries along the shoreline. The formation of these estuaries gave the Archaic people of the Texas coast a strong emphasis on marine resources (Jurgens 1989). This shift in food supply is seen as the pivotal transition point between the Paleo and Archaic periods (Culberson 1993; Biesart et al. 1985; Newcomb 1961). Within the boundaries of the south Texas coast, Corbin (1974) has termed the Archaic period, the Aransas complex. Most of the material culture recovered from Archaic sites within the south Texas region consists of shell artifacts such as Conch columella gouges, adzes, hammers, and awls. There are three progressive stages recognizable during the Archaic period: the Early, Middle, and Late.

Early Archaic people relied on hunter-gathering subsistence and organized in small, isolated bands that remained in relatively restricted regions (Aten 1984). Many researchers (Prewitt 1981, 1985; Story 1985; Black 1989) believe that the Early Archaic tradition in this area began around 6,000 B.C. and is really a continuation of the Paleoindian lifeway. With the loss of the mega-fauna as a food source, the Early Archaic peoples adopted the hunting of smaller game such as bison and deer and increased their reliance on foraging (Culberson 1993). The material record fits the transitional makeup of this period because there was a dramatic shift from the large spear points of the Paleoindian period to a reliance on smaller “Dart” type points. Diagnostic designs for this period are Dalton, San Patrice, Angostura, Golondrina, Merserve, Scottsbluff, Wells, Hoxie, Gower, Uvalde, Martindale, Bell, Andice, Baird, and Taylor. These points are much more crudely made than their Paleo precursors, but remain designed for use on a spear shaft.

The Middle Archaic is believed have started around 3,000 B.C. (Prewitt 1981, 1985; Story 1985; Black 1989) and has the largest growth in technology and in the number of stone tools utilized. Specialized tools appeared for the milling of wild plant foodstuffs (Culberson 1993) along with a large assortment of tools for food preparation and procurement. Many researchers believe there was an increased reliance on plant resources during the Middle Archaic. Gravers, scrapers, axes and choppers, knives, drills, and polished stone tools also known as ground stone tools, began to appear in large quantities (Newcomb 1961). Diagnostic points such as Gary, Kent, Palmillas, Nolan, Travis, Belvedere, Pedernales, Marshall, Williams, and Lange dominate the spectrum of dart points from the Middle Archaic period (Turner and Hester 1993; see also the Edwards Plateau Aspect [Newcomb 1961]). The advent of the spear-throwing device, the atlatl, also seems to be placed within this period (Culberson 1993).

The Late Archaic period is thought to have begun around 400 B.C. (Prewitt 1981, 1985; Story 1985; Black 1989) at which time there is a dramatic increase in the population densities of Native American groups. Human habitation of areas rich in diverse flora and fauna intensified, as did the variety of materials and artifacts (Culberson 1993; Aten 1984). Late Archaic peoples began relying heavily on foraging tubers, berries, and nuts and hunting small game such as deer, rabbits, raccoons, fish and shellfish, and birds. Groups became socially more complex than earlier periods and the result was an increasing intercommunication with neighboring groups. Culberson (1993: 55) states that a “Lapidary Industry” developed in which stone artifacts were made from exotic materials (jasper, hematite, quartz, shale, slate, etc.) acquired from sources great distances away. These materials were fashioned into an increasingly complex array of household goods such as celts, plummets, banner stones, mortars and pestles, and pendants; also during this period, there is an increase in the occurrence of sandstone bowls (Culberson 1993). Diagnostic points of this period are difficult to distinguish from those of the Middle Archaic. Points such as Marcos, Montell, San Gabriel, Mahomet, Fairland, and Castroville also appear at times.

3.1.3 Late Prehistoric Period

The Late Prehistoric continues from the end of the Archaic period (circa 800 A.D.) to the Historic period (circa 1500 A.D.) ushered in by the Spanish Missions and Anglo-American settlers. During the Late Prehistoric period in south Texas, two cultural complexes appear to

have existed. The first complex, located further east on the coast, is characterized by ceramics that appear similar to the Goose Creek ceramics found farther north (Jurgens 1989; Ricklis 2004). The second and later complex has been called the Rockport complex, and has been associated with the Karankawa groups (Newcomb 1961; Ricklis 2004).

Within south Texas there were two dominate cultural groups that extended south of Galveston Bay down to the Rio Grande and as far west as present-day San Antonio. The coastal group was known as the Karankawas and the inland group was known as the Coahuilteicans (Ricklis 1996). The Karankawas, whose language is in the Hokan group (Aten 1984), extended from Galveston Bay southwestward as far as the present site of Corpus Christi Bay. As described by Newcomb (1961: 59), seven proper names are associated with the culture. Researchers subdivide these names into five distinct groups based on geography. The Capoques and the Hans lived in the area between Galveston Bay and the Brazos River. The Kohanis lived south of the Capoques and the Hans at the mouth of the Colorado River. The Karankawa proper (which included the Korenkake, Clamcoets, and Carancaguacas) lived in the region of Matagorda Bay. Along Copano Bay and St. Joseph Island were the Kopanos (Newcomb 1961).

In the seventeenth and eighteenth centuries, the Spanish and French relied heavily on interaction with Native American groups in the area to further their own interests (Newcomb 1961). Most destructive for all native groups in the region was the influx of European diseases. When Euro-American settlers began moving into the area in mass around the 1850s, disease and warfare had decimated the groups to near extinction.

3.1.4 Protohistoric Period to the Post-Contact

Although archeological evidence suggests the Karankawas migrated to the Texas Gulf Coast from the Caribbean in the early 1400s, it is unknown exactly how early these Native Americans roamed the Texas Gulf Coast area. The first written account of this tribe came from the diary of Alvar Nunez Cabeza de Vaca in the early 1500s (Guthrie 1986).

The Karankawa tribe living in the San Patricio County region was made up of several bands. The Copanos (also spelled Cobane, Coopane, Kopano) lived along Copano Bay and St. Joseph Island (Campbell 2013), the Coahuiltecan inhabited the areas south of the Corpus Christi Bay and Mustang Island, and the main Karankawa band lived around the central section of the Texas coast known as the coastal prairie. In 1986, archeologists uncovered a Karankawa campsite at Round Lake near San Patricio, Texas that appeared to have been inhabited year-round from as early as 1410 (Guthrie 1986).

The Karankawas disappeared from the San Patricio area in the mid-1800s. In the early 1830s, clashes with white settlers forced many Karankawas into Mexico where they were eventually killed or died out. Any remaining Karankawas fled to Mexico to face the same end following the 1852 battle against William Kuykendall at Hyness Bay in Refugio County, Texas (Guthrie 1986).

3.1.5 Historic Period

The Project APE falls within seven counties along Texas coast (San Patricio, Refugio, Aransas, Calhoun, Victoria, Jackson, and Matagorda). This area has a rich and complex history and each of the seven counties experienced certain unique events. In general, the history of the region was influenced by complicated geo-political events of the different time periods. To understand better the overall history of the reviewed counties it is important to remember key chronological events of the general history of Texas. Further discussion is framed within the general chronology divided into following periods: early European explorations (early 1500s-1716), Spanish rule period (1716-1821), Mexican rule period and Texas War of Independence (1821-1836), Republic of Texas (1836-1845), Mexican War (1846-1848), pre-Civil War period (1848-1861), Civil War period (1861-1865), Post Civil War to the twentieth century.

Early European Explorations (1515-1716)

Typical historic period discussion of the area starts with early Spanish and French explorers dating back to early 1500s and 1600s. This is a period of a complex and competing relationship between the two nations.

In 1519, Alonzo Álvarez de Pineda commanded a Spanish expedition along the Gulf of Mexico charting its coastline (Weddle 2013a). However, Álvar Núñez Cabeza de Vaca is the first known historian of Texas. Originally a member of the larger ill-fated Spanish expedition led by Pánfilo Narváez from Spain to the Gulf Coast (Chipman 2013a), he was one of the few survivors that landed along the Texas coast between Galveston Island and the Matagorda Peninsula. De Vaca lived and travelled among the natives for several years before reaching colonial Mexico in 1536 (Chipman 2013a). The name Cabeza De Vaca is mentioned in the early histories of Matagorda (Kleiner 2013a), Jackson (Hardin 2013), Victoria (Roell 2013a), and Refugio (Leffler 2013a) counties.

In 1558, Guido de Lavazares landed in Matagorda Bay while surveying the northern Gulf Coast (Kleiner 2013a) and made a formal claim to the land in the name of King Charles V (Kleiner 2013a; Weddle 2013b). One of his vessels shipwrecked on Padre Island earlier in 1554 (Weddle 2013b). Spaniards largely ignored this region until the French, under the command of René Robert Cavelier, Sieur de La Salle landed in 1685 near Powderhorn Lake within the boundaries of the future Calhoun County (Kleiner 2013b; Weddle 2013d). The Spaniards established the first European settlement in Texas (Long 2013a), known as Fort St. Louis, on Garcita Creek within the boundaries of the future Victoria county (Weddle 2013c), or as some claimed within the future Jackson County (Hardin 2013). Upon settling in the Fort, La Salle continued to explore the surrounding country, possibly reaching as far as the Rio Grande (Weddle 2013c). French presence in the region sparked a renewed Spanish interest and the Spanish government dispatched an expedition led by Alonzo De Leon to find and destroy the French.

Alonzo De Leon led the total of four expeditions into Texas between 1689 and 1691 looking for traces of French settlements on the northern Gulf Coast (Chipman 2013b; Guthrie 2013). While on a mission to find and destroy French settlements of La Salle, he probably entered

Aransas Pass while sailing up and down the coast (Guthrie 2013). De Leon found ruins of a French fort within future Calhoun County in 1689 (Kleiner 2013b). Later that year De Leon discovered and named the Guadalupe River within the future Victoria County (Roell 2013a).

Following De Leon's expedition and subsequent discovery of the French fort remains, the Llanos-Cárdenas Expedition was organized as a follow up and in 1690 Manuel José de Cárdenas y Magaña mapped Matagorda within the present day Matagorda County (Weddle 2013e; Kleiner 2013a).

Other explorations in the regions continued long after De Leon's and La Salle's expeditions. Between 1718 and 1719, the Alarcon expedition passed through the territories of the future Matagorda County (Kleiner 2013a). In 1712 and 1718, another French party came ashore on St. Joseph Island (Guthrie 2013). In 1766, Diego Ortiz Parrilla explored the Gulf Coast (Long 2013a), naming future Copano Bay within the present day Aransas County as Santo Domingo, and future St. Joseph Island as Culebra Island (Long 2013a; Weddle 2013f).

Spanish Colonial Period (1716-1821)

As mentioned earlier, the first European settlement in Texas was the French settlement of La Salle established within the future Victoria County. However, it was the Spanish who eventually colonizing the area first. The first settlers arriving in the area were Hispanic missionaries and colonists subjects of Spanish crown. As the era of the early explorations was winding down, a new period of cultural absorption began. This period can be characterized by the Texas Native Americans beginning to acquire Hispanic cultural elements at first indirectly and then directly from Spaniards themselves (Chipman 2013c). Establishment of a mission was one of the instruments used to incorporate indigenous population into the Spanish colonial empire (Wright 2013).

In 1722, Nuestra Señora del Espíritu Santo de Zúñiga Mission (known as La Bahía Mission) was established at the present site of Goliad within the boundaries of the original Refugio County, now the present day Victoria County (Roell 2013a). The mission cemented Spanish presence in the region with a number of ranchos steadily growing around it (Leffler 2013a), and laid a foundation to cattle raising industry in region (Roell 2013a). Throughout this period, the constant threat of Indian attacks persisted; failed attempts were made to establish settlements in the lower Nueces River valley (Long 2013a). In 1794, La Bahia Mission was raided by the Indians and subsequently moved to a different location (Leffler 2013a; Roell 2013a).

In 1793, the Nuestra Señora Del Refugio Mission was founded by the Franciscans in an attempt to bring the local coastal population under Spanish control. This was the last Spanish Mission founded in Texas. The original location chosen for the mission was on Goff Bayou in modern day Calhoun County, north of Mission Lake and half a mile the town of Long Mott. In 1794, the Mission was moved further north in a better protected location near the confluence of the San Antonio and Guadalupe Rivers and in 1795 it was moved one more time to the site of the present day town of Refugio in Refugio County. The mission functioned for approximately 30 years. By the time Irish settlers moved into the area during the 1830s it was no longer operational (Benowitz 2013).

In Aransas County a small Spanish fort was established on the west bank of San Antonio Bay at Live Oak Point by the end of the late colonial period. The fort was named Aránzazu. Any additional attempts to establish settlement in the area were repelled by Native American attacks (Long 2013a). In Calhoun County no further permanent settlements were made until the Anglo-American colonization (Kleiner 2013b). The Native Americans dominated the area of the future Jackson County raiding Spanish ranches to the south (Hardin 2013).

It is worth noting, that only a small portion of Texas was known as Spanish Texas, or Spanish province, stretching above the Nueces River into Louisiana, and divided into four provinces of the Colonial Mexico over time (Chipman 2013c). Due to the extent of the province it was difficult for the colonial powers to populate successfully the area while fighting the resistance of the Native Americans. Presented with such difficulties, the Spanish crown started to look for other ways to colonize further the region. The earliest land grants in Texas can be traced back to 1700s and were made by the Spanish crown to Spanish colonists (Lang and Long 2013). While Hispanic settlers were slowly moving into the regions along and north of the Rio Grande and into the southern Texas, the Spanish government was trying to entice Anglo-settlers to populate other parts of the province. In 1820, the Spanish government opened Texas to anyone who would respect and obey the laws. Therefore, the first Anglo-American empresario in Texas was Moses Austin, succeeded by his son Stephen F. Austin. Moses Austin was promised a contract to land along the Brazos River in 1821 in exchange for bringing 300 Catholic families from Louisiana. The contract had to be negotiated after the Mexican War of Independence ended in 1821.

Mexican Colonial Period (1821-1836), Anglo-American Colonization

Overall, uninterrupted Spanish rule over Texas lasted from 1716 until 1821 the Mexican War of Independence (1810-1821), finally undermined the Spanish crown authority in the colonies establishing Mexico as an independent constitutional monarchy (de la Teja 2013). Territories of Texas, once subjects of colonial Spain, now formed part of the Coahuila y Texas province of newly established Mexico.

Six families of the early Anglo-American colonists brought down by Stephen F. Austin settled within the boundaries of the future Jackson County (Hardin 2013). Fifty-two families originally received land grants from Austin within the future Matagorda County around 1822 with another 300 allowed by the newly established Mexican government to be settled along the coastal areas in 1827 (Kleiner 2013a). Many of the early Austin's colonists came from Alabama and by the 1830s the newly formed municipality within future Jackson County became known as the "Alabama Settlement" (Hardin 2013).

The newly formed Mexican government started to issue its own land grants in the province under the newly passed Mexican Colonization Laws of 1825 (Lang and Long 2013; Barker 2013). This law and the state law of Coahuila y Texas affected all the future contracts with colonists except Austin's first contract (Barker 2013). In 1828, John McMullen and James McGloin obtained the contract from the Mexican government, which allowed them to bring 200 Irish families the future San Patricio County (Guthrie 2013). The first group of families landed at El Cópago and Matagorda in 1829 followed by two other groups shortly thereafter.

The newly arrived colonists moved to the north side of the Nueces River (future San Patricio County) where as per the contract with the Mexican government they received land grants on the east bank of the river and established a new settlement named after the patron saint San Patricio de Hibernia (Guthrie 2013; Long 2013b). An additional group of colonists arrived to San Patricio in 1834 turning the settlement into a thriving community of 500 by 1836. The original contract called for 200 families to be settled along the Nueces River, however, a total of only 84 titles had been issued by the start of the Texas Revolution in 1836 (Guthrie 2013; Long 2013b). All of the land grants issued by the Mexican government were recognized by the Republic of Texas after the Revolution and the descendants of some of the original colonists still reside in the area (Long 2013b).

In Refugio and Aransas counties, Anglo-American colonization was restricted until after 1836 due to the Colonization Law of 1825. According to the law no land could be granted within 10 leagues of the coast or within 20 leagues of the international boundary without federal executive authorities' approval (Barker 2013). The Power and Hewetson Contract of 1828 (further supplemented in 1829 and 1831), was an exception. Under the original contract, empresarios James Power and James Hewetson were granted 10 littoral leagues between the Lavaca and Guadalupe rivers. In the supplement to the contract issued in 1829, granted territory was extended from the Guadalupe to the Nueces River and in the 1831 supplement empresarios received former lands of the abandoned Refugio Mission (The Texas State Historical Association [TSHA] 2013; Leffler 2013a; Long 2013a). The new colony was settled by Irish and Mexican catholic families. The majority of the colonist moved further inland, only a few settlers stayed within future Aransas County leaving it sparsely settled (Long 2013a).

In Calhoun and Victoria counties, Anglo-American colonization started as early as 1824. Mexican aristocrat Martín De León brought 41 families into the area founding De Leon colony and establishing a ranch near the former site of La Salle's fort in present day Victoria County. The newly founded settlement was named Guadalupe Victoria after the first president of Mexico. De León's colony was the only mostly Mexican colony in Texas; the empresario and the colonists were given more advantages and fewer restrictions than the foreign agents. The boundaries of the colony were declared in 1828 and included Matagorda Bay on the south, Mission Valley on the north, the Lavaca River on the east, and Coletto Creek on the west. Eventually, De León's colonists settled in both Victoria and Calhoun counties' territory and in part in Lavaca, Jackson, and DeWitt counties as well. (Kleiner 2013b; Roell 2013b; Roell 2013c). Mexican colonists were not the only settlers in the area. A few Anglo settlers were already living in the area, with a number of Irish immigrants arriving shortly after (Roell 2013c). The first Anglo settlement in Calhoun County was founded in 1831 by John J. Linn at the site of Linnville approximately 4.8 kilometers (3 miles) north from present day Port Lavaca. The settlement was burned down in 1840 by a raiding party of Comanche Indians (Kleiner 2013b).

Future San Patricio, Refugio, Victoria, Jackson, and Matagorda counties, originally encompassing larger territories, became municipalities within the Mexican state of Coahuila y Texas between 1834 and 1835 (Guthrie 2013; Leffler 2013a; Roell 2013a; Hardin 2013; Kleiner 2013a).

Texas War for Independence and the Republic of Texas (1836-1845)

Mexican rule over Texas lasted approximately 15 years until 1836, when Texas gained its independence as a result of what became known as Texas Revolution, or the Texas War of Independence (October, 1835- April, 1836). San Patricio County was the only county along the coastline that experienced direct military incidents. In 1835, Fort Lipatitlan surrendered to the McMullen-McGloin colonists and in February 1836 a detachment of the Texans under command of Francis W. Johnson was massacred at San Patricio (Guthrie 2013; Hendrix 2013). In south-central Jackson County a community that became known as Texana served as a port, military post, campsite, and training grounds for the volunteers from the United States and later for the Army of the Republic of Texas. Citizens of the Jackson County mostly fled the area in the Runaway Scrape upon learning about massacres at the Alamo and Goliad and Santa Anna's advances. As the citizens fled, Mexican troops under the command of Jose de Urrea occupied parts of the county burning many Anglo-American settlements (Hardin 2013).

Confrontations between Texans and Mexicans continued for some time after the Declaration of Texas Independence of 1836 and different incidents occurred throughout the area until as late as 1842. San Patricio and Victoria Counties were raided by Mexican forces under command of the General Ráfael Vásquez as late as 1842 (Guthrie 2013; Roell 2013a). Depleted of population, Refugio County withstood numerous raids by Mexican forces as well (Leffler 2013a). Mexican bandits raided Aransas City within future Aransas County in 1838, 1839, and 1841 (Long 2013a).

After the war, the Congress of the Republic of Texas formed 23 counties from already existing municipalities. Many of those original counties would be further divided and many counties had their boundaries changed several times. San Patricio, Refugio, Victoria, Jackson and Matagorda Counties were among the original counties of the Republic. Future Aransas County was part of the newly formed Refugio County until 1871. Future Calhoun County was part of the Victoria, Jackson, and Matagorda counties until 1846. The modern boundaries of Victoria County were defined in 1846 and the boundaries of Jackson County constantly changed through late 1840s (Guthrie 2013; Leffler 2013a; Roell 2013a; Hardin 2013; Kleiner 2013a; Kleiner 2013b; Long 2013a).

Demographics and the economy of each county were affected differently by the war. San Patricio and Refugio were depopulated in part due to continuous raids by the Mexican forces. Interior parts of Aransas County remained largely undeveloped for a time being with the land titles issued by the Mexican government to the Power and Hewetsons' colonists being disputed and eventually void. In the early 1840s, a series of German and Polish communities were established in Calhoun County. Other settlers in Calhoun County came from the southern states such as Louisiana, Georgia, Mississippi, Tennessee, and Alabama. The De Leon colony in Victoria and Calhoun counties was the only primarily Mexican colony in Texas. De Leon colonists largely supported the revolution against de Santa Anna, but despite their support they were forced off of their lands immediately following the end of the revolution in 1836 and the area was resettled by Anglo-Americans (Guthrie 2013; Leffler 2013a; Roell 2013a; Hardin 2013; Kleiner 2013a; Kleiner 2013b; Long 2013a).

In Jackson County the citizens returned to their lands after the Runaway Scrape to find much of their property destroyed by the Urrea's troops. Despite the following hardships, the old Alabama Settlement rebuilt itself and continued to grow during the Republic of Texas period. Texana remained as an important military post and was named the county seat in 1836. Matagorda County's population was not radically affected by the war and remained predominantly of the southern background. Matagorda became the county seat in 1836 and grew into the second largest seaport and the port of entry for immigrants between 1840 and 1865 (Guthrie 2013; Leffler 2013a; Roell 2013a; Hardin 2013; Kleiner 2013a; Kleiner 2013b; Long 2013a).

Mexican War (1846-1848)

The Independent Republic of Texas existed until 1845 when Texas was annexed by the United States of America and became its twenty-eighth state (Nance 2013; Neu 2013). The annexation of Texas prompted a new conflict, which became known as Mexican War (1846-1848) (Bauer 2013). This time played out conflict was over the boundaries between two countries, with Texas becoming disputed territory. In 1846, General Zachary Taylor's army marched through San Patricio, Refugio, and Aransas counties advancing to the Rio Grande where it defeated the Mexicans in the Battle of Palo Alto and Resaca de la Palma (Bauer 2013). The southern counties were stabilized and the region was slowly repopulated following the end of the war (Guthrie 2013; Leffler 2013a; Long 2013a). During this time period, the Native American threat was mostly removed from the region further enticing settlement.

Pre-Civil War Period (1848-1861)

The Pre-Civil war period in the history of the coastal region of Texas is characterized by the growth of ranching and farming communities, with ranching being the leading industry. Each one of the coastal counties experienced the growth at different rates with the growth in the southern counties typically slower than in the northern ones.

San Patricio County experienced slow growth in crop production with corn being the primary crop predominantly grown in the southern part of the county. During this period a series of ranches were established providing the area's main source of income. Between 1850 and 1860, the county's population increased from 200 to 620, with the total of 51 farms and ranches operating in the area by 1860 (Guthrie 2013). Refugio County had a slightly higher population density during this time period. Population grew from 288 in 1850 to 1,748 in 1860 with almost 156,209 hectares (386,000 acres) of land used for farming and ranching. Cattle ranching dominated the economy and corn was the main crop. The cattle industry was operated by stock ranchers with many Mexican Americans owning small spreads of land and relying on free ranging (Leffler 2013a). Aransas County continued to be scarcely populated during this time period with a few ports developing along the coastal line. The new port, St. Mary's of Aransas, on Copano Bay became the largest lumber producing center in western Texas (Long 2013a).

Calhoun County had been largely dominated by ranching, which at first developed based on the Spanish model and later continued by the Anglo-American colonists. The Indianola Railroad was built in Calhoun County in the early 1850s. In 1852, Indianola became the new

county seat. The county was active with trade and commerce exporting, among other things cattle, cotton and pecans. Another railroad line, Lavaca-to-Victoria, was completed by 1861. The population grew between 1850 and 1860 from approximately 1,100 to 2,642 (Kleiner 2013b). Victoria County had the highest value of cattle stock in the region and cotton was the primary crop before the Civil War largely supported by the use of a relatively extensive slave labor. Corn was the second most important crop. The population of Victoria County increased from 2,019 to 4,170 between 1850 and 1860 with many residing in Victoria (Roell 2013a).

Similarly in Jackson County, the cattle industry was the leading industry with only 3,034 acres of land cleared for crops by 1850s. However, the population of the Jackson County experienced the increase between 1850 and 1860 from 996 inhabitants to 2,612 with nearly half being black. Such a sharp increase in number of slaves signifies the growth of the plantation economy. Cultivated lands increased to 10,214 hectares (25,240 acres) by the 1860s and cotton and sugarcane were the primary crops. Cattle ranching remained the leading industry nevertheless (Hardin 2013).

Between 1850 and 1855, a number of slaves were brought to Matagorda County to work on the large plantations between the Colorado River and Caney Creek. This region became known as “Old Caney”. Cotton and sugar were the typical crops produced in the plantation economy. By 1860, the population of the county was estimated at 3,454 including 2,107 slaves, by far the largest number comparing to its southern neighbors (Kleiner 2013a).

Civil War Period (1861-1865)

The American Civil War (1861-1865) brought further changes into the region. Parts of Texas, particularly the southern counties, became a smuggling route during the blockade of the South by the Union. All of the southern counties supported the Confederacy and many local citizens served in the Confederate Army.

San Patricio and Victoria Counties were positioned on the “Cotton Road” to Matamoros, Mexico, a major center for cotton smuggling (Guthrie 2013; Roell 2013a). As a consequence, the federate raiding parties would periodically come ashore harassing local population and confiscating the livestock. Further upland in San Patricio County, the bands of rustlers plagued the area (Guthrie 2013) while Victoria County was eventually occupied by the Union forces (Roell 2013a). The Refugio County area was periodically raided by the federal forces and the population of the county dramatically dropped as a result (Leffler 2013a). Aransas County served as one of the battlegrounds during the Civil War with several engagements occurring between the Union and Confederate forces. Similarly, to its southern neighbors the area experienced destruction and economic disruptions (Long 2013a).

Calhoun County supported the Confederacy just as the rest of the counties. It did, however, felt the most brunt of the war. Many of the wharves, warehouses, and road infrastructures were destroyed by federal troops who occupied the county by the end of the war (Kleiner 2013b). Finally, Matagorda County experienced extensive activities by the Confederate forces and was the only county where no Union troops entered during the war. The economy of Matagorda County was nevertheless devastated by the Union’s blockade and the further emancipation of the slaves (Kleiner 2013a).

Post-Civil War – The Twentieth Century

San Patricio County experienced immediate growth in population following the end of the war, especially in the southern part. New immigrants were searching for cheap lands. Ranching continued to dominate the area and crop cultivation was on the rise with corn being the dominating crop. The eighteen-month drought of 1878-79 devastated ranching communities, dropping down both cattle and ranch numbers. The largest cattle firm in Texas, Coleman-Fulton and Mathis, was dissolved and a new partnership was formed. In 1880, the Coleman-Fulton Company established its headquarters at Rincon, 14 kilometers (9 miles) north from the present day Gregory. The million-acre ranch, which subsumed much of San Patricio County, eventually became known as the Taft Ranch after Charles Phelps Taft, half-brother of President William Howard Taft, took over management in 1900. The United States Census of 1880 recorded only 36 farms and ranches in the area. The development of the area picked up after 1885 when the new railroad was laid in. By the end of the nineteenth century the land value went up, while the population still remained relatively low. The United States Census of 1900 estimated 1,312 people living in the county with 190 farms and ranches covering 41,277 hectares (102,000 acres) of land. Further development in the county continued through the early-twentieth century when the land agents began to advertise the County lands to prospective farmers. Cotton production largely replaced corn crops and many ranches were converted to croplands (Guthrie 2013).

Following the war, Refugio County experienced dramatic drops both in population and the cattle numbers and the cotton farming almost ceased to exist by the 1870s. Land-holding patterns changed from small cattle ranging to larger land ownerships. Thomas O'Connor, the youngest veteran of the Battle of San Jacinto and perhaps the largest individual landowner in Texas at the time, also called Refugio County home. His landholdings eventually comprised more than 202,343 hectares (500,000 acres) that spanned multiple counties (O'Connor 2013). The Bonnie View Ranch was another large landholding that at one time stretched from Copano Bay to Woodsboro, Texas. Bonnie View was created by another veteran of the Battle of San Jacinto, Major John H. Wood. The ranch reached 8,093 hectares (20,000 acres) under Wood's son Tobias before it was sold to Johnson and Pugh for subdivision in 1906 (Huson 1955). At the same time, Mexican Americans experienced racial hostilities by Anglo residents. By the early-twentieth century, area demographics completely changed. The area opened for further development with the new railroad built in 1905. Ranches were turned into farmlands similar to those in San Patricio County. Cotton became the dominating crop (Leffler 2013a).

Aransas County area recovered relatively fast after the Civil War. While some of the old ports were destroyed, new ones were founded including Fulton and Rockport. The cattle industry dominated the area and new ports were used as shipping and processing points. Aransas County was formed in 1871 with Rockport becoming the county seat. San Antonio and Aransas Pass Railroad reached the area in 1888, but the population remained relatively low. In 1880, population was recorded at 996 and the number of farms grew from six to 47 between 1890 and 1900 (Long 2013a).

Calhoun County recovered relatively fast after the Civil War as well. Population increased from 2,642 to 3,443 between 1860 and 1870, but dropped down dramatically to 1,739 by 1880. The population decline was caused by a series of disasters including an 1867 fire in

Indianola followed by a yellow fever epidemic. In 1875, a Gulf storm was followed by a tidal wave nine years later in 1886 which completely destroyed the community of Indianola. Since the majority of the county's population lived in either Lavaca or Indianola, the devastation in Indianola had a direct impact on the population numbers. While the population number was declining, the value of the land in Calhoun County was on the rise between 1870 and the early-twentieth century. Within that time frame one of the larger landowners in the County, John James Welder, took over his family's estate. Welder held ranch lands in multiple counties but including Calhoun County and possessed one of the largest herds in South Texas (Welder 2014). By the beginning of the twentieth century, mortgage loans were offered at a low interest rate attracting small farmers. Newly arrived immigrants included Swedes, Germans, Czechs, Irish, and Scotts. Cattle ranching remained the leading industry until the Great Depression when tenant farming took over (Kleiner 2013b).

Compared to its southern neighbors, Victoria and Jackson Counties were affected differently by the War due to property value tied to the number of slaves held. Slavery was the main force behind the cotton and sugar production in the region and after the War its decline was inevitable. Victoria County was a leader in the cattle industry before and after the Civil War. When the economy transformed from the cotton production to cattle industry and manufacturing the cattle industry thrived. By the 1930s, Victoria County held the most cattle than any other county in Texas. Similarly, in Jackson County the cattle production grew rapidly turning the county into the leading producer of beef by 1880. Cattle ranching declined in Jackson County towards 1920 due to overgrazing and falling prices. Cotton and corn production picked up in Victoria in Jackson Counties by 1900 and by the 1930s cotton dominated the crops. A railroad went through Victoria County by 1873 connecting it with the coast, and another line built by 1882 stretched towards Rosenberg. The later was built primarily by Italian immigrants, many of whom remained in Victoria County. In Jackson County the New York, Texas and Mexican Railway was constructed by the early 1880s turning the county into important point for cattle shipping (Roell 2013a; Hardin 2013). Just like in Calhoun County, German influence remained strong in Victoria County, but the number of immigrants from Mexico was gradually increasing (Roell 2013a). In Jackson County population growth was fueled by farmers moving in from the Old South and introducing large-scale farming into the area (Harding 2013).

Similarly to Victoria and Jackson Counties, the economy of Matagorda County suffered as a result of the emancipation of the slaves. Add to that the financial difficulties of the local government; the economy was slow to recover. Cotton and sugar production immediately fell after the war, while cattle ranching temporarily took over. In 1870, a total of 93,000 cattle were reported in the county, with the number declining to 27,000 by 1890. Cotton production began to recover slowly after 1870 and the agricultural economy accelerated in 1890s. A fourth of the farms were operated by tenants by the end of the nineteenth century. An additional influx of immigrants increased the land value, but impaired the ranching. By 1900, the population increased to 6,097. Following the attack on the cotton fields by the boll weevil beetle in the early 1900s, agricultural production shifted to rice. The construction of railroad lines in Matagorda County started in early the 1900s and by 1913 many new communities grew along the lines. Water and road transportation developments helped to further improve the economy of the area (Kleiner 2013a).

The economy of the region was further diversified with the discovery of oil and gas between 1901 and 1936. In Matagorda County, gas was discovered at Big Hill in 1901. In Refugio County, gas explorations began around 1910. Similarly, in San Patricio County, oil and gas discoveries were made during the 1910s and 1920s. In Victoria County, the first commercial oil and gas wells were struck in 1930 at McFaddin. In Jackson County, oil was discovered in 1934. In Calhoun County, natural gas was discovered near Port Lavaca in 1934 and oil in 1935. In Aransas County, oil was discovered in 1936 (Guthrie 2013; Leffler 2013a; Roell 2013a; Hardin 2013; Kleiner 2013a; Kleiner 2013b; Long 2013a).

4.0 METHODOLOGY

4.1 *Site File and Literature Review*

The site file research and literature review was performed in order to identify all previously recorded archaeological sites and previous investigations within a 0.8-kilometer (0.5-mile) radius of the Project APE (Figure 1 and Appendix A). This work was conducted by reviewing online data available on the THC Online Archaeological Sites Atlas, an online resource maintained by the THC, as well as an online database of the NRHP (The National Register of Historic Places.com). This work was used to provide a historic context to the archaeological survey.

Literature review was conducted in order to provide an understanding of the development and history of the APE and the surrounding area in general. This research then was used to prepare an overview history of the region and provide an understanding of the contextual framework of the prehistory and history of the counties crossed by the Project APE. Historic maps from the collection of David Rumsey (2003) were also consulted in cooperation with Google Earth (Burr 1839; United States GLO 1867) as well as historic maps maintained by the Texas GLO (2012), and historic topographic maps provided by Perry Castañeda Library Map Collection maintained by The University of Texas at Austin. Historic county maps available through the Portal to Texas History were also consulted (<http://texashistory.unt.edu/>).

Local repositories including libraries, museums, and offices of the County Clerk were researched for deeds, titles, and local histories. Specifically, San Patricio County Clerk's Office, San Patricio Public Library, Calhoun County Clerk's Office, Calhoun County Public Library, Refugio County Courthouse, Refugio County Public Library, and Refugio County Museum. Census and tax records were also reviewed in an effort to gain insight on specific properties. Local landowners were also contacted in an effort to gain insight on local history and the history of specific parcels.

4.2 *Field Methods*

The archaeological investigations associated with the current undertaking were designed to identify and record the existence of cultural resources, including prehistoric and historic archaeological sites and aboveground historic age resources, within the APE. Because the pipeline will be below ground, the APE for direct and indirect effects is defined as the survey corridor and associated footprint of ancillary areas required for the Project.

4.2.1 **Pedestrian Reconnaissance Survey**

Consultation with the THC on February 13, 2013, confirmed the methodology of 100 percent pedestrian reconnaissance survey coverage with limited shovel testing within the study area. Survey of the Project area consisted of 100 percent pedestrian reconnaissance, photo-documentation, and judgmental shovel testing. A handheld Global Positioning System (GPS) receiver capable of sub-meter accuracy data recording was used to assist in survey. Property

tracts, or parcels, were used to facilitate record keeping and to measure survey progress. Subsurface testing was predominantly focused around major waterways and areas of previously recorded sites within or immediately adjacent to the project APE. Subsurface testing, photos, and field notes were all referenced to tract numbers.

Pedestrian walkover survey were conducted along two to four transects placed along the length of the survey corridor. Because the bulk of the APE consisted of 100 percent surface visibility, shovel tests were performed on a judgmental basis and typically focused on landforms, mounds, or other areas of topography considered containing a high probability for buried cultural resources. Shovel tests were not excavated in areas containing existing roads, roadside ditches, standing water, areas directly above underground utilities installations, or where previous ground disturbance was evident. Shovel testing consisted of 30- by 30-centimeter (11- by 11-inch) diameter holes. Tests were typically excavated to a maximum depth of 100 centimeters (39.3 inches) into the underlying substratum except when placed within the existing pipeline corridor to verify disturbance. Safety regulations require that tests excavated within existing pipeline corridors do not exceed 40 centimeters (16 inches) in depth. Vertical control was maintained by excavating each shovel test in 10-centimeter (4-inch) levels. One wall of each shovel test was profiled and the walls and floor of each shovel test were inspected for color or texture change potentially associated with the presence of cultural features. Soils were screened through ¼-inch wire mesh and descriptions of soil texture and color followed standard terminology and the Munsell (2005) soil color charts. Additional information concerning soils encountered was recorded on standardized shovel test forms for each excavation. Historic-age structures and objects within or immediately adjacent to the APE, if encountered, were photographed and plotted on project maps.

4.2.2 Site Definition

Newly identified cultural resources were broken into three categories based on the number and type of the recorded cultural material, as well as the general area, content, and cultural and environmental settings surrounding finds. Isolated surface finds consisting of either one prehistoric or one or two historic artifacts were classified as isolate finds. More than one prehistoric find at one location were recorded as a site. The Project crosses properties that have been in use as ranch land or agriculture since at least the middle nineteenth century. The majority of the Project corridor has experienced some disturbance due to plowing, previous pipelines, wind erosion, and flooding from hurricanes and tropical storms. Taking these disturbances into account and in an effort to refrain from muddying the site record in the affected counties some clusters of historic artifacts were recorded as Loci rather than sites. Loci are defined as follows: historical artifacts consisting of at least 3 to 10 finds, generally found at the surface level and lacking subsurface deposits within agricultural plowed fields and away from any standing structures or structures identified on historical imagery. These items were classified as loci due to the isolated nature of those finds, lack of a historical context, and likely artifact displacement caused by nearly continuous agricultural activities. These loci contain fragments of a limited number of material classes (such as only glass), and many of the same color, thickness, and markings suggesting a limited number (1 to 3) of items are represented. Since the project APE is only 60 meters (197 feet) wide and co-located with existing pipelines, newly recorded low-density loci can indicate presence of larger sites in the general area. In most cases a larger (more than 10 historic artifacts), more complex cluster of

historic artifacts were identified nearby. These larger and/or more complex historic artifact clusters were recorded as sites. For all sites an attempt was made to record environmental settings as accurate as possible, since the newly recorded sites were not to be delineated outside of the survey corridor.

For each identified cultural resource, photographs were taken of the general vicinity and of any visible features. A sketch map was prepared showing site limits, feature locations, permanent landmarks, topographic and vegetational variation, and sources of disturbance. Sufficient information was included on each map to permit relocation of the site. In addition, a GPS point was taken to aid in later site relocation efforts. A description of the materials observed was recorded and, if present, potential diagnostic materials were collected. Given that the APE is nearly entirely composed of actively plowed agricultural fields with 100 percent surface visibility, it was not uncommon to find isolated or small amounts of cultural materials. Many surface scatters of isolated or sparse amounts of historic artifacts such as bottle glass or whiteware fragments were recorded as isolated finds or surface scatters until shovel testing or further investigations could confirm the nature and substance of materials. Identified sites were delineated to state standards unless documentary evidence was available to determine the nature and time frame of deposits.

4.3 Laboratory and Curation

Generally, non-diagnostic artifacts were not collected during the intensive pedestrian survey of the project; instead, attributes describing these materials and their archaeological context were recorded in the field. On occasion, questionable non-diagnostics were collected. Diagnostics were collected. Initial processing of recovered artifacts included washing and sorting according to raw material category and provenience. Provenience was maintained throughout the process by the use of a computerized field specimen log, which in turn generated an inventory of materials recovered.

The initial steps in artifact analysis involved cataloging the assemblage. Data recorded on each artifact include form, material, functional classification, manufacturing technology, and attributes that are chronologically diagnostic. Material classifications are subdivided to afford greater flexibility and detail of inclusive data. The attributes category in the inventory provides additional information on individual size, condition, or completeness.

In general, analyses of prehistoric cultural materials was conducted with the following objectives: (1) identification of artifacts recognized as diagnostic of specific cultures or time periods (Turner and Hester 1993; Justice 1987); (2) identification of reduction sequences represented by the lithic debitage (Newcomer 1971; Newcomer and Karlin 1987; Callahan 1979; and Bradley and Sampson 1986); (3) identification of utilized and/or retouched debitage (Bordes 1961; Frison 1974; Tixier et al. 1980); (4) identification of raw materials represented among the tools and debitage (Luedtke 1992:63-77); and (5) identification of recovered ceramic types (Aten and Bollich 1969; Ricklis 2004; Story 1990).

Identified historic cultural materials were categorized according to material type. The artifacts have been subjected to agricultural activities for decades and thus were highly fragmentary

making further categorization difficult. When possible items such as nails (Tremont Nail Company 2012; Wellikoff 1984; Wells 1998); and other hardware (Wellikoff 1984) were identified beyond the general classification of metal fragment. If possible glass artifacts were categorized by color, shape or morphology, finish, and markings if present (Beck 1973; Bureau of Land Management 2013; University of Utah - IMACS 1992; Society for Historical Archaeology 2013). For most late nineteenth century white earthenware ceramic artifacts identified during the Project, an attempt to categorize them into “whiteware,” “pearlware,” and “ironstone” was attempted when possible however due to the difficulty in separating these items under the best of circumstances and the fragmentary nature of the artifacts this was not accomplished for all finds. Thus many of the historic white earthenware ceramics were simply recorded under the generic type “whiteware.” Miller (1980, 1991) has noted that classification by ware type is complicated by variations in nomenclature, fluctuations in consumer taste, and the changes within the English ceramic industry that took place after the mid-to-late eighteenth century. Thus historic ceramics were primarily classified by paste, decoration, and when possible maker’s mark and vessel form (Coyish 1971; Kovel 1953; Miller 1980, 1991; Noel Hume 1972).

Faunal materials recovered during this project were bone, most of which was fragmentary, and less than 1 centimeter (0.4 inches) in length. It should also be noted that an effort was made to determine if bone had been heated or burned.

During this survey effort, non-diagnostic artifacts were not collected. Potentially diagnostic artifacts were collected and are temporarily housed at the HRA Gray & Pape office in Houston, Texas. Artifacts recovered from private property will be prepared for return to the landowner upon completion of the Project.

5.0 RESULTS OF INVESTIGATIONS

The primary purpose of this investigation was to: 1) determine if any previously identified cultural resources or eligible or listed NRHP properties were located within a 0.8-kilometer (0.5-mile) radius of the Project area; 2) determine if any previous cultural resource investigations had been conducted in or near the Project APE; 3) determine whether or not any previously unidentified and intact cultural resources were present within the Project area by conducting an intensive pedestrian survey; and 4) provide management recommendations based on the research and survey activities.

5.1 Results of Site File Research

5.1.1 Previously Recorded Sites

A review of the THC Online Archaeological Sites Atlas, an online resource maintained by the THC, identified four previously recorded sites located within the APE. A total of 29 previously recorded archaeological sites are located within the 0.8-kilometer (0.5-mile) study radius of the Project APE. Maps showing previously recorded site locations near the APE are provided in Appendix A.

Table 2. Previously Recorded Cultural Resources Within A 1.6-Kilometer (1-Mile) Radius Of The Project Area.

Trinomial	Resource Type	Cultural Affiliation	Size (meter [m])	Deposit Depth	Recorded Contents	NRHP Status	Figure
41SP191	Prehistoric Scatter	Unknown Prehistoric	10x15	Surface	Shell fragments and lithic flakes	Unknown	A2
41SP192	Prehistoric Scatter	Unknown Prehistoric	20x20	Surface	Shell fragments and lithic flakes	Unknown	A2
*41SP256	Shell Midden	Possibly Archaic, Unknown Prehistoric	30x50	40-50 cmbs	Stone tools, lithic flakes, faunal bone fragments, various shell, burned rock	Unknown	A2
41SP54	Shell Midden	Unknown Prehistoric	Unknown	Unknown	Lithic flakes, fire hardened clay, shell	Unknown	A2
41SP112	Prehistoric/ Historic	Archaic/ Unknown Historic	Unknown	Unknown	Stone tools, lithic debitage, faunal, musket ball, glass	Unknown	A5/A6
41RF129	Open Campsite	Unknown Prehistoric	10x40	Surface	Shell	Unknown	A8/A9
41RF126	Open Campsite	Unknown Prehistoric	15x50	Surface	Lithic debitage, marine shell	Unknown	A9

Trinomial	Resource Type	Cultural Affiliation	Size (meter [m])	Deposit Depth	Recorded Contents	NRHP Status	Figure
41RF127	Campsite	Unknown Prehistoric	5x5	Surface	Lithic debitage, marine shell	Unknown	A9
41RF137	Open Campsite	Unknown Prehistoric	15x30	Surface	Lithic biface fragment, marine shell, burnt clay	Unknown	A9
41RF51	Shell Midden	Unknown Prehistoric	5x30	Surface	Shell, faunal bone	Unknown	A9/B18
41RF52	Shell Midden/ Open Campsite	Unknown Prehistoric	10x10	Surface	Shell, burnt clay	Unknown	A9
*41RF53	Open Campsite/ Shell Midden	Unknown Prehistoric	5x5	Surface	Lithic debitage, marine shell	Unknown	A9/B19
*41RF54	Shell Midden/ Hearth	Late Prehistoric / Neo-American	10x10	Surface	Pottery, lithic debitage, faunal, marine shell	Potential	A9/B20
41RF55	Shell Midden	Unknown Prehistoric	15x15	Surface	Lithic debitage, faunal, marine shell	Unknown	A9
41RF56	Shell Midden	Unknown Prehistoric	10x10	0-30 cmbs	Lithic debitage, marine shell, burnt clay	Unknown	A9
41CL63	Shell Midden	Prehistoric Archaic/ Historic	20x152	85 cmbs	Historic metal, chipping debris and shell	Unknown	A20
41CL74	Shell Midden, Campsite, Short term occupation	Unknown Prehistoric	200	< 40 – 80 cmbs	Shell, lithic flakes, animal bones	Potential	A20
41VT37	Prehistoric Scatter	Unknown Prehistoric	15x25	Unknown	Lithic debitage, shell	Unknown	A26
41JK129	Shell Midden	Possible Archaic	Triangular Approx. 183 m on each side	Unknown	Lithic debitage, stone tools	Unknown	A28
41JK137	Shell Midden lens	Unknown Prehistoric	Approx. 15 m long	30 - 43 cmbs	Lithic debitage, Shell	Unknown	A28
41JK138	Campsite	Unknown Prehistoric	Approx. 90x140	Unknown	Lithic debitage, pottery, shell	Unknown	A28
41JK139	Campsite	Unknown Prehistoric	Approx. 20x35	Unknown	Lithic debitage, marine shell	Unknown	A28
*41JK 111	Prehistoric shell and flint	Unknown Prehistoric	Approx. 30x30	Unknown	Lithic, faunal, shell, pottery	Unknown	A29

Trinomial	Resource Type	Cultural Affiliation	Size (meter [m])	Deposit Depth	Recorded Contents	NRHP Status	Figure
	concentration						
41JK110	Open Campsite	Unknown Prehistoric	30x 45.7	Unknown/ thin	Shell seems thin, a few inches- maybe more Rangia than oyster	Unknown	A29
41JK112	Campsite	Unknown Prehistoric	Approx. 60x60	Thin	Lithic, pottery, charcoal, shell, baked clay	Unknown	A29
41MG51	Unknown	Prehistoric Archaic (?)	Unknown	Unknown	Lithic debitage, chert	Unknown	A39/ A40
41MG131	Historic Scatter	Early to mid- 20th Century	45x65	0-30 cmbs	Ceramics, glass, metal fragment, pottery	Unknown	A40
41MG132	Historic Scatter	Early to mid- 20th Century	30x60	Surface	Bottles, tin cans, metal hook, milled board, wood, concrete	Unknown	A40
41MG133	Historic Earthworks	Possible 20th Century	25x125	Surface	Two parallel berms	Unknown	A40

*Mapped Site Centroid Falls within the Project APE

Most of the recorded sites consist of temporally non-diagnostic lithic scatters, thin subsurface deposits and shell middens, or suggest the presence of multiple cultural components within a mixed context. Historic sites near the Project area typically consist of farms or homesteads dating to the late-nineteenth or early-twentieth centuries. Prehistoric sites in the area generally consist of shell middens located near existing or former water sources. These sites are generally considered seasonally occupied campsites and contain occupational refuse consisting of marine shell, lithic debris and tools, burned clay and animal bone, bone and shell tools, and pottery (Mercado-Allinger et al. 1996; Ricklis 1999, 1996).

Site file research revealed mapped locations of four previously recorded sites (41RF53, 41RF54, 41SP256 and 41JK111) within the Project APE. The site information for each of these is summarized below. Results of investigations at each site are provided in Section 5.2.5 of this report.

Site 41RF53

Site 41RF53 is located 400 meters (1,312 feet) north-northeast of Melon Creek on the edge of a cultivated field beside a gully that drains into the creek (Appendix A: Figure A9). Its mapped centroid places it approximately 60 meters (200 feet) to the west of the Project APE. The site was recorded as a shell scattering that is about 5 meters (16 feet) in diameter with only a single piece of debitage originally recorded. Bioturbation, erosion, and plowing are the main causes for disturbances to the site. In addition, a majority of this site has been disturbed

by continuous agricultural practices. Site was recommended as not eligible for the NRHP (Warren 2009b).

Site 41RF54

Prehistoric Site 41RF54 is located on top of a bluff above Melon Creek in a plowed field (Appendix A: Figure A9). The site was originally recorded as a shell midden consisting of surface scatter and subsurface deposition of cultural materials including various types of shell, lithic debitage, stone tool fragments, pottery, faunal remains, and intact subsurface features. The site boundary was recorded approximately 10 meters (33 feet) north/south by 10 meters (33 feet) east/west with the depth of the deposits ranging between 0 to 65 centimeters (26 inches) below the surface as determined by shovel testing. The surface of the site was recorded as disturbed by natural processes (bioturbation) and unnatural processes (farming). The site is anticipated to be disturbed through the continuation of farming; however, most of the site (70 percent) is believed to be intact below the surface.

Cultural materials observed on the surface include various species of shell (oyster, whelk, rangia), faunal remains, lithics (biface dart distal tips, utilized flake, chert and quartzite debitage), and a sandy paste pottery. Shovel testing revealed artifactual deposition in addition to intact buried features consisting of a shell midden above a clay hearth. The shell midden was recorded extending from the surface to 50 centimeters (20 inches) below the surface and consisting of various species of shell (oyster, whelk, and scallop), pottery, lithic debitage, and burnt and unburnt faunal remains (mammal and fish otoliths).

The hearth was recorded below the shell midden extending to 65 centimeters (26 inches) below the surface. Materials recorded in the hearth consisted of burnt clay, charcoal, ashes, shell (oyster, venus), lithic debitage, and faunal remains. The majority of Site 41RF54 appeared to be located below the surface where intact features were present. Therefore, the site was reported as having potential to be eligible for the NRHP. Due to the high research value of intact features, further excavation was recommended (Warren 2009c).

Site 41SP256

Site 41SP256 is located along a former estuarine channel that now consists of a thoroughly plowed field (Appendix A: Figure A2). This site was originally identified by HRA Gray & Pape in 2011 (Scott et al. 2013). Although the site appears within the current Project's survey corridor the site was not revisited during current field efforts since the current Project's alignment overlaps that surveyed in 2011 by HRA Gray & Pape. This prehistoric site consists of a surface scatter of fragments of shell representing multiple species including oyster, conch, and whelk. Also observed were burned rock and clay nodules, a variety of medium-size and small burned faunal bones, lithic debitage including heat-treated micro-debitage, and tools. A small, possible adze was recorded and collected along with a worked flake. The site boundary measures approximately 30 meters (98 feet) north/south and 50 meters (164 feet) east/west within an empty field that appeared to have been tilled by the time of the original survey. Approximately 10 meters (3.3 feet) of the site's southeastern boundary extends to within the northern side of the survey corridor.

The scatter was not dense and shovel testing indicates that it does not extend below the plowed zone. No shell fragments, faunal remains, lithics, or burned clay were retrieved beneath 40-50 centimeters (16-20 inches) deep, upon which the base of the plowed zone was also detected based on a marked change in soil compaction, moisture and texture and presence of decomposing harvested crop debris. The entirety of Site 41SP256 appears to be located on the surface and confined to the plowed zone within an existing pipeline corridor, indicating no portion of the site intact. The site was recommended as not eligible for the NRHP and no further work was recommended for this site (Scott et al. 2013). The Texas SHPO concurred with the findings of that report in October 2013 (Appendix D).

Site 41JK111

Site 41JK111 is located on the east side of the Lavaca River and its mapped centroid places it within or adjacent to the Project APE (Appendix A: Figure A29). The site was recorded as shell and flint concentration washed out of a low slope line. The shell at this site includes both oyster and Rangia. Ceramic sherds and bone fragments also were observed. An approximated site boundary was recorded as 30 meters (100 feet) in diameter. The potential eligibility of this site for the NRHP is unknown (Fritz and Comstock 1972).

5.1.2 Previously Recorded Surveys

A total of 10 previously conducted area and nine linear surveys were recorded within the 0.8-kilometer (0.5-mile) study area in the vicinity of the Project APE (Table 3). For the most part, surveys depicted on the THC Texas Archeological Sites Atlas contained very sparse or no information regarding the projects themselves. The earliest survey recorded within the study area dates back to 1927 and the most recent recorded survey was done in 1997. Site forms for the previously recorded sites within the study area indicate that other surveys might have been conducted in the study area. However, those surveys were not depicted on the THC Texas Archeological Sites Atlas at the time of the site file review and therefore are not discussed in this report.

Of particular importance to the current project is a survey conducted by HRA Gray & Pape in San Patricio County in 2011. That survey overlaps approximately 2.7 kilometers (1.7 miles) of the current project’s southern portion, beginning near the existing Ingleside Facility (Appendix A: Figure A2). The survey resulted in the identification of three sites and a single surface scatter. One site identified during the 2011 survey, Site 41SP256 (discussed above), is within the current project APE (Scott et al. 2013).

Table 3. Previously Recorded Area and Linear Surveys within 0.8-Kilometer (0.5-Mile) Study Area

Survey Type	Investigating Firm/ Agency	Field Work Date	TAC Permit Number	Report Author	Sponsoring Agency	Report at THC	Figure
Area	Navy Hmport	4/87	N/A	Unknown	Unknown	Unknown	A2
Area	HRA Gray & Pape	2012	N/A	Scott, Tony	US-EPA	In Review	A2/A3

Survey Type	Investigating Firm/ Agency	Field Work Date	TAC Permit Number	Report Author	Sponsoring Agency	Report at THC	Figure
Area	HRA Gray & Pape	2004	3556	Hughey, James	n/a	2012	A2/A3
Linear	Archeological & Environmental Consultants	12/1/97	1924	Unknown	San Patricio Municipal Waste Dist. (SPMWD)	3/1/98	A2
Area	Unknown	8/9/27	Unknown	Martin, George C & Wendell H Potter	Witte Museum, San Antonio	4/10/96	A5-A7
Linear	USACE	10/90	Unknown	Unknown	Unknown	Unknown	A20
Area	EPA	3/78	Unknown	Unknown	Unknown	Unknown	A20-A21
Linear	TxDOT	3/96	Unknown	Unknown	Unknown	Unknown	A23
Linear	USACE	7/85	Unknown	Unknown	Unknown	Unknown	A24
Linear	USACE	6/75	Unknown	Unknown	Unknown	Unknown	A25/A26
Area	Coastal Environment Inc.	1/1/92	1027	Pearson et al. 1993	COE-VD	Unknown	A28/A29
Area	Coastal Environment Inc.	1/1/92	1027	Pearson et al. 1993	COE-VD	Unknown	A28/A29
Area	USACE	6/75	Unknown	Unknown	Unknown	Unknown	A29
Area	Goodwin	1/2/04	Unknown	Athens et al. 2004	FERC	10/19/04	A29
Linear	BR	00/90	Unknown	Unknown	Unknown	Unknown	A29
Area	USACE	2/82	Unknown	Unknown	Unknown	Unknown	A33
Linear	USACE	6/75	Unknown	Unknown	Unknown	Unknown	A33
Linear	Department of Energy (DOE)	3/75	Unknown	Unknown	Unknown	Unknown	A38/A39

Survey Type	Investigating Firm/ Agency	Field Work Date	TAC Permit Number	Report Author	Sponsoring Agency	Report at THC	Figure
Linear	LCRA	11/97	Unknown	Unknown	Unknown	Unknown	A40

5.2 Results of Field Investigations

Fieldwork was completed in three mobilizations and required 1,406 person hours to complete. The first mobilization was carried out from March 6 to March 26, 2013, the second mobilization was carried from May 15 to May 29, 2013, and the third mobilization took place from June 17 to June 21, 2013. The southern end of the Project APE was previously surveyed by HRA Gray & Pape in 2011 as part of the San Patricio Pipeline Project (Scott et al. 2013) and therefore was not resurveyed in 2013. Maps showing survey results are supplied in Appendix A. An attempt was made to survey 100 percent of the APE. Field investigation consisted of walkover and limited shovel testing within the APE. Shovel tests were excavated to depths ranging between 40 and 70 centimeters (16 and 28 inches).

Years of agricultural use within the properties containing the Project’s survey corridor have likely disturbed the upper several centimeters of soil below the surface. Typical disturbances observed include plowed soils, utility lines and previous pipeline construction, graveled gas well pads and wind turbine construction, utility access roads, county road and bridge construction, and creek and drainage channelization. Agricultural activities within the county have been dominant at since late-twentieth century (Guthrie 2013; Leffler 2013a; Roell 2013a; Hardin 2013; Kleiner 2013a; Kleiner 2013b; Long 2013a). Available historic topographic maps and aerial imagery have verified that portions of the survey corridor have been farmed for nearly 100 years. Despite the disturbances, field survey resulted in the identification of a total of 17 new archaeological sites, one historic structure, five historic loci, six isolate finds, and the revisit of four previously recorded sites. Due to Project realignments, 10 of the identified resources are no longer within the Project APE (Table 4).

Table 4. Newly Identified Cultural Resources

Site No.	Type	Materials Observed and/or Collected	Cultural Affiliation	Size (meter[m])	Deposit Depth	Location Relative to APE	Appendix A and B Fig. No.	Work/ Eligibility Recommendations
41SP264	Site	Glass, ceramic	Historic	15x25	Surface scatter	Within Proposed APE	A3/B1	No Further Work/ Not Eligible
SP-009-L-1	Locus	Two flat window glass fragments, two amethyst bottle necks, one clear glass fragment	Historic	10x15	Surface scatter	Within Proposed APE	A3	No Further Work/ Not Eligible

Site No.	Type	Materials Observed and/or Collected	Cultural Affiliation	Size (meter[m])	Deposit Depth	Location Relative to APE	Appendix A and B Fig. No.	Work/ Eligibility Recommendations
SP-011-I-1	Isolate	Bottle base (no maker's mark)	Historic	n/a	Surface find	Outside APE	A3	No Further Work/ Not Eligible
SP-012-I-1	Isolate	Historic ceramic	Historic	n/a	Surface find	Outside APE	A3	No Further Work/ Not Eligible
SP-014-I-1	Isolate	Bottle neck fragment	Historic	n/a	Surface find	Outside APE	A3/A4	No Further Work/ Not Eligible
SP-015-L-1	Locus	Two colorless glass fragments, two brown glass, four colorless glass with bubbles	Historic	6	Surface fine	Outside APE	A4	No Further Work/ Not Eligible
41SP265	Site	Metal, glass, ceramic	Historic	20x26	Surface scatter	Outside APE	A4/B2	No Further Work/ Not Eligible
SP-016-L-1	Locus	Two ironeware, two glass fragments	Historic	10x10	Surface scatter	Outside APE	A4	No Further Work/ Not Eligible
SP-017-S-1	Historic Structure	Structure (possible early 20 th Century)	Historic	45x50	Standing structure	Within Proposed APE	A4/B17	No Further Work/ Undetermined Eligibility
41SP266	Site	Three glass fragments, two whiteware	Historic	15x15	Surface scatter	Outside APE	A5/B3	No Further Work/ Undetermined Eligibility
41SP267	Site	Glass, ceramic, brick, nails, ironstone	Historic	60x160	Surface Scatter	Outside APE	A5/B3	No Further Work/Potentially Eligible
SP-029-I-1	Isolate	Two Coke bottles (early-to mid. 20 th century)	Historic	1	Surface find	Within Proposed APE	A5	No Further Work/Not Eligible

Site No.	Type	Materials Observed and/or Collected	Cultural Affiliation	Size (meter[m])	Deposit Depth	Location Relative to APE	Appendix A and B Fig. No.	Work/ Eligibility Recommendations
SP-033-L-1	Locus	Two intact bottles and one bottle fragment	Historic	3	Surface find	Outside APE	A5/A6	No Further Work/Not Eligible
41SP268	Site	One projectile point, 13 pieces of debitage, bone, possible shell midden	Prehistoric	45x60	Shell Midden/Surface scatter	Within Proposed APE	A5/B4	Avoidance or Further Work/Potentially Eligible
41SP269	Site	Shell midden with surface scatter artifacts (debitage, quartz projectile point, bone fragments)	Prehistoric	33x43	Surface scatter; 30-50cms	Within Proposed APE	A6/B5	Avoidance or Further Work/Potentially Eligible
41RF147	Site	Two flakes and two glass fragments, backed clay	Multi-component	15x50	Surface find	Within Proposed APE	A8/B6	No Further Work/Not Eligible
41RF148	Site	Glass, 15 historic stoneware pieces, one whiteware, one porcelain piece, one marble, brick pieces, basalt stone	Historic	40x70	Surface scatter	Within Proposed APE	A8/A9/B7	No Further Work/Not Eligible
RE-019-I-1	Isolate	One brown bottle base	Historic	1x1	Surface	Outside APE	A9	No Further Work/Not Eligible
41CL96	Site	Glass, ornamented ceramic and porcelain fragments, square nails, metal fragments, ornamental cast iron motif	Historic	43x195	Surface scatter; 0-15cms	Within Proposed APE	A22/B8	No Further Work/Not Eligible

Site No.	Type	Materials Observed and/or Collected	Cultural Affiliation	Size (meter[m])	Deposit Depth	Location Relative to APE	Appendix A and B Fig. No.	Work/ Eligibility Recommendations
41CL97	Site	Glass, whiteware, personal and household items, Rockingham ware	Historic	100x108	Surface scatter; 0-14cmbs	Within Proposed APE	A23/B9	No Further Work/ Not Eligible
CA-023-L-1	Locus	Three olive green historic glass fragments, two aqua color fragments, four brown glass fragments; modern glass fragments	Historic	35	Surface find	Within Proposed APE	A24	No Further Work/Not Eligible
41VT171	Site	Buried shell, baked earth	Unknown/ Prehistoric	35x100	Surface scatter; 25-35cmbs (shell)	Within Proposed APE	A25/B10	No Further Work/ Not Eligible
41VT172	Site	17 flakes	Prehistoric	16x20	Surface scatter	Within Proposed APE	A25/B11	No Further Work/ Not Eligible
41VT173	Site	Projectile point base., approx. 30 flakes	Prehistoric	13x42	Surface scatter	Within Proposed APE	A26/B12	No Further Work/ Not Eligible
41VT174	Site	Two lithics, three ceramics	Prehistoric	Unknown	0-42cmbs	Within Proposed APE	A26/B13	No Further Work/ Not Eligible
41JK194	Site	Five tertiary flakes	Prehistoric	5x15	Surface scatter	Within Proposed APE	A26/B14	No Further Work/ Not Eligible
41JK195	Site	Five tertiary flakes	Prehistoric	5x10	Surface scatter	Within Proposed APE	A26/B15	No Further Work/ Not Eligible
41JK196	Site	Seven debitage pieces, historic glass fragments	Multi-component	10x20	Surface scatter	Within Proposed APE	A28/B16	No Further Work/ Not Eligible

Site No.	Type	Materials Observed and/or Collected	Cultural Affiliation	Size (meter[m])	Deposit Depth	Location Relative to APE	Appendix A and B Fig. No.	Work/ Eligibility Recommendations
JA-009-I-1	Isolate	One biface tip	Prehistoric	n/a	Surface find	Within Proposed APE	A31	No Further Work/ Not Eligible

cmbs = centimeters below surface

5.2.1 Newly Recorded Archaeological Sites

A total of 17 archaeological sites and one historic structure were identified during the survey. Eight of the newly identified sites were recorded as prehistoric, seven were identified as historic and two as multi-component.

Site 41SP264

Site 41SP264 (Appendix A: Figure A3; Appendix B: Figure B1) is a historic surface scatter located at the edge of a plowed agricultural field bordering County Road (CR) 35 in San Patricio County, Texas. The site is located on the *Aransas Pass, TX*, United States Geological Survey (USGS) Topographic Quadrangle. The site elevation is estimated at 6.7 meters (22 feet) above the Mean Sea Level (MSL). The site extends from the east to the west within the borders of the Project APE. An agricultural turn-row passes immediately adjacent to the site location going north to south. The site measures approximately 15 meters (49 feet) north-south and 25 meters (82 feet) east-west and consists of a surface scatter of historic ceramics and glass fragments, including one green glass, one clear glass, one porcelain, two ironstone, and two stoneware, and 10+ badly corroded metal fragments (likely round nails) (Appendix C: Plates 1 and 2).

The mapped soil within the site area is Victoria clay, depressional (Vd), with parental material consisting of the fluvio-marine deposits. Two judgmental shovel tests were placed within the site boundary. Tests resulted in one clear glass, one amber glass, one whiteware, 10+ unidentifiable metal (likely round nails), one shell fragment, and one fragment of chert cortex all within the upper 18 centimeters (7 inches) of the test. The scatter was not dense and shovel testing indicates that it does not extend beneath the plow zone (the plow zone typically between reaches depths of 25 to 30 centimeters [10 to 12 inches]). Typical soils encountered were dark gray (10YR4/1) silty clay from the surface to a depth of 50 centimeters (20 inches).

The earliest available aerial imagery dates back to 1950 (Google Earth 2013a) and has no indication of any structures in the area. A review of topographic maps dating to between 1925 and 1977 likewise show no structures in the location. Landowner August Guettler Jr. recalled the material had been present for “a long time” and thought he had seen maps with a barn dating to the 1930s-40s (August Guettler, Jr, personal communication 2014) . Deed research showed land ownership beginning in 1874 with Joseph W. Page. The property passed from Page to J.D. Willis in 1914 and from J.D. to G.D. Willis in 1957 and from G.D. Willis to Edith Willis in 1999. The property’s last transfer took place in 2005 from Edith Willis to the current landowner, August Guettler Jr. Another local resident and property owner Billy Wendland Jr.

recalled several cotton gins were located in the greater vicinity, one every mile or so to aid in the processing of cotton, which in the early part of the twentieth century was hauled by mule and wagon. Given the site's proximity to the CR 35, this could have been a gin location or as Guettler suggested a barn. Given the small number of artifacts, low range of artifact types, and the continuous plowing of the location the site is not considered eligible for listing in the NRHP or as a SAL and no further work is recommended on the site regarding the Project.

Site 41SP265

Site 41SP265 is a historic surface scatter located in a plowed agricultural field approximately 836 meters (0.52 miles) east of McKamey Road in San Patricio County, Texas (Appendix A: Figure A4; Appendix B: Figure B2). The site can also be located on *Aransas Pass, TX*, USGS Topographic Quadrangle. The site elevation is estimated at 21 feet above the Mean Sea Level (MSL). As a result of Project realignments, the site is now located outside of the Project APE. An agricultural turn-row passes through the western portion of the site boundary going north to south. The approximated site boundary is 26 meters (85 feet) north-south by 20 meters (66 feet) east-west. Artifacts recorded on the surface consist of one stoneware fragment, glass fragments including six colorless and two brown, and one indeterminate metal hardware fragment.

Original soils in the area were recorded as composed of Raymondville clay loam (RaA), 0 to 1 percent slopes with fluviomarine deposits of Late Pleistocene age as parental material. Two judgmental shovel tests were excavated within the area of the scatter. Both shovel tests were negative for cultural resources. Typical soils encountered were very dark gray (10YR3/1) silty clay from the surface to a depth of 50 centimeters (20 inches). In addition to subsurface testing, the site was visually delineated, as the ground surface visibility was 100 percent.

Earliest available imagery provided by Google Earth dates back to 1950 (Google Earth 2013a). No structures were observed in the area around that time. The earliest available topographic quadrangle (1925) revealed no additional structures in the area however three oil tanks and an oil well appear nearby on maps dating to 1956, 1964, and 1966. Deed research showed land ownership beginning in 1861 with Marcelo Garcia. The property was then subsumed by the Coleman-Fulton Pasture Company (locally known as Taft Ranch) in 1877. The ranch was liquidated in 1929. The land changed owners several times since the ranch dissolved until the current property owners' family, Davis Jean McCampbell, purchased the land in March 1983. Local resident and property owner Billy Wendland Jr. recalled several cotton gins were located in the greater vicinity, one every mile or so to aid in the processing of cotton, which in the early part of the twentieth century was hauled by mule and wagon (Billy Wendland, Jr., personal communication 2014).

The entirety of Site 41SP265 appears to be located on the surface. Because the site contains a sparse amount and types of materials, is confined to the surface, and is within an agricultural access road the site is considered as not eligible for listing in the NRHP or as a SAL. Further, as a result of Project realignments the site is located outside of the Project APE and will not be impacted by the Project. No further work is recommended for this site in regard to the Project.

Site 41SP266

Site 41SP266 is a small historic surface scatter located in a plowed agricultural field in the north-eastern corner of the intersection of Farm-to-Market (FM) 136 and CR 96 in San Patricio County, Texas (Appendix A: Figure A5; Appendix B: Figure B3). The site is located on the *Bayside, TX*, USGS Topographic Quadrangle. The site elevation is estimated at 21 feet above the Mean Sea Level (MSL). As a result of Project realignments, the site is no longer within the Project APE and will not be impacted. Findings at the site consist of three pieces of historic glass including one clear, one blue, and one cobalt, and two whiteware shards scattered within an area 15 meters (49 feet) in diameter.

Typically the paucity of this number of artifacts found within a disturbed context would place this find into the category of locus, as defined for the purposes of this report. This location, however, has a strong association with another newly recorded Site 41SP267 identified approximately 250 meters (820 feet) to the northwest (see description for site 41SP267 below). Both sites were recorded surrounding a residential property about 55 meters by 185 meters (180 feet by 607 feet) at the north-western corner of the intersection of FM 136 and CR 89.

According to the earliest aerial imagery (1949), Site 41SP266 is in the former location of a small standing structure. Deed research showed property ownership began with William G. Burgess in 1879 from a survey conducted by D.C. Barrett. The property was then subsumed by the Coleman-Fulton Pasture Company/Taft Ranch in 1877. At that time the property was within or adjacent to a smaller established ranch known as Rincon Ranch. A historical marker for the Rincon Ranch is located 2.4 kilometers (1.5 miles) to the south. By 1937 the Coleman-Fulton Company had liquidated most of its holdings and Rincon Ranch became subdivided into private farms. This particular piece of the Rincon Ranch property passed into the ownership of D.W. Taylor in 1929-1930 when the Coleman-Fulton/Taft Ranch was liquidated. The property was then sold from Taylor to W.B. Ray in 1937. It was then handed through several members of the Ray family until purchased by the current owner, John T. Curlee, in 1996. Local landowner Billy Wendland, Jr. recalls a small house on the property which doubled as a grocery store (Billy Wendland, Jr., personal communication 2014). The old house was replaced by a newer residence 1962. The house is gone by 1995. The actual age of the former residence is currently unknown, but judging by the type of the artifacts found at the site it likely dates to the 1930s when the ranch property was broken up to individual purchase.

The area of site 41SP266 was visually delineated as ground surface visibility was 100 percent and no subsurface testing was conducted. The finds were confined within a small area immediately adjacent to the road. As a result of Project realignment, the site is no longer within the Project APE and no impacts to the site are anticipated. No additional work is recommended.

Site 41SP267

Newly identified historic site 41SP267 (Appendix A: Figure A5; Appendix B: Figure B3) is located at the edge of a plowed field north of CR 96. The site is located on the *Bayside, TX*, USGS Topographic Quadrangle in San Patricio County. The site elevation is estimated at 21

feet above the Mean Sea Level (MSL). As a result of Project realignments, the site is no longer within the Project APE and will not be impacted. This site was delineated by visual observation as ground visibility was 100 percent. The site boundary is approximately 60 meters (197 feet) southwest-to-northeast by 160 meters (525 feet) northwest-to-southeast, stretching along the western and northern fence lines of a modern residential property. Contents recorded within the site consisted of numerous glass fragments including 100+/- colorless, 25 green, 15 cobalt, 10 milk, five rose (pink), and 10 amber (Appendix C: Plate 3), 20+/- ironstone and whiteware fragments (Appendix C: Plate 4), 10+/- square cut and round wire nails, and 10+/- brick fragments (Appendix C: Plate 5). General soils in the area were recorded as Victoria clay (VcA), 0 to 1 percent slopes and the fluvio-marine deposits of Late Pleistocene age.

Most of the artifacts were recorded along the western boundary of the existing property line. The scatter of 10+ brick and brick fragments was recorded along the northern perimeter of the property. None of the observed brick had maker's marks. The boundaries of this site were extended to include all of the recorded historic content. The approximated size of the adjacent property is 52 meters by 175 meters (171 feet by 574 feet). In addition to visual survey inspection, three shovel tests were excavated within site boundaries. Two of the subsurface tests were positive for buried cultural material. In total these two tests produced two colorless and one amber glass, and five plus unidentified metal fragments recorded between 0 to 25 centimeters (0 to 9.8 inches) below surface.

Earliest available aerial imagery (Google Earth 2013a) dates to 1950 and displays a larger structure and a group of smaller structures clustered in the southeast corner of the parcel, adjacent to CR 96. All of the original structures were removed sometime in the 1960s (Google Earth 2013a) and replaced by a modern residential house by the mid-1990s. The cultural material of Site 41SP267 most likely is associated with the original structures. This site, like Site 41SP265, falls within the Rincon Ranch area of the Coleman-Fulton Company. In a conversation with adjacent landowner Billy Wendland, Jr., he recalled a cotton gin at the location. Based on the artifacts found at the site and the recollection of Mr. Wendland the structure dated to the early twentieth century (Billy Wendland, Jr, personal communication 2014). This structure most likely dates to the 1930s when the Rincon Ranch and other land owned by the Coleman-Fulton Company was parceled out to individuals, most of which was turned into farmland. Mr. Wendland recalled a number of cotton gins in the area, located almost every mile in order to facilitate the processing of cotton, which at the time of the structure was moved by mule and wagon. Mr. Wendland stated that the gin as well as several other structures in the vicinity were destroyed by the numerous hurricanes and floods that have hit the area, one of which (Hurricane Celia in 1970) destroyed thousands of buildings (Wikipedia 2014). Mr. Wendland also stated that continuous agricultural activities have resulted in the movement of materials into the adjacent fields.

Deed and title research traced the property from William G. Burgess in 1879 from a survey conducted by D.C. Barrett. The property was then subsumed by the Coleman-Fulton Pasture Company/Taft Ranch in 1880 and became part of the million-acre ranch. At the time the location was within or adjacent to a smaller established ranch known as Rincon Ranch. When the Coleman-Fulton Company had liquidated most of its holdings in 1930 the ownership of this particular piece of property passed into the hands of the Federal Land Bank. From there

ownership passed from the bank to Mrs. Fern L. North in 1934. Mrs. North sold the property to Robert Easley et al. in 1944. In 1968 the property passed from Easley to W.P. Woodland and from Woodland to its current owner Billy Wendland, Jr, in 1987.

Site 41SP267 is potentially eligible for listing in the NRHP under criterion D as it is possible the site could contribute to a better understanding of early homestead settlement and agriculture in the area. However, because of Project realignments the site is now outside of the Project APE and no impacts are anticipated. No further work is recommended on the site regarding this Project.

Site 41SP268

Prehistoric Site 41SP268 is a shell midden with an associated surface scatter. It is located 620 meters south of county road 92, and 50 meters north of the mudflat drainage surrounding an unnamed tributary of the Aransas river (Appendix A: Figures A5 and A6; Appendix B: Figure B4). This site can be located on the *Bayside, TX*, USGS Topographic Quadrangle in San Patricio County. The site elevation is estimated at 13 feet above the Mean Sea Level (MSL). The area of the site measures approximately 45 by 60 meters (147.6 by 197 feet) with the shell concentration located in the middle of the site. The shell concentration which contains oyster and whelk measures approximately 7 meters by 5 meters (23 feet by 16 feet). The site is centered in and covers the majority of the Project APE. As a result of Project realignments, an additional area was surveyed to the west of the site as part of the Project APE that is no longer under consideration. No cultural material was recorded within the surveyed area to the west therefore confirming the western site boundary. An existing pipeline runs north-south approximately 20 meters (65.6 feet) to the west and parallel to the western edge of the site. The site is located in a grove of acacia and cacti where the ground is well worn by cattle making visibility of the surface approximately 80 percent. The site area slopes approximately 0-3 percent to the south.

Artifacts found on the surface and include 13 pieces of chert debitage and one broken projectile point. The broken arrow point measures approximately 3 centimeters (1.2 inches) long missing the tip which would have put it at approximately 4 to 4.5 centimeters (1.6 to 1.8 inches) in length. It is roughly triangular and consists of a slight concave base. Overall it appears similar in shape to a small/modified Dalton or Scottsbluff point. Several (10+) pieces of baked clay were also noted on the surface. One shovel test placed within the center of the site resulted in the identification of buried cultural material deposited between 15 centimeters to 26 centimeters (6 inches to 10 inches) below the surface. This material consisted of more than five oyster shells, two snail shells (*Rabdotus*), one scallop shell (*Argopectin*), two burnt faunal bone, and three fired clay. The amount of shell indicates the likely presence of a midden. The site was delineated with seven shovel tests placed in four cardinal directions on each side of the surface scatter extent. Recorded soil profiles consisted of a surface layer of silty light brownish grey clay (10YR6/2) to approximately 40 centimeters (16 inches) below surface turning into a more compact hardened dark brown clay (10YR3/2) underneath. The delineation shovel tests were negative for additional cultural materials.

Although a portion of the site has been impacted by previous pipeline installation, initial field observations suggest that the site has not been plowed and contains subsurface deposits. The

site is potentially eligible for listing in the NRHP or as a SAL under criterion D. It is likely to contribute significant data and information about prehistory of the area, particularly because of the rarity of finding such midden sites in an intact context. HRA Gray & Pape recommend avoidance of the site and Project plans are for the site to be avoided by HDD with the drill workspace to be placed at least 94 meters (308 feet) to the north of the site.

Site 41SP269

Prehistoric Site 41SP269 is an extensive shell midden with associated surface scatter located 225 meters (740 feet) south of Chiltipin Creek (Appendix A: Figure A6; Appendix B: Figure B5). The site can be found on the *Rincon Bend, TX*, USGS Topographic Quadrangle in San Patricio County. The site elevation is estimated at 7 feet above the Mean Sea Level (MSL). The site area measures 33 meters by 43 meters (110 feet by 140 feet) and is located on a northern exposure of a curvilinear elevated landform south of the Chiltipin floodplain. The site is centered along the east side of the proposed Project APE. As a result of Project realignments, an additional area was surveyed to the west of the site as part of the Project APE that is no longer under consideration. No cultural material was recorded within the surveyed area to the west therefore confirming western site boundary. An existing pipeline corridor cuts north/south and a two-track road cuts east/west through the site.

The shell midden is clearly visible on the surface. The site was delineated both visually within the APE, as the surface visibility was 50 percent and by shovel testing adjacent to the existing pipeline corridor within the APE. A total of 12 shovel tests were excavated in order to determine the site extent. Eight of the 12 tests contained large amounts (80%) of shell. Three of the shovel tests were positive for buried cultural material. Depth of the buried cultural material ranged between approximately 30 centimeters (12 inches) to 55 centimeters (22 inches) below surface. Buried material contained shell mixed with debitage pieces and one modified quartz projectile point of unidentified type similar to a Morhiss type (Appendix C: Plate 6). Prehistoric artifacts identified on the surface included biface fragments, lithic debitage, and bone fragments.

The mapped soil for the area is composed of Monteola clay, 5 to 8 percent slopes, with parental material of clayey fluviomarine deposits. A typical soil profile recorded during the survey is represented by dark grayish brown (10YR4/2) sandy loam from the surface level to approximately 10 centimeters (4 inches) below surface, followed by brown (10YR4/3) silty clay to the depth of approximately 30 centimeters (12 inches), finally followed by grayish brown (10YR5/2) compact silt to the base of a test.

Although a portion of the site has been impacted by previous pipeline installation and a two-track access road, initial field results suggest that the site contains intact subsurface deposits. The site is potentially eligible for listing in the NRHP or as a SAL under criterion D. It is likely to contribute significant data and information about prehistory of the area, particularly because of the rarity of finding such midden sites in an intact context. HRA Gray & Pape recommend avoidance of the site and Project plans are for the site to be avoided by HDD with the drill workspace to be placed at least 126 meters (413 feet) to the south of the site.

Site 41RF147

Multicomponent Site 41RF147 is a surface scatter located within a plowed field approximately 1 kilometer (0.65 miles) north of FM 1360 and 200 meters (700 feet) south of Mullens Bayou (Appendix A: Figure A8; Appendix B: Figure B6). The site can be located on the *Mission Bay, TX*, Topographic Quadrangle in Refugio County. The site elevations range between 21 feet to 23 feet above the Mean Sea Level (MSL). The site is positioned 10 meters (32.8 feet) to the southeast of an existing pipeline at the edge of a small landform and approximately 180 meters (590 feet) southwest of Mullens Bayou. The mapped soil for this area is composed of Victoria clay, 0 to 1 percent slopes, with clayey fluviomarine deposits of Late Pleistocene age parental material.

A landform believed to be the site center and additional cultural materials are visible approximately 65 meters (213 feet) to the southeast and are outside of the survey corridor. Surface finds recorded within the Project APE consisted of three burnt clay and two shell fragments. Artifacts observed on the surface but are now located outside of the APE included less than five debitage pieces, one broken biface fragment, one shell, and three pieces of baked clay. One piece of brown glass was also documented within 5 meters (16 feet) south of the lithic and shell scatter. As a result of Project realignments, only the northern half of the site is now located within the proposed Project APE. Site boundary delineation resulted in a total of six shovel tests excavated. Shovel tests were negative for buried cultural material.

The portion of the site located within the APE contains a sparse amount and type of materials and is confined to the surface with no indication of deeply buried deposits. This portion of the site is likely the result of a combination of colluvial movement of the materials and redeposition from agricultural activities. Therefore, the portion of the site that falls within the APE is not eligible for listing in the NRHP and no further work is recommended regarding the Project.

Site 41RF148

Historic Site 41RF148 is located within a plowed field 90 meters (300 feet) north of FM 136 and 300 meters (1,000 feet) west of FM 2678 (Appendix A: Figure A8-A9; Appendix B: Figure B7). The site can be located on the *Mission Bay, TX*, USGS Topographic Quadrangle in Refugio County. The site elevation is estimated at 31 feet above the Mean Sea Level (MSL)

The site area measures 70 meters (230 feet) north/south and 40 meters (130 feet) east-west and mostly consists of a historic surface scatter. A total of six shovel tests were excavated to determine the site extent. Shovel tests were excavated in four cardinal directions around a surface find, represented by a possible prehistoric vesicular basalt wedge shaped stone that could have been used as an abrader (Appendix C: Plate 7). Only one of the six excavated shovel tests was positive. It contained a small piece of flat colorless glass at the depth of 15 centimeters (6 inches) below the surface. No additional shovel tests yielded any additional materials or indication of subsurface deposits. In addition to shovel tests, the site was visually delineated, as ground visibility was 100 percent. Surface inspection yielded an assortment of historic-age material including 46 pieces of glass fragments. Among these were two green, 13 amethysts (purple), two aqua, 15 colorless, two amber, and two indigo (blue). Also present

were 15 pieces of stoneware, one whiteware, two pieces of a crock lid, one piece of porcelain, one ceramic marble, a concentration of five brick-size sandstone blocks and two concrete and one shellcrete pieces, and two cylindrical pieces of what appears to be a dark colored porous stone similar to soapstone (Appendix C: Plates 8-10). Outside of the block and concrete concentration the artifact density ranged from 1 artifact every 10 meters (32 feet) to 3 artifacts every 1 meter (3 feet).

The soils recorded for the area are composed of Victoria clay, 0 to 1 percent slopes, with parental material of clayey fluviomarine deposits of Late Pleistocene age. Typical soil profiles encountered in shovel tests is represented by a very dark gray (10YR3/1) loamy clay and clay to a depth of 15 centimeters (6 inches), followed by very dark grayish brown clay (10YR3/2) to a depth of approximately 40 centimeters to 50 centimeters (16 inches to 20 inches) below surface.

Earliest available aerial imagery for this area dates to 1995 (Google Earth 2013b) and does not show any structures immediately adjacent to the site. The earliest available topographic map dates to 1974 and does not depict any structures at the location of the site. The nearest standing structure in the general area depicted on both the 1974 topographic and a 1995 aerial map is located approximately 340 meters (1,115 feet) to the southwest from the site boundary.

A search of the Texas GLO and historic county maps dating to between 1851 and 1921 show the property was originally granted by Mexico to Thomas and Antonio Galan in 1832-1833. Deed and title research showed the property was passed from Galan to Thomas Westen in 1835 and from Westen to Jonathan Scott in 1874 when the property was subsumed by the sprawling Bonnie View Ranch by Tobias Wood. By 1907, the property was purchased by developers W.C. Johnson and George P. Pugh as Bonnie View Ranch was parceled out (Huson 1955; Leffler 2013b). A map of the Johnson and Pugh purchase dated to 1907 shows no structures in the vicinity of the site location.

Purple or amethyst colored glass fragments collected at the site (Appendix C: Plates 9 and 10), can be dated to a period between 1880 and 1914. So called “purple glass”, also known as “desert glass”, has high manganese content, which after exposure to ultraviolet rays turns otherwise colorless glass into rich shades of purple (Bureau of Land Management [BLM] 2013) . The intensity of the purple would depend upon the amount of the manganese content and the length and intensity of the exposure. Manganese use in bottle production was most common between 1880 and 1914 (Kendrick 1971). This date range is compatible with the clay marble found at the site. Clay marbles were first mass produced in the United States in the 1890s (Carskadden and Gartley 1990). The nature of the identified basalt wedge (Appendix C: Plate 7) or cylindrical stones has not been determined.

Artifactual evidence suggests a historic late nineteenth to early-twentieth century occupation site or trash dump. The date range of the artifacts is consistent with the time frame in which Johnson and Pugh were promoting settlement of the vicinity and other than the stone axe head, no evidence suggests that the site contains a prehistoric component. The basaltic stone wedge is likely out of context and may have been collected by the historic occupants of the location. Despite the quantity of materials, shovel test results do not suggest intact subsurface deposits.

Thus the site is not likely eligible for listing in the NRHP and no further work is recommended for the site in regard to the current Project.

Site 41CL96

Site 41CL96 is a historic scatter recorded in a plowed field between TX 185 and US 87. The site can be located on the *Green Lake, TX*, USGS Topographic Quadrangle in Calhoun County (Appendix A: Figure 22; Appendix B: Figure B8). The site elevation is estimated at 43 feet above the Mean Sea Level (MSL). The site area measures approximately 43 meters by 195 meters (141 feet by 640 feet) and consists of a surface scatter adjacent to the remains of a large (4 -meter [15-foot] diameter) circular water trough that is pipe-fed from two cylindrical water tanks. Originally the site was identified during the survey of a former alignment that is no longer in consideration. The Project alignment has since shifted approximately 25 meters (82 feet) to the south leaving 50 percent of the site outside of the proposed APE.

The site was visually delineated as ground visibility was 100% and a total of three subsurface tests were excavated within site's boundaries. All shovel tests were negative for buried cultural material. Artifacts identified on the surface included an assortment of historic glass fragments including nine light lavender, one olive (black), six aqua, and three amber colored, five ceramic including a fragment of a pipe bowl, eight porcelain fragments, three square nails, and an ornamental cast iron motif (Appendix C: Plates 11-14). A surface scattering of approximately 20+ brick fragments of at least four brick types was observed extending south of the trough within an area of approximately 45 meters by 60 meters (148 feet by 197 feet).

Soils recorded for the area consist of Laewest clay, 0 to 1 percent slopes, with clayey fluviomarine deposits of Late Pleistocene age parental material. Typical soils encountered in shovel tests were very dark grayish brown (10YR3/2) loamy clay to a depth of 56 centimeters (22 inches).

Earliest available aerial imagery for this area dates to 1990 and the earliest available topographic map dates to 1952. Neither map indicates the presence of any residences in the area although the 1952 map shows a "flowing well" and an outbuilding in the location and several access roads. A search of the name of property owner Welder produced a report from the State Board of Water Engineers. In 1941 an inventory was made on the wells constructed in Calhoun County. Well Number 3, located on the property of P.H. Welder, is shown to have been completed in 1922 (State Board of Water Engineers 1941). The presence of amethyst glass among the collected artifacts suggests that site contents could date to the late 1800s or early 1900s. Bricks present at the site include three different stamps. These include "SECO," "LAREDO BRICK CO," "ST JOE," and another that is too fragmented to identify any lettering other than "EB." Those with SECO stamped into them indicate they were made at Seco Pressed Brick in D'Hanis, Texas. The Seco factory wasn't built until 1910. The St. Joe Brick Works was founded in 1891 in Slidell, Louisiana and has continued to operate to the present day (<http://www.stjoebrickworks.com/history.html>). The Laredo Brick Company was also present beginning around the turn of the century (Cook 1998). Based on the dates of the bricks, square nails, pipe bowl fragment, and historic glass the site likely dates to the late 1800s. A search of the Texas GLO and historic county maps dating between 1839 and 1911 show no structures located in the vicinity of the site location, however, a county map dating to

1852 does show a road leading to Indianola potentially near the vicinity but the scale is not sufficient to confirm that. Several oil and gas, wells both functioning and abandoned, are located in the vicinity as well as the existing water tanks immediately adjacent to the site.

Property records show J.J. Poindexter as the earliest Grantee in 1890. This property was then subsumed within the mutli-acre Welder “Green Lake” Ranch in the early 1900s and largely stayed within the family until present day. John J. Welder and his wife, Eliza, began purchasing property in the counties of Victoria, Calhoun, San Patricio, Refugio, and Bee Counties as early as 1890. The earliest mention of the Poindexter survey Abstract 0229 was found in a deed in volume 12, page 381 which is held in Calhoun County. This deed transferred the land from John J Welder to his wife on November 15, 1923. The property has been sold, gifted, leased, and transferred from family member to family member until present day.

Artifactual evidence suggests a historic trash dump, likely tied to a nearby well and outbuilding dating to the 1920s. Although the small amount of brick at the site would not account for a structure its possible they are associated with the wells in the area. Shovel test results do not suggest intact subsurface deposits and judging by the location of an existing pipeline the site has been impacted at least once by pipeline installation. Based on the current field results and archival research this site is not likely eligible for listing in the NRHP or as a SAL. No further work is recommended for the site in regard to the current Project. In addition, Project realignments have moved the proposed centerline further to the south and away from the site by approximately 30 meters (100 feet).

Site 41CL97

Site 41CL97 is a historic scatter recorded in a plowed field approximately 20 meters (65 feet) southwest of US 87 and 635 meters (2,083 feet) northeast of the Chocolate Bayou. The site is located on the *Placedo, TX*, USGS Topographic Quadrangle in Calhoun County (Appendix A: Figure A23; Appendix B: Figure B9). The site elevation is estimated at 34 feet above the Mean Sea Level (MSL). The site area measures approximately 100 meters by 108 meters (328 by 354 feet) extending approximately 70 meters (230 feet) outside of the Project APE. An existing 40-centimeter (16-inch) diameter brine pipeline crosses the site and an agricultural turn-row also crosses the site.

The site consists of a high concentration (between 1,000 and 2,000 artifacts) of mid-nineteenth to early-twentieth century artifacts, including: whiteware, Rockingham ware and ironstone ceramics, diagnostic bottle finishes and fragments of red, amber, blue, green, and amethyst colored glass, hand wrought and square cut nails, indeterminate metal hardware fragments, and personal/household artifacts such as two marbles, a copper spoon, a belt buckle, and an earring fragment (Appendix C: Plates 15-20). A total of five shovel tests were excavated within or around the approximated site boundary. Three of the excavated shovel tests were positive for buried cultural material. These tests produced a total of seven colorless glass, one brown glass, one amber glass, one porcelain, one whiteware, and more than five unidentified metal (likely nails). Depth of the buried deposits, however, was very shallow only reaching to approximately 14 centimeters (5.5 inches) below the surface. This is well within the plow zone. In addition to subsurface testing, the site was visually delineated, as surface visibility

was 100%. Based on the field observations, majority of the artifacts were concentrated within the southern portion of the recorded site boundaries which extends outside the Project APE.

The mapped soil for the area is composed of Laewest clay (La), 0 to 1 percent slopes, with clayey fluviomarine deposits of Late Pleistocene age parental material. Typical soils encountered in the shovel tests were very dark gray (10YR4/1) silty clay loam to a depth of 14 centimeters (5.5 inches), followed by very dark gray (10YR3/1) clay loam to the depth of approximately 25 centimeters (10 inches).

The earliest available aerial imagery for this area dates to 1990 (Google Earth 2013a), and the earliest available topographic map dates to 1952. While aerial imagery does not show the presence of any structures within the APE, the 1953 and 1976 topographic quadrangles show one structure located approximately 120 meters (394 feet) southeast from the recorded site boundary. A search of the Texas GLO and historic county maps dating between 1852 and 1919 show no structures located in the vicinity of the site location, however, a county map dating to 1852 does show a road leading to Port Lavaca potentially near the vicinity of the site. The San Antonio & Mexican Gulf Railroad line runs near the site on the 1882 county map. By 1911 the county map shows the community of Kamey centered approximately 1.3 kilometers (0.8 miles) to the southeast on US 87.

The earliest land grant on file with the Texas GLO is that for William McMinn Nuner dated to 1851 (TxGLO 2013a). The deed includes a small map but makes no mention of a structure on the property. The William McMinn Nuner parcel was purchased by the Kopecky family in 1972; prior to that, it had been in the same family since the early 1900s. The earliest deed found was a Partition Deed dated August 22, 1934, where Inez Willis divided her land up amongst her siblings and spouses.

Artifactual evidence suggests a historic mid- to late-nineteenth to early-twentieth century occupation site or trash dump possibly associated with a homestead near the historic town site of Kamey. A portion of the site has been previously impacted by an existing pipeline and agricultural turn-row. The material concentration has likely migrated toward the road and the existing pipeline corridor as this is where the tractors turn. Since this site is located in a heavily disturbed plow zone and available archival data indicates the oldest recorded historic structure more than 100 meters (328 feet) from the site boundary, it is most likely that the cultural materials have been potentially displaced as a result of continuous agricultural activities. In addition the site's greatest concentration extends outside of the Project corridor to the south and east alongside the road and is separated by the Project by an existing pipeline. Therefore, no further work is recommended for the site in regard to the Project.

Site 41VT171

Site 41VT171 is a shell and burned earth concentration recorded at the confluence of Placedo Creek and Agula Creek in Victoria County. The site can be found on the *Kamey, TX*, USGS Topographic Quadrangle. This site is located on a small landform on the west side and above the Agula Creek. The site consists of two features, one is a surface concentration of baked earth, and the second is a buried shell lens. Newly recorded Site 41VT171 contains a discreet concentration and scatter of an estimated 100 plus pieces of baked earth fused with tiny

fragments of shell creating an appearance similar to slag (Appendix A: Figure A25; Appendix B: Figure B10; Appendix C: Plate 21). The approximated area of the baked earth scatter is 35 meters by 100 meters (115 feet by 328 feet) stretching within the northern portion of the survey corridor from southwest to northeast. The site is located within a maintained pipeline corridor between two 16.8-centimeter (6.6-inch) diameter liquefied petroleum gas pipelines. Five shovel tests were placed in the vicinity of the baked earth surface scatter, three of which contained a stratigraphic layer of burned earth between 0 to 20 centimeters (0 to 8 inches). Two shovel tests were negative for any kind of subsurface deposits.

The second feature was identified by a surface scatter of oyster shell observed on the lowest terrace located approximately 2 meters (6.5 feet) west from marsh associated with Agula Creek. This shell was exposed as the result of an animal burrow. Two shovel tests placed between existing pipelines and adjacent to the exposed shell revealed a 10-centimeter (4-inch) thick layer of oyster shell concentration at the approximate level of 25 centimeters to 35 centimeters (10 inches to 14 inches) below surface.

In addition to subsurface testing, the area was subjected to pedestrian walkover. Surface visibility was approximately 50% with half of the APE covered with heavy vegetation of mixed hardwoods at the top of the bluff, and the marsh vegetation at the bottom of the landform. The area with clear surface visibility falls within an existing pipeline corridor collocated with the proposed route.

The mapped soil for the area consists of Laewest clay (LaD), 3 to 8 percent slopes eroded, with clayey fluviomarine deposits of Late Pleistocene age parental material. Soils encountered in the shovel tests on top of the landform consisted of very dark gray (10YR3/1) loam from the surface level to approximately 8 centimeters (3 inches) with a narrow lens of a backed earth, followed by yellowish brown (10YR5/6) sand to the depth of approximately 20 centimeters (8 inches) below surface; finally followed by very dark brown (10YR2/2) clay-loam to the base of the tests at approximately 40 to 50 centimeters (16 to 20 inches) below surface.

The earliest land grant on file with the Texas GLO is that for Martín de León dated to 1832-1833 (TxGLO 2013b). A search of the Texas GLO and historic county maps dating to between 1858 and 1895 show no structures located in the vicinity of the site however an old well site is visible located approximately 50 meters (164 feet) away.

Due to the lack of diagnostic materials it is currently unclear if the site represents a prehistoric, historic, or natural site. The baked earth concentration may be associated with a cultural thermal feature however its size, depth, and spread over the surface suggests it may be either a secondary deposit as a result of pipeline construction or is associated with a long duration fire event such as burning pushpiles. Because of the adjacent pipelines the location would have been ideal for a pipeline workspace, perhaps resulting in a fire causing the baked earth. The buried shell layer is consistent with a Prehistoric occupation shell deposit. It is important to note that the site as a whole is within existing pipeline corridor between existing pipelines. Additional testing was not possible due to buried pipelines and no testing was pursued outside of the project corridor. Based on the initial investigation the material located within the survey

corridor does not offer any additional incentive for investigation as no definitive cultural materials have been identified by subsurface testing within the undisturbed space surrounding these features. This site is considered not eligible for listing in the NRHP or as a SAL and no further work is recommended in regard to the current Project.

Site 41VT172

Site 41VT172 is a prehistoric surface scatter located at the margin of tidal flats off of the east bank of Agula Creek at the confluence with Placedo Creek in Victoria County (Appendix A: Figure A25; Appendix B: Figure B11). The site can be found on the *Kamey, TX*, USGS Topographic Quadrangle. The site area measures approximately 16 meters by 20 meters (53 feet by 66 feet) and is confined to a small area at the bottom of a landform to the east-northeast with flatland marshes surrounding Agula Creek to west. Cultural materials observed and recorded at the site consisted of a single primary flake, six secondary flakes, and nine tertiary flakes.

A total of five shovel tests were excavated in the area surrounding the site. All shovel tests were negative for buried cultural material. In addition to subsurface testing the area was visually delineated, as surface visibility was 100 percent. The recorded surface scatter was confined to a small circular area within an existing pipeline corridor composed of a stony surface barely covered with vegetation, with a deer feeder placed right in the middle of it and narrow game trails running outward in different directions. The characteristics of the location are potentially indicative of a former pipeline workspace. The mapped soil for the area consists of Trinity clay (Tr) with clayey alluvium of Holocene age as parental material. A typical recorded shovel test profile is represented by very dark grayish brown (10YR3/2) sandy clay extending from the surface level to approximately 35 centimeters (14 inches) below surface, followed by dark gray (10YR4/2) compact clay to the base of a test at approximately 50 centimeters (20 inches) below surface.

Due to the paucity of artifacts, absence of diagnostic material, the lack of subsurface deposits and site's location on the boundary with low laying marshes , this site is considered not eligible for listing in the NRHP or as a SAL and no further work is recommended in regard to the Project.

Site 41VT173

Site 41VT173 is a prehistoric surface scatter located at the margin of a wetland on the west margin of Garcitas Creek (Appendix A: Figure A26; Appendix B: Figure B12). The site can be found on the *Kamey, TX*, USGS Topographic Quadrangle. This site was originally recorded in March 2013 during the first mobilization and revisited in May 2013. At the time of the revisit most of the area was inundated. Site elevation is estimated at 2 feet above the Mean Sea Level (MSL), while the top of the landform observed to the southwest is estimated 25 feet MSL. Artifacts observed, recorded and/or collected consist of 35 lithic flakes, one projectile point base (possible Scallorn – Late Prehistoric 500 A.D to 1800 A.D.), and one biface tip (Appendix C: Plate 22).

The site covers 13 meters by 42 meters (43 feet by 138 feet) of area, with a majority of it located within an existing pipeline corridor. The area was visually delineated as surface visibility was 100% and the site area stripped of vegetation. A total of six judgmental shovel tests were excavated around the surface scatter area. While the majority of the shovel test were plotted to confirm previous ground disturbance within existing 35 meters (115 feet) wide pipeline corridor, two were placed within an undisturbed area on the edge of the existing pipeline corridor south of the surface scatter boundaries. All shovel tests were negative for buried cultural material. The mapped soil for the area consists of Placedo silty clay loam (Pe) with clayey over loamy alluvium of Holocene age as parental material. A typical recorded shovel test profile is represented by very dark grayish brown (10YR3/2) sandy clay extending from the surface level down to approximately 35 centimeters (14 inches) below surface, followed by dark gray (10YR4/2) compact clay to the base of a test at approximately 50 centimeters (20 inches) below surface.

The site location is depressed and shows indications of erosion as a result of previous ground disturbance. The materials were likely exposed and washed downward as the result of previous pipeline installation which appears to have been installed by open cut trenching. Due to the area disturbances associated with the previous pipeline construction and the lack of subsurface deposits within the surrounding tested area the site is considered not eligible for listing in the NRHP or as a SAL. No further work on the site is recommended in regard to the Project. In addition, Project plans will avoid the site by HDD with the drilling workspace located approximately 276 meters (906 feet) to the southwest.

Site 41VT174

Prehistoric Site 41VT174 was identified on the top of a small landform above the western margin of Garcitas Creek (Appendix A: Figure A26; Appendix B: Figure B13). The site can be found on the *Kamey, TX*, USGS Topographic Quadrangle. The site consists of three lithic debitage pieces and three prehistoric pottery fragments.

The size of the site measures approximately 7 meters by 10 meters (23 feet by 33 feet). This site is located at the top of a small landform situated approximately 85 meters (279 feet) west-southwest from the newly recorded Site 41VT174. A total of 10 shovel tests were excavated at the site. The site was identified during the survey after a judgmentally placed shovel test was positive for two debitage pieces and three pottery fragments. Another positive shovel test was located approximately 10 meters (33 feet) to the north, yielding one additional tertiary flake. Prehistoric cultural materials were recorded between 0 to 42 centimeters (16.5 inches) below surface. All other delineation shovel tests were negative for buried cultural materials.

The mapped soil for the area consists of Laewest clay, 3 to 8 percent slopes (LaD) with clayey fluviomarine deposits of Late Pleistocene age as parental material. Soils recorded within the positive shovel test consisted of very dark gray (10YR3/1) sandy clay extending from the surface layer to approximately 42 centimeters (16.5 inches) below surface, followed by black (10YR2/1) clay to the base of the test at approximately 52 centimeters (20.5 inches) below surface.

Due to the proximity of this site to the newly identified Site 41VT174 to the northeast and possible disturbances between these two sites associated with the construction of the existing pipeline, it is quite possible that these two sites were once a part of a larger site most likely located on a landform to the southwest of the Garcitas Creek and outside of the APE. However, considering the site's small size and disturbances in the area associated with construction of existing pipelines, not much of the original site remains intact within the current project APE. Therefore, this site is recommended as not eligible for listing in the NRHP or as a SAL. No further work on this site is recommended in regard to the Project. In addition, Project plans will avoid the site by HDD with the drilling workspace located approximately 185 meters (608 feet) to the southwest.

Site 41JK194

Site 41JK194 is a prehistoric surface scatter located at the margin of tidal flats on the east side of Garcitas Creek (Appendix A: Figure A26; Appendix B: Figure B14). The site can be found on the *Kamey, TX*, USGS Topographic Quadrangle, in Jackson County. The approximated site area measures only 5 meters by 15 meters (16 feet by 49 feet) and falls within an existing pipeline corridor. Observed cultural material consisted of five tertiary flakes.

The site area was visually delineated, as surface visibility was 100 percent with the site area exhibiting a sandy shoreline at the bottom of a small landform. The area is located approximately 35 meters to 40 meters (115 feet to 131 feet) east-northeast from the Garcitas Creek, and falls at the juncture of the creek's floodplain. The nature of the area and the nature of the finds indicate the possibility of artifacts being potentially either eroded or washed off from a landform located on higher ground to the southeast and outside of the APE. Two judgmental shovel tests were excavated to the north and to the southeast of the surface scatter area. Subsurface tests were negative for buried cultural material. The mapped soil for the area consists of Placedo clay, frequently flooded (Pd), clayey over loamy alluvium of Holocene age as parental material. Soils recorded within delineation shovel tests consisted of light yellowish brown (10YR6/4) sandy loam from the surface level to the depth of 26 centimeters (10 inches), followed by dark gray (10YR4/1) sandy clay to the depth of approximately 45 centimeters (18 inches), finally followed by strong brown (7.5YR5/8) silty clay to at least 58 centimeters (23 inches) below surface.

The site location is depressed and shows indications of erosion as a result of previous ground disturbance. The materials were likely exposed and washed downward as the result of previous pipeline installation which appears to have been installed by open cut trenching. The site's cultural material appears to have come to rest in the location by colluvial processes from a landform outside the APE. In addition, several pipelines underlie the site and are located between the site and the Project centerline. Due to the colluvial nature of the deposit, the paucity of the material, the area disturbances associated with the previous pipeline construction, this site is considered not eligible for listing in the NRHP or as a SAL. No further work is recommended in regard to the Project. In addition, Project plans will avoid the site by HDD with the drilling workspace located approximately 523 meters (1,717 feet) to the northeast.

Site 41JK195

Site 41JK195 is a prehistoric surface scatter located at the margin of tidal flats on the east side of Garcitas Creek in Jackson County (Appendix A: Figure A26; Appendix B: Figure B15). The site can be found on the *Kamey, TX*, USGS Topographic Quadrangle. The site area measures approximately 5 meters by 10 meters (16 feet by 33 feet) and falls within an existing pipeline corridor. Observed cultural material consisted of five tertiary flakes.

The area is located approximately 550 meters (1804 feet) east-northeast from the actual Garcitas Creek shoreline and falls within the creek's floodplain. The nature of the area and the nature of the finds indicate the possibility of artifacts being potentially either eroded or washed off from a landform located on higher ground to the north and outside of the APE. The location and condition of the site did not warrant subsurface testing because the site is located on a sandy shoreline. However, the site area was visually delineated, as surface visibility was 100 percent. The mapped soil for the area consists of Laewest clay, 3 to 8 percent slopes (LaD3), with clayey fluviomarine deposits of Late Pleistocene age as parental material.

The site location is slightly depressed and shows indications of erosion as a result of previous ground disturbance. The materials were likely exposed and washed downward as the result of previous pipeline installation which appears to have been installed by open cut trenching. The site's cultural material appears to have come to rest in the location by colluvial processes from a landform outside the APE to the north. Due to the colluvial nature of the deposit, the paucity of the material, and the area disturbances associated with the previous pipeline construction this site is considered not eligible for listing in the NRHP or as a SAL. No further work is recommended in regard to the Project.

Site 41JK196

Site 41JK196-1 is a multi-component surface scatter located at the bottom of a landform on the edge of a wetland area surrounding Venado Lakes and Venado Creek (Appendix A: Figure A28; Appendix B: Figure B16), within approximately 200 meters (656 feet) to the west from the lake's contour line channel. The site can be found on the *Lolita, TX*, USGS Topographic Quadrangle, in Jackson County. The site consists of one flake possibly modified as a unifacial tool, six debitage fragments, a turtle shell, and an unspecified number of modern bottle glass fragments.

The site is located across a small elevated landform situated between Venado Creek to the east and creek's tributary to the west. The scatter area was visually delineated as surface visibility was 100% and the approximated area of the surface scatter measures 10 by 20 meters (33 by 66 feet). A series of shovel tests were placed across the landform at 10 to 20 meter (33 to 66 feet) intervals and three additional shovel tests were excavated within the scatter in an attempt to find evidence for buried cultural material. All tests were negative for buried cultural materials. The location of the site near the floodplain suggests the possibility that additional cultural materials may have eroded or washed away from the landform by high waters.

The mapped soil for the area consists of Dacosta sandy clay loam, 0 to 1 percent slopes, with clayey fluviomarine deposits of Late Pleistocene age as parental material. Soils recorded in the

subsurface test placed within the scatter area consisted of very dark gray (10YR3/1) mottled with light brownish gray (10YR6/2) and black (10YR2/1) sand from the surface level to 9 centimeters (3.5 inches) below surface, followed by gray (10YR5/1) sandy clay with manganese inclusions to the depth of 38 centimeters (15 inches), followed by dark gray (10YR4/1) sandy clay to the depth of 60 centimeters (24 inches) below surface.

The site location shows indications of erosion as a result of previous ground disturbance. The site's proximity to existing pipelines suggests the materials were likely exposed and washed out as the result of previous pipeline installation. Due to the previous disturbance, the paucity of the recorded artifacts, the position of the site near the floodplain, and lack of subsurface deposits, this site is considered not eligible for listing in the NRHP or as a SAL and no further work is recommended in regard to the Project.

5.2.2 Newly Recorded Historic-Age Structure

Historic-Age Structure SP-017-S-1

The historic structure (homestead) recorded as SP-017-S-1 is located 180 meters (590 feet) south of McCampbell Road in San Patricio County (Appendix A: Figure A4; Appendix B: Figure B17). The homestead is visible on the earliest available aerial imagery dating to 1950 (Google Earth 2013a). Structures are also visible on the 1954 *Aransas Pass, TX*, USGS Topographic Quadrangle imagery provided by Perry Castañeda Library Map Collection. Approximate size of the homestead area is 45 meters (148 feet) north-south by 50 meters (164 feet) east-west.

The proposed Project route is planned to by-pass the homestead to the west and will not have an immediate impact on the standing structures. The eligibility of the structure remains undetermined and no additional work is recommended for this homestead in regard to the Project.

5.2.3 Newly Recorded Loci

A total of five historic loci were identified during the survey. These loci generally contain 3 to 10 fragments of a limited number of material classes (such as only glass), and many of the same color, thickness, and markings suggesting a limited number (1 to 3) of items are represented. All of the finds were located in plowed fields removed from any standing or historic structures, and therefore are considered to be out of context. None of the loci are considered eligible for listing in the NRHP or as SALs and State-issued trinomials will not be sought for them. Further, many loci were recorded during investigation of a former survey corridor no longer in consideration for the Project and are not currently in danger of direct impact from the Project.

Locus SP-009-L-1

Locus SP-009-L-1 is a small historic surface scatter located within the Project APE in a plowed agricultural field approximately 830 meters (0.5 miles) east of Richardson Road in San Patricio County (Appendix A: Figure A3). This locus can be located on the *Aransas Pass, TX*,

USGS Topographic Quadrangle. The scatter area measures approximately 10 meters by 15 meters (33 feet by 49 feet). A north to south agricultural turn-row passes immediately adjacent to the locus. An 11.4-centimeter (4.5-inch) diameter ethylene/cyclohexane pipeline also passes immediately adjacent to the locus to the east. Artifacts within the scatter consist of three glass fragments (one undefined clear-colored and two fragments of flat very light-blue window glass) and two light amethyst-colored bottle necks.

The earliest available aerial imagery dates to 1950 (Google Earth 2013a) showing the closest standing structure located approximately 765 meters (2,510 feet) northwest of the site boundary. The earliest available topographic quadrangle dates to 1925 and contains no indication of any structure in the vicinity of the site although an unimproved road does pass the location.

The locus was visually delineated, as ground surface visibility was 100 percent. No subsurface testing was conducted due to limited number of artifacts observed and agricultural field disturbances dominating the area. The items likely represent a historic trash scatter composed of a small number of items. These may have then been redeposited by the continuous use of the turn-row by combines and other agricultural machinery.

Locus SP-015-L-1

Locus SP-015-L-1 is a small historic surface scatter located in a plowed agricultural field approximately 825 meters (2,707 feet) east of FM 136 (McKamey Road) in San Patricio County (Appendix A: Figure A4). This locus can be located on the *Aransas Pass, TX*, USGS Topographic Quadrangle. As a result of Project realignments, this locus is no longer within the Project APE. A north-south agricultural turn-row now passes immediately adjacent to the. An 11.4-centimeter (4.5-inch) diameter ethylene/cyclohexane pipeline also passes immediately adjacent to the locus to the east. Artifacts within the scatter consist of eight glass fragments within a 6 meter (20 feet) area. Two of the fragments are of a colorless ribbed glass, two are brown glass with moderate patina, and four pieces are thick colorless glass containing bubble imperfections as a result of the manufacturing process.

The earliest available aerial imagery provided by Google Earth dates to 1950 (Google Earth 2013a). No structures were observed in the area around that time. The earliest available topographic quadrangle (1925) revealed no additional structures in the area however three oil tanks and an oil well appear located approximately 400 meters (1300 feet) to the northeast on maps dating to 1956, 1964, and 1966.

The locus was visually delineated, as ground surface visibility was 100 percent. No subsurface testing was conducted due to the limited number of artifact types and agricultural field disturbances. The items likely represent a historic trash scatter composed of a small number (likely 3) of items. While this material could be associated with nearby site 41SP265 this could not be confirmed. These may have then been redeposited by the continuous use of the turn-row by combines and other agricultural machinery.

Locus SP-016-L-1

Locus SP-016-L-1 is a historic surface find located in a plowed agricultural field approximately 835 meters (27,40 feet) east of FM 136 (McKamey Road) in San Patricio County (Appendix A: Figure A4). This locus can be located on the *Aransas Pass, TX*, USGS Topographic Quadrangle. As a result of Project realignments, this locus is no longer within the Project APE. A north-south agricultural turn-row passes immediately adjacent to the locus. An 11.4-centimeter (4.5-inch) diameter ethylene/cyclohexane pipeline also passes immediately adjacent to the locus to the east. The find consists of one stoneware fragment and two glass fragments distributed within a 10- by 10-meter (33- by 33-foot) area.

The mapped soil for the area consists of Raymondville clay loam, 0 to 1 percent slope (RaA), with loamy fluviomarine deposits of Late Pleistocene age. One judgmental shovel test was excavated and the site was visually delineated, as the ground surface visibility was 100 percent. Soils encountered in the subsurface tests consisted of dark gray (7.5YR4/1) silty clay from the surface to a depth of 30 centimeters (12 inches). The shovel test was negative for cultural resources.

The earliest available imagery provided by Google Earth dates to 1950 (Google Earth 2013a). A group of structures can be observed within a half-mile radius to the north, and another group to the west of the locus. No structures can be observed within the immediate area around find. The earliest available topographic quadrangle (1925) fails to depict any structures within or immediately adjacent to the locus.

The entirety of the find appears to be located on the surface and confined to the plow zone. The items likely represent a historic trash scatter composed of a small number of items. While this material could be associated with nearby site 41SP265 this could not be confirmed. These may have then been redeposited by the continuous use of the turn-row by combines and other agricultural machinery.

Locus SP-033-L-1

Locus SP-033-L-1 is a historic surface find located on the north margin of mud flats 3.2 kilometers (2 miles) south of Chiltipin creek (Appendix A: Figure A6). The isolate can be located on the *Rincon Bend, TX*, Topographic Quadrangle. An existing 21.8-centimeter (8.6-inch) diameter natural gas pipeline runs immediately adjacent to the east of the locus. As a result of Project realignments, this locus is no longer within the Project APE. The locus consists of two intact early- to mid-twentieth century glass bottles and one bottle fragment discovered within a 3-meter (10-foot) area.

In addition to the excavation of eight judgmental shovel tests placed at 10-meter (33-foot) intervals nearby, the area was visually delineated, as the ground surface visibility was 100 percent. Typical soils encountered were dark gray (7.5YR4/1) silty clay from the surface to a depth of 30 centimeters (12 inches). The shovel tests produced no additional cultural resources.

The earliest available aerial imagery dates to 1950 and shows some structures located almost 1 mile (1.6 kilometers) to the northwest of the locus. The earliest topographic map dates to 1956 and shows no structures being located nearby.

There are several reasons to conclude that this find is out of context. The locus lacks any intact buried cultural deposits. There are no confirmed historical structures within the immediate vicinity of the find. Further, the locus is located within tidal flats and on the edge of a continuously plowed agricultural field.

Locus CA-023-L-1

Locus CA-23-L-1 is a historic surface scatter located in a plowed field just north of Foester Road and 250 meters (820 feet) southwest of the intersection of an unnamed dirt road and Foester Road (Appendix A: Figure A24). This locus is located on the *Kamey, TX*, Topographic Quadrangle in Calhoun County. The surface scatter consists of historic and modern glass body fragments spread over a 35-meter (115-foot) area. Recorded historic glass fragments included three pieces of olive green glass, two fragments of light aqua glass, and four fragments of brown glass. None of the fragments had patina. In addition to the nine historic glass fragments, more modern glass was observed including clear, green, and brown glass fragments. Modern glass was not counted.

The earliest available aerial imagery dates to 1990 and shows no structures located in the immediate vicinity. The earliest topographic map dates to 1953 and shows no structures located nearby.

The items likely represent a historic trash dump composed of a small number of items. The area was visually delineated as surface visibility was 100 percent and therefore, no subsurface testing was conducted.

5.2.4 Newly Recorded Isolate Finds

A total of six isolated finds were recorded during the survey. One of the isolated finds was prehistoric and the others are historic. All isolates were recorded on the surface in disturbed contexts. Because of the limited number of artifacts and the limited information that can be discerned from them no State-issued trinomials will be sought for these isolates. None of the isolates are considered eligible for listing in the NRHP or as a SAL and no further work is recommended for them in regard to the Project.

Isolate SP-011-I-1

Isolate SP-011-I-1 is a historic surface find located in a plowed agricultural field between McCampbell Road and McKamey Road (Appendix A: Figure A3). It can be found on the *Aransas Pass, TX*, USGS Topographic Quadrangle, in San Patricia County. As a result of Project realignments, this locus is no longer within the Project APE. A north-south agricultural turn-row passes immediately adjacent to the isolate's location. An 11.4-centimeter (4.5-inch) diameter ethylene/cyclohexane pipeline also passes immediately adjacent to the isolate to the east. The isolate consists of a single glass bottle base. The area was visually

delineated, as ground surface visibility was 100 percent. No subsurface testing was performed. The mapped soil for the area is composed of Raymondville clay loam (RaA), 0 to 1 percent slopes, with loamy fluviomarine deposits of Late Pleistocene age parental material.

The earliest available aerial imagery dates to 1950 (Google Earth 2013a) showing few standing structures within a 1-mile (1.6-kilometer) radius, but no structures within the close proximity to the find. Topographic quadrangles dating between 1925 and 1977 were also reviewed but contain no indication of any structure in the immediate vicinity of the isolate.

Isolate SP-012-I-1

Isolate SP-012-I-1 is a historic surface find located in a plowed agricultural field between McKamey Road (CR 104) and McCampbell Road (CR 93) (Appendix A: Figure A3). It can be found on the *Aransas Pass, TX*, USGS Topographic Quadrangle, in San Patricio County. As a result of Project realignments, this locus is no longer within the Project APE. North-south agricultural turn-row passes immediately adjacent to the isolate's location and an 11.4-centimeter (4.5-inch) diameter ethylene/cyclohexane pipeline also passes immediately adjacent to the isolate to the east. The isolate consists of two fragments of historic ironware. The isolate was visually delineated, as ground surface visibility was 100 percent. Visual inspections revealed no additional artifacts in the area. The mapped soil for the area is composed of Raymondville clay loam (RaA), 0 to 1 percent slopes, with loamy fluviomarine deposits of Late Pleistocene age parental material.

The earliest available aerial imagery dates to 1950 (Google Earth 2013a) showing few standing structures within a 1-mile (1.6-kilometer) radius, but no structures within the close proximity to the find. Topographic quadrangles dating between 1925 and 1977 were also reviewed but contain no indication of any structure in the immediate vicinity of the isolate.

Isolate SP-014-I-1

Isolate SP-014-I-1 is historic surface find located in a plowed agricultural field between McKamey Road (CR 104) and McCampbell Road (CR 93). It can be found on the *Aransas Pass, TX*, USGS Topographic Quadrangle, in San Patricio County (Appendix A: Figures A3 and A4). As a result of Project realignments, this locus is no longer within the Project APE. A north-south agricultural turn-row passes immediately adjacent to the isolate's location and an 11.4-centimeter (4.5-inch) diameter ethylene/cyclohexane pipeline also passes immediately adjacent to the isolate to the east. The soil is composed of Raymondville clay loam, 0 to 1 percent slopes. The isolate consists of a single fragment of pale blue historic glass bottle neck-crown finish. The fragment was covered with moderate to heavy patina and contained bubbles within the glass. The area surrounding the isolate was visually delineated, as ground surface visibility was 100 percent. Visual inspection revealed no additional cultural material in the vicinity.

The earliest available aerial imagery dates to 1950 (Google Earth 2013a) showing few standing structures within a 1-mile (1.6-kilometer) radius, but no structures within the close proximity to the find. Topographic quadrangles dating between 1925 and 1977 were also reviewed but contain no indication of any structure in the immediate vicinity of the isolate.

Isolate SP-029-I-1

Isolate SP-029-I-1 consists of a single historic surface find (a Coca Cola bottle) and was identified during the pedestrian walkover survey in a plowed field approximately 300 meters (1,000 feet) south of TX-188 (Appendix A: Figure A5). The isolate can be located on the *Rincon Bend, TX*, Topographic Quadrangle Map in San Patricio County. The artifact consists of one intact aqua blue Coca Cola bottle and one bottle in fragments. The bottles carried a mark of Vicksburg, Mississippi bottling company. General shape and style of the bottles date to between 1916 and the 1970s.

The area around the find was visually delineated, as the ground visibility was 100 percent; no additional cultural materials were observed. Surface finds were confined to an area of approximately 1 meter by 1 meter (3 by 3 feet). No subsurface testing was performed.

The earliest available aerial imagery dates to 1951 (Google Earth 2013a) showing few standing structures within a 1-mile (1.6-kilometer) radius, but no structures within the close proximity to the find. Topographic quadrangles dating to 1956 and 1987 were also reviewed but contain no indication of any structure in the immediate vicinity of the isolate. A review of the Texas GLO shows several pipelines in the location including natural gas, ethane, brine, and ethylene/cyclohexane.

Isolate RE-019-I-1

Isolate RE-019-I-1 consists of a single historic surface find in the form of a brown bottle base. It was discovered during a pedestrian survey 5 meters (16 feet) east of the bend in Melon Creek and 3,000 meters (9,843 feet) north east of FM 2678 (Appendix A: Figure A9). The isolate can be located on the *Mission Bay, TX*, topographic Quadrangle Map in Refugio County. The isolate is located within the Project APE.

The immediate area was visually delineated. The surface visibility was at 100 percent. No additional surface cultural material was found. Three delineation shovel tests were performed. The shovel tests were negative for buried cultural material. Recorded soils consist of dark gray (10YR4/1) clay heavily mottled with light brownish grey (10YR6/2), yellowish brown (10YR5/6) and very dark grayish brown (10YR3/2) throughout.

A review of the earliest available aerial imagery dating to 1951 (Google Earth 2013a) and topographic quadrangles dating to 1956, 1968, and 1979 contain no indication of any structure in the immediate vicinity of the isolate. A review of the Texas GLO shows several pipelines in the location including ethane and ethylene/cyclohexane.

Isolate JA-009-I-1

Isolate JA-009-I-1 is a single prehistoric surface find recorded at the edge of a plowed field on the east side of Keller Creek (Appendix A: Figure A31). The find is located on the *La Ward, TX*, Topographic Quadrangle in Jackson County. The find consists of a broken biface or likely projectile point tip made from a mottled dark red chert. The area was visually inspected as the

ground visibility was 100 percent and two judgmental shovel tests were placed around the find. Surface inspection and subsurface testing yielded no additional cultural material.

The mapped soil for this area is Dacosta sandy clay loam 0 to 1 percent slope, with clayey fluviomarine deposits of Late Pleistocene age as parental material. Typical soils recorded in the shovel tests consisted of dark gray (10YR4/1) silty clay loam from the surface level to approximately 42 centimeters (16.5 inches), followed by very dark gray (10YR3/1) silty clay to the depth of 55 centimeters (22 inches) below surface.

5.2.5 Investigations at Previously Identified Sites

A total of four previously recorded archaeological sites were mapped within or adjacent to the Project APE. These consist of sites 41RF53, 41RF54, 41SP256, and 41JK111. In addition, Site 41RF51 was recorded within a previously planned corridor no longer in consideration for the Project. Site 41SP256 (discussed in Section 5.1.1) was not revisited as part of the current field efforts because the current Project APE overlaps the APE investigated in 2011. Recommendations regarding its status remain the same as reported in Scott et al. (2013). The location and eligibility status of Site 41JK111 in regard to the Project has yet to be determined due to pending property access. Site 41RF54 was investigated as part of field efforts and is discussed below.

Investigation at Previously Identified Site 41RF51

Site 41RF51 is a prehistoric surface scatter and a potential shell midden (Appendix A: Figure A9; Appendix B: Figure B18). The site was originally recorded in 2009 located on a hillside in a grove of mesquite and cat claw acacia. The site overlooks a marsh area to the north and two pipeline corridors to the west. The site was recorded as a prehistoric midden consisting of a surface scatter of shell and mammal bone with shell deposits continuing to 30 centimeters (12 inches) below the surface. Observed shell included oyster and whelk. The site boundary was reported measuring 30 by 5 meters (98 by 16 feet) northwest to southeast. The site was reported as disturbed by bioturbation, erosion, and by bull dozing activities. At the time of the original survey, however, the midden itself was intact and therefore was recommended as potential for the State Archaeological Landmark (SAL) designation. National Register of Historic Places eligibility status for this site is unknown (Warren 2009a).

A previously undocumented portion of the site was identified during survey of a previous Project alignment that is no longer in consideration for the Project. Field observations identified cultural material within 30 meters (100 feet) of the centroid recorded in 2009. Observation of debitage visible on the surface leading towards the originally mapped centroid location as well as material types consistent with those originally recorded at the site suggest that the observed artifact scatter is in fact a continuation of Site 41RF51. The portion of the site within the surveyed corridor is located approximately 100 meters (328 feet) north-northeast of Melon Creek and is confined to the eastern edge of the proposed ROW. The site can be located on the *Mission Bay, TX*, USGS Topographic Quadrangle in Refugio County. The site elevation is estimated at 14 feet above the Mean Sea Level (MSL). The observed artifact scatter occupies a 35-meter (13.5-foot) wide maintained pipeline corridor which is bordered by a marshy floodplain to the west and a wooded area to the east (where the original

recorded location of Site 41RF51 is mapped). The observed area measures approximately 55 meters by 30 meters (180 feet by 98 feet) and is located on a slightly elevated landform overlooking the immediate surroundings and floodplains of Melon Creek to the south-southwest.

The site was visually delineated within the survey corridor, as the surface visibility was 100 percent. Immediately present was a shell scatter measuring approximately 60 meters (197 feet) in diameter. Recorded shell included large oyster, whelk, clam and gastropod. A shovel test was placed in the middle of the scatter area and was positive for buried cultural material. Recorded artifacts were distributed between 0 to 50 centimeters (19.6 inches) below the surface and consisted of five debitage pieces, one broken biface tool, shell (17 pieces collected), faunal remains (total of 10 fragments), and small pieces of burnt clay. In addition, two debitage flakes and a two faunal remains were located on the surface 5 meters (16 feet) west of the positive shovel test. Although site delineation was attempted full delineation was not possible due to wet ground conditions at the time of the survey and buried pipelines within the existing pipeline corridor. Therefore, only two additional subsurface tests were excavated at 25-meter (82-foot) intervals. Delineation shovel tests were negative for buried cultural material. Based on the field observations the western portion of the site has been impacted by the previous construction of an existing pipeline, while the intact part of the site extends further to the east starting at the treeline and continues outside of the surveyed corridor.

The mapped soil for this area consists of Victoria clay, 1 to 3 percent slopes with clayey fluviomarine deposits of Late Pleistocene age as parental material. Typical soil profiles recorded during the survey consisted of grayish brown (10YR5/2) clay loam extending from the surface and transitioning into a damp dark grayish brown (10YR4/3) clay at 15 centimeters (6 inches) below the surface.

Although a portion of the site has been impacted by previous pipeline installation, field results suggest that the east edge of the existing pipeline corridor contains intact subsurface deposits. The site is potentially eligible for listing in the NRHP or as a SAL under criterion D. It is likely to contribute significant data and information about prehistory of the area, particularly because of the rarity of finding such midden sites in an intact context. HRA Gray and Pape recommend avoidance of the site. Project plans have rerouted around the site and it is no longer within the APE.

Investigation at Previously Identified Site 41RF53

Site 41RF53 is a prehistoric lithic scatter and shell concentration. A previously undocumented portion of the site was identified during survey of a previous Project alignment that is no longer in consideration for the Project. Field survey identified cultural materials consistent with those originally recorded for the site located approximately 60 meters (197 feet) to the east of the site's originally mapped centroid. The revised site boundary including the previously recorded centroid location brings the site size to approximately 65 by 90 meters (213 by 295 feet). The location can be found approximately 400 meters (1,312 feet) north of Melon creek within the western edge of the APE. The site is located on the *Mission Bay, TX*, USGS Topographic Quadrangle in Refugio County (Appendix A: Figure A9; Appendix B: Figure B19). The site elevation is estimated at 28 feet above the Mean Sea Level (MSL). It

should be noted that at the time of survey the Project APE did not include the originally recorded centroid location of Site 41RF53, thus previously recorded portions of the site were not revisited as part of field efforts.

The extension of the site is located on the side of a hill within a wooded area of mesquite and cat claw acacia bounded to the west by an agricultural field (containing the originally mapped location of Site 41RF53) and to the east by two existing pipeline corridors. A review of the Texas GLO shows an existing 40-centimeter (16-inch) diameter ethane pipeline immediately adjacent to the east edge of the site. A series of small landforms resembling mima or pimple mounds were observed measuring approximately 15 meters (49 feet) in diameter and 1 meter (3 feet) tall.

Delineation was performed within what was the APE at the time. A total of seven shovel tests spaced 25 meters (82 feet) apart were excavated, of which only one was positive for buried cultural material. The positive shovel test contained a single piece of debitage located approximately 15 centimeters (6 inches) below the surface. The remaining six delineation tests were negative for buried cultural material. Typical shovel test profiles included dark grayish brown (10YR4/2) dry clay loam extending from the surface and transitioning into a very dark grey (10YR3/1) compact clay at 20 centimeters (7.8 inches) below the surface. Shovel tests were excavated to the average depth of 50 centimeters (19.7 inches) below surface.

In addition to subsurface testing, the site was visually delineated as the surface visibility ranged from 10- 80 percent. Two shell concentrations were observed in the area. A shell concentration was recorded around shovel test 25S. A shell concentration was also recorded on a small landform at shovel test 50N. Observed shell within both locations primarily consisted of gastropod and muscles. Approximately 5 meters (16 feet) south of positive shovel test A7, two prehistoric debitage pieces were identified on the surface. In addition, two burned earth fragments were observed within the area of the surface scatter. A single historic glass button was recorded indicating a historical presence in the area.

The identified cultural materials appear to be remnants of a larger site that has been truncated to the east and west by disturbance. While two distinct loci seem to be represented, one a shell concentration and one a small lithic scatter with shell, it is unclear if the observed materials are intact because of the amount of disturbance in the immediate area. The observed landforms could suggest a natural landscape however the shovel test data include the observance of grayish brown (10YR5/2) clay inclusions within the upper stratum, which suggests disturbance. Moreover, the lone subsurface artifact was well within the range of the plow zone (typically 25 to 30 centimeters [10 to 12 inches]) and the button discovered at the site may also be evidence of historic or more recent disturbance of the location.

Field results suggest that the newly identified portion of the site does not contain intact subsurface deposits and is not likely to contain diagnostic artifactual materials and thus not likely eligible for listing in the NRHP or as a SAL. This portion of the site is no longer within the Project APE. Current Project plans have shifted the proposed alignment to the west and now include the originally mapped centroid for the site. Although that portion of the site was not revisited as part of survey efforts the Project at this location is planned to be installed

by horizontal drilling with a proposed workspace to be located 290 meters (951 feet) away from the recorded site location. Thus no impacts to the site are anticipated and no further work on this site is recommended.

Investigation at Previously Identified Site 41RF54

Originally recorded as a prehistoric shell midden, the site is located 60 meters (197 feet) north of Melon Creek. The site can be located on the *Mission Bay, TX*, USGS Topographic Quadrangle in Refugio County. The northern half of the site is located within a plowed field while the southern half is occupied by acacia. The ground slopes 5 percent toward to Melon Creek. The original site boundary was recorded as 10 meters (32.8 feet) in diameter. This was extended as a result of Project field efforts to result in a boundary measuring approximately 55 by 55 meters (180 by 180 feet) and including subsurface deposits as well as a surface scatter (Appendix A: Figure A9; Appendix B: Figure B20).

The original documented cultural features included a shell midden and a hearth made of burnt clay. Associated with these features were chert, burnt clay, bone and oyster shell debris scattered throughout the vicinity. These site contents were confirmed during the investigation with the exception of the actual shell midden and a hearth which were not relocated.

Revisit efforts resulted in a total of 13 shovel tests excavated at the site of which eight were positive for buried cultural material. Subsurface tests were performed in cardinal directions from the first positive test at 10-meter (33-foot) intervals. Depth of the recorded cultural material ranged from 0 to 55 centimeters (21.7 inches) below surface. A typical soil profile within the site consists of a dark grey (7.5YR4/1) surface level followed by a very dark grey (7.5YR3/1) soil at 30 centimeters (12 inches) below the surface with a mottled light yellowish brown (10YR6/4) clay scattered throughout. Cultural deposits recorded in the shovel tests consisted of shell fragments, bone, debitage, and pottery fragments.

In addition to subsurface testing, the site was subjected to surface inspection. A total of 40+ artifacts were observed on the surface. Surface scatter artifacts included approximately 37 debitage, one utilized flake, one biface fragment, five fragments of pottery, one broken projectile point (possible Gary or similar contracting stemmed type), seven faunal bone (some burned), and a large number of shell. The extent of the artifact scatter included the hilltop within the plowed field and the lower slightly sloping grounds within the overgrown area along the northern bank of the Melon Creek.

The site possesses a high density and wide assortment of cultural materials as well as intact deposits extending below the plow zone. The site also possesses the possibility of intact features. Because of these site attributes the eligibility recommendation for this site remains the same as originally recorded, potentially eligible for listing in the NRHP or as a SAL with additional testing recommended. While the site falls within the proposed Project alignment installation at the site location is planned by horizontal drilling, with the proposed HDD workspace to be located approximately 590 meters (1,936 feet) from the site. Therefore impacts to site are not anticipated as a result of the proposed Project construction. No further work is recommended regarding the site in regard to the Project unless Project alignments change to include the site's location with the area of impact.

6.0 CONCLUSIONS AND RECOMMENDATIONS

On behalf of Tetra Tech and OxyChem, this report presents the findings of an archaeological background literary review and a pedestrian cultural resources survey with limited shovel testing for a proposed 184-kilometer (114-mile) pipeline corridor in San Patricio, Refugio, Aransas, Calhoun, Victoria, Jackson, and Matagorda Counties, Texas.

Prior to fieldwork, initial investigation consisted of a background literature and site file search to identify the presence of previously recorded sites within a 0.8-kilometer (0.5-mile) radius of the Project area. Mapped locations of four previously recorded sites (41RF53, 41RF54, 41SP256, and 41JK111) fall within the Project APE. Twenty five other previously recorded sites are located within a 0.8-kilometers (0.5-mile) radius of the Project's survey corridors; each is at a sufficient distance from the proposed Project's APE to ensure that there will be no impacts to these cultural resources.

The survey corridor consists mostly of agricultural fields with surface visibility ranging between 50-100% depending on whether crops are actively growing. Consultation with the THC on February 13, 2013, confirmed the methodology of 100 percent pedestrian reconnaissance survey coverage with limited shovel testing within the study area. Fieldwork was conducted within three mobilizations between March 6 to 26, 2013; May 15 to 29, 2013; and June 17 to 21, 2013. In addition to work conducted in 2013, a 4.2-kilometer (2.6-mile) portion of the project was previously surveyed by HRA Gray & Pape in 2011 as part of the San Patricio Pipeline Project, reported on in a separate document (Scott et al. 2013), and concurred with by the Texas SHPO in October 2013. To date, 175.7 kilometers (109.2 miles) of Project alignment, or 95.8 percent of the Project, has been surveyed. The amount of surveyed Project area in addition to surveyed areas no longer in consideration for the Project amounts to approximately, 1,399.8 hectares (3,459 acres) of survey coverage. Approximately 7.7 kilometers (4.8 miles) of Project are currently not surveyed. Of that amount HRA Gray & Pape recommends that 3.7 kilometers (2.3 miles) of marsh not be required for survey. Access is pending for the other 4 kilometers (2.5 miles) of Project alignment that has not been surveyed.

Field investigation consisted of walkover and judgmental shovel testing within the survey corridor. Years of agricultural use within the properties containing the Project's survey corridor have likely disturbed the upper several centimeters of soil below the surface. Typical disturbances observed include plowing, previous utility line and pipeline construction, well pads, access roads, and creek/drainage channelization. No deep testing is recommended for any portion of the APE. Although Holocene-age soils are mapped within the APE, these are generally located in marshy floodplains that are typically inundated. Further, because the Project alignment is collocated with existing pipelines these areas are within or immediately adjacent to existing pipeline alignments with visible signs of disturbance verified through shovel testing.

Field efforts resulted in the discovery of 17 new sites, one historic structure, five historic loci, six isolate finds, and four previously recorded sites (41RF51, 41RF53, and 41RF54,

41SP256). The location of one additional previously recorded site (41JK111) has yet to be surveyed due to pending property access. Due to Project realignments the number of resources currently within the Project APE consists of 12 new sites, two historic loci, two isolate finds, and four previously recorded sites. All resources identified contained surface scatters and nearly all were limited to only the surface. Resources identified appear to represent short term late prehistoric campsites and historic late-nineteenth to mid-twentieth century occupations or trash scatters. Because the Project is collocated to previous pipelines artificial impacts from agriculture and previous pipeline installations in addition to natural impacts from flooding and erosion and have disturbed all of the resources to varying degrees.

Of all sites identified only Sites 41RF51, 41RF54, 41SP267, 41SP268, and 41SP269 are the result of longer term occupation or appear to retain subsurface deposits. Their potential to add to the knowledge of the prehistory and history of the area suggests these resources are potentially eligible for listing in the NRHP or as a SAL. Of the potentially eligible sites only Sites 41RF54, 41SP268, and 41SP269 are within the Project APE. HRA Gray & Pape recommend efforts to avoid these sites if possible. Project plans are for these sites to be avoided by HDD with workspaces set back more than 30 meters (100 feet). The location of Site 41JK111 in regard to the project and its eligibility status is currently unknown. The remaining not surveyed portions of the Project including the mapped location of 41JK111, as well as an unknown number of laydown yards, workspaces, and access roads will be included in an addendum report once survey has been completed for those areas. Artifacts recovered from sites will be returned to landowners upon completion of the Project.

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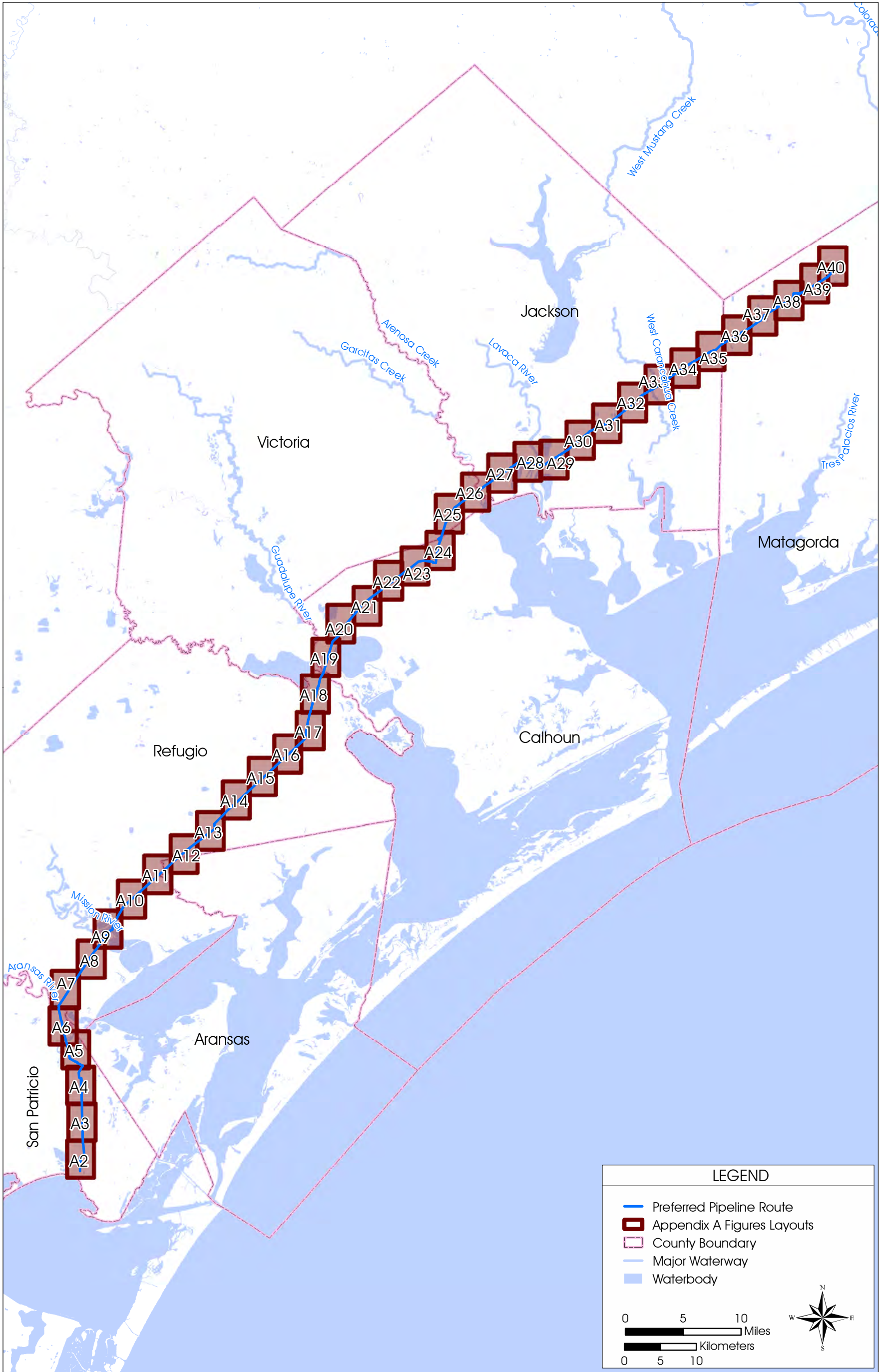
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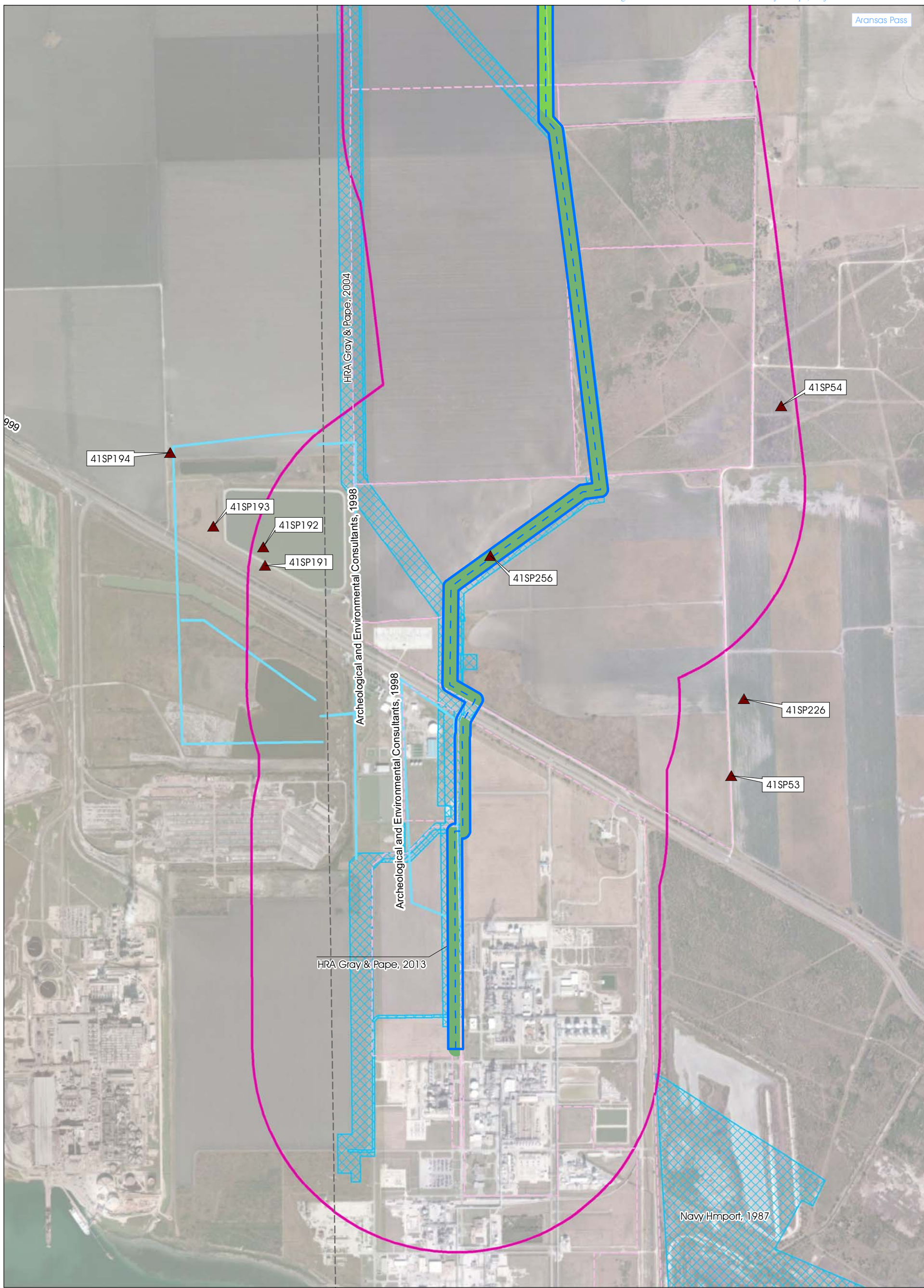
**APPENDIX A:
Survey Results for the Proposed OXYCHEM Markham
Ethylene Pipeline Project
(Figures A1 – A40)**



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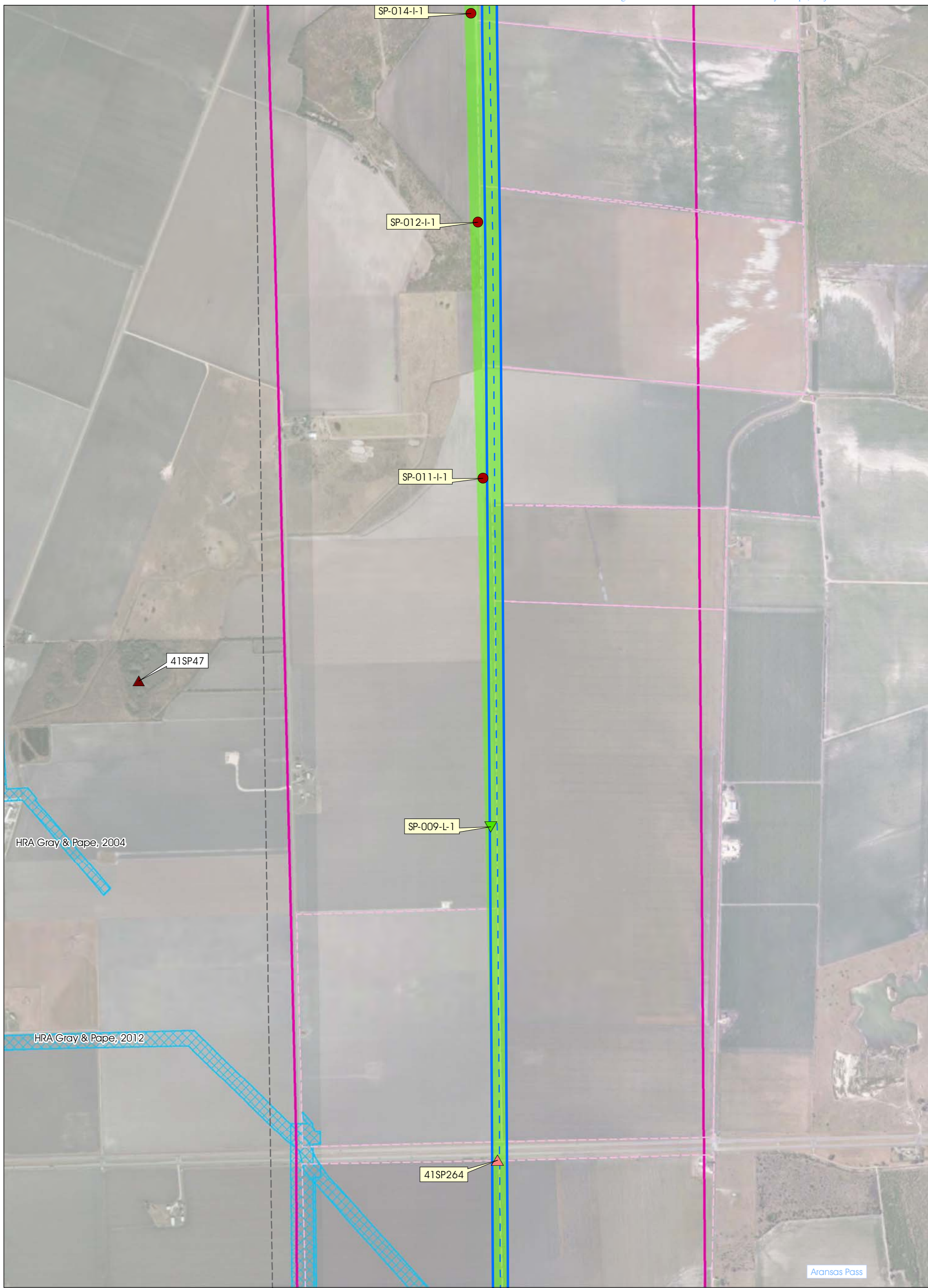
Survey Results for the Proposed Occidental Pipeline

Figure A1



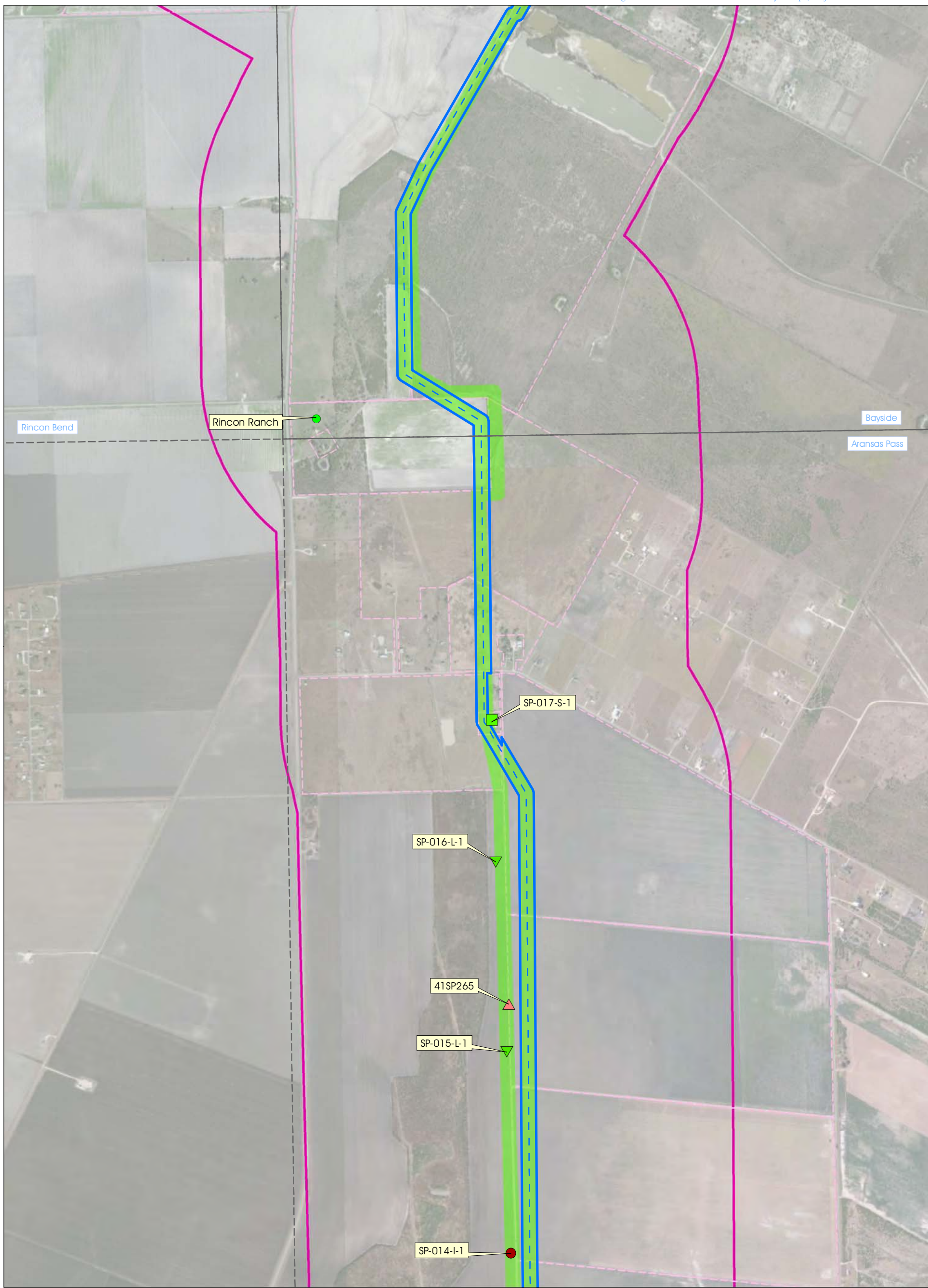
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<ul style="list-style-type: none"> 0.8-Kilometer (1-Mile) Study Area Proposed Pipeline Route Proposed Pipeline APE Proposed HDD Alignment Proposed HDD Temporary Work Space Parcel Boundaries USGS Quadrangle Boundary Survey Status Surveyed Area (2013) Survey Pending or In Progress No Survey Recommended - Inundated Marsh 	<ul style="list-style-type: none"> Previously Surveyed by HRA Gray & Pape (See Scott et al. 2013) Previously Recorded Linear Survey Previously Recorded Area Survey ▲ Previously Recorded Site Centroid ● Previously Recorded Historical Marker Newly Identified Cultural Resources ● Isolate Find ▼ Locus ▲ Site Centroid Historic Structure 	<p style="text-align: center;">Figure A2</p> <p style="text-align: center;">Survey Results for the Proposed OXYCHEM Markham Ethylene Pipeline Project</p> <div style="text-align: center;"> <p>USGS 7.5' Quadrangle Reference</p> </div> <div style="text-align: center;"> </div> <div style="text-align: right;"> </div>
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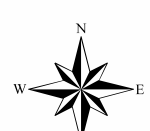



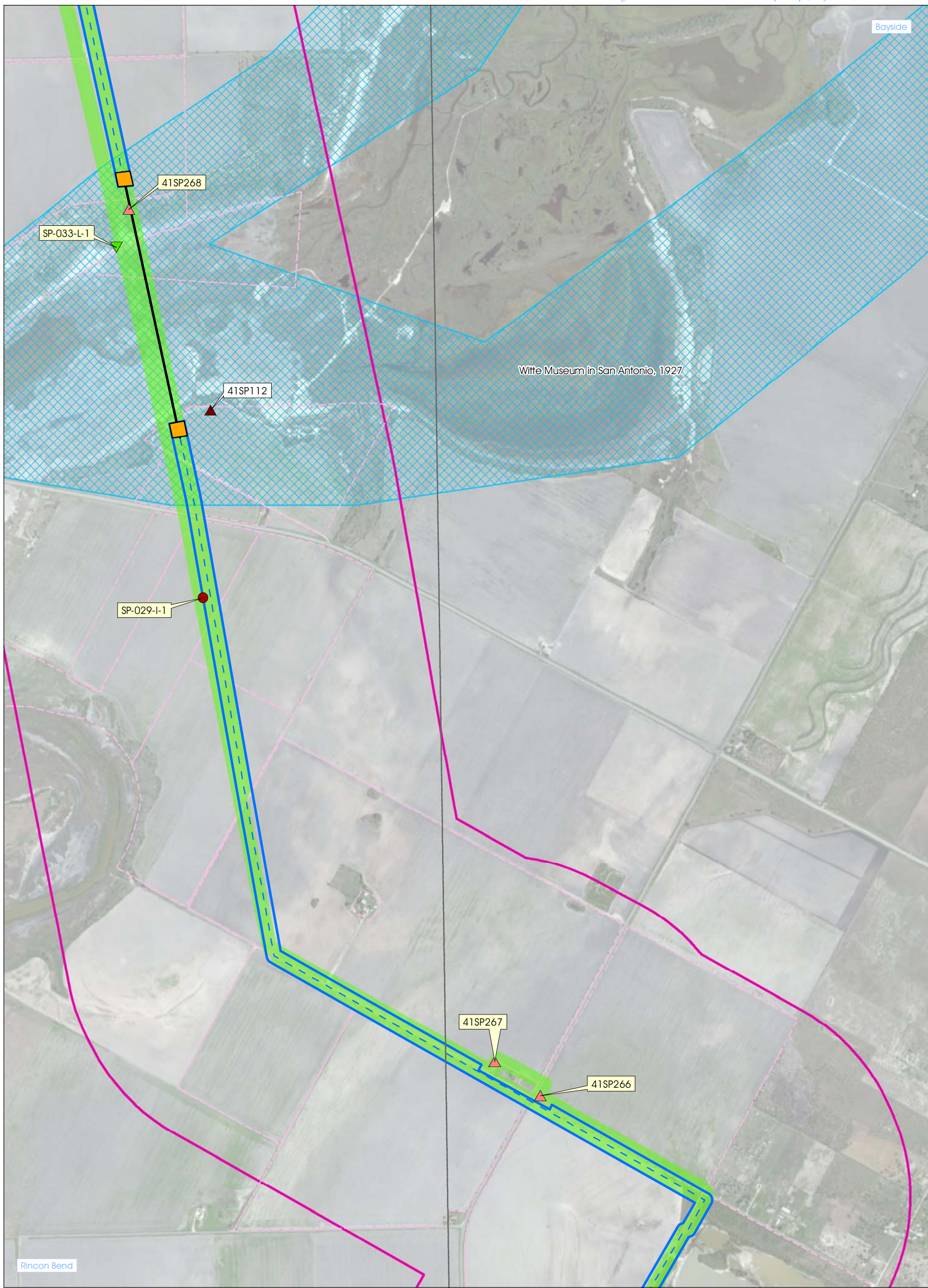
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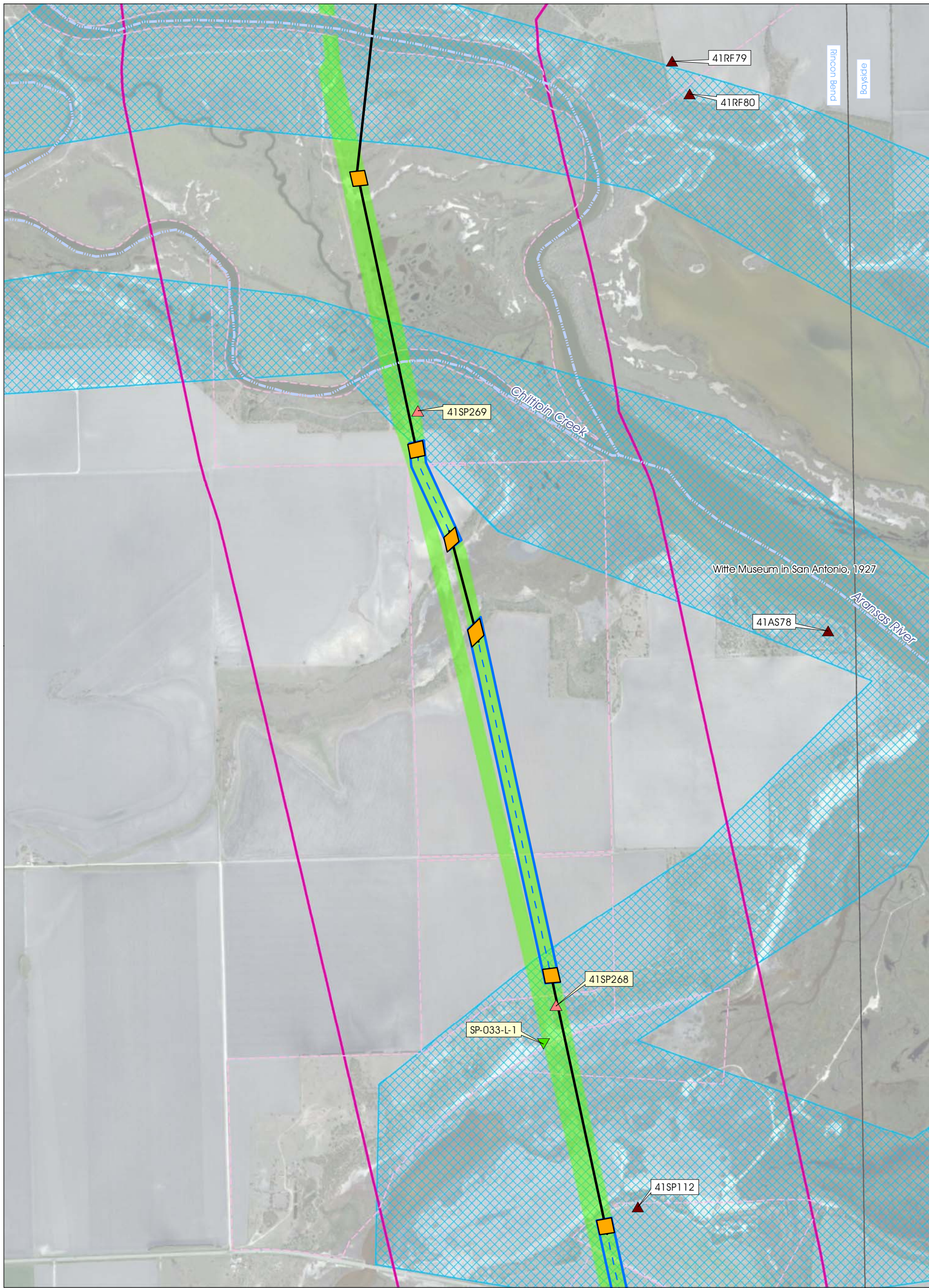
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<ul style="list-style-type: none"> 0.8-Kilometer (1-Mile) Study Area Proposed Pipeline Route Proposed Pipeline APE Proposed HDD Alignment Proposed HDD Temporary Work Space Parcel Boundaries USGS Quadrangle Boundary Survey Status Surveyed Area (2013) Survey Pending or In Progress No Survey Recommended - Inundated Marsh 	<ul style="list-style-type: none"> Previously Recorded Linear Survey Previously Recorded Area Survey ▲ Previously Recorded Site Centroid ▼ Previously Recorded Historical Marker Newly Identified Cultural Resources ● Isolate Find ▼ Locus ▲ Site Centroid Historic Structure 	<p style="text-align: center;">Figure A5</p> <p style="text-align: center;">Survey Results for the Proposed OXYCHEM Markham Ethylene Pipeline Project</p> <div style="text-align: center;"> <p>USGS 7.5' Quadrangle Reference</p> <p>0 0.125 0.25 Miles</p> <p>0 0.25 0.5 Kilometers</p> </div> <div style="text-align: center;"> </div> <div style="text-align: right;"> </div>
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<ul style="list-style-type: none"> 0.8-Kilometer (1-Mile) Study Area Proposed Pipeline Route Proposed Pipeline APE Proposed HDD Alignment Proposed HDD Temporary Work Space Parcel Boundaries USGS Quadrangle Boundary Survey Status Surveyed Area (2013) Survey Pending or In Progress No Survey Recommended - Inundated Marsh 	<ul style="list-style-type: none"> Previously Recorded Linear Survey Previously Recorded Area Survey ▲ Previously Recorded Site Centroid ● Previously Recorded Historical Marker Newly Identified Cultural Resources ● Isolate Find ▼ Locus ▲ Site Centroid Historic Structure 	<p style="text-align: center;">Figure A6</p> <p style="text-align: center;">Survey Results for the Proposed OXYCHEM Markham Ethylene Pipeline Project</p> <div style="text-align: center;"> <p>USGS 7.5' Quadrangle Reference</p> </div> <div style="text-align: center;"> </div> <div style="text-align: right;"> </div>
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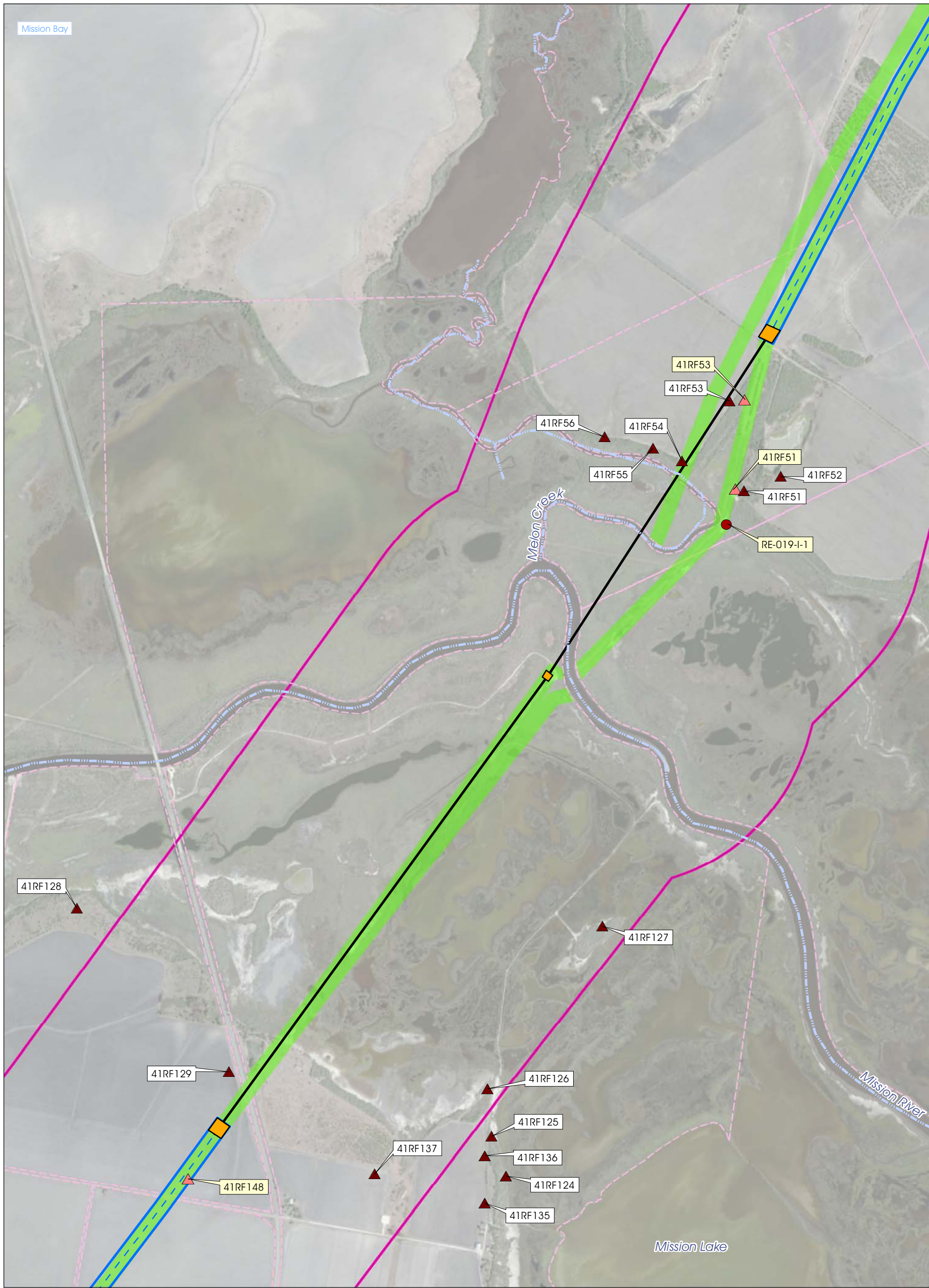
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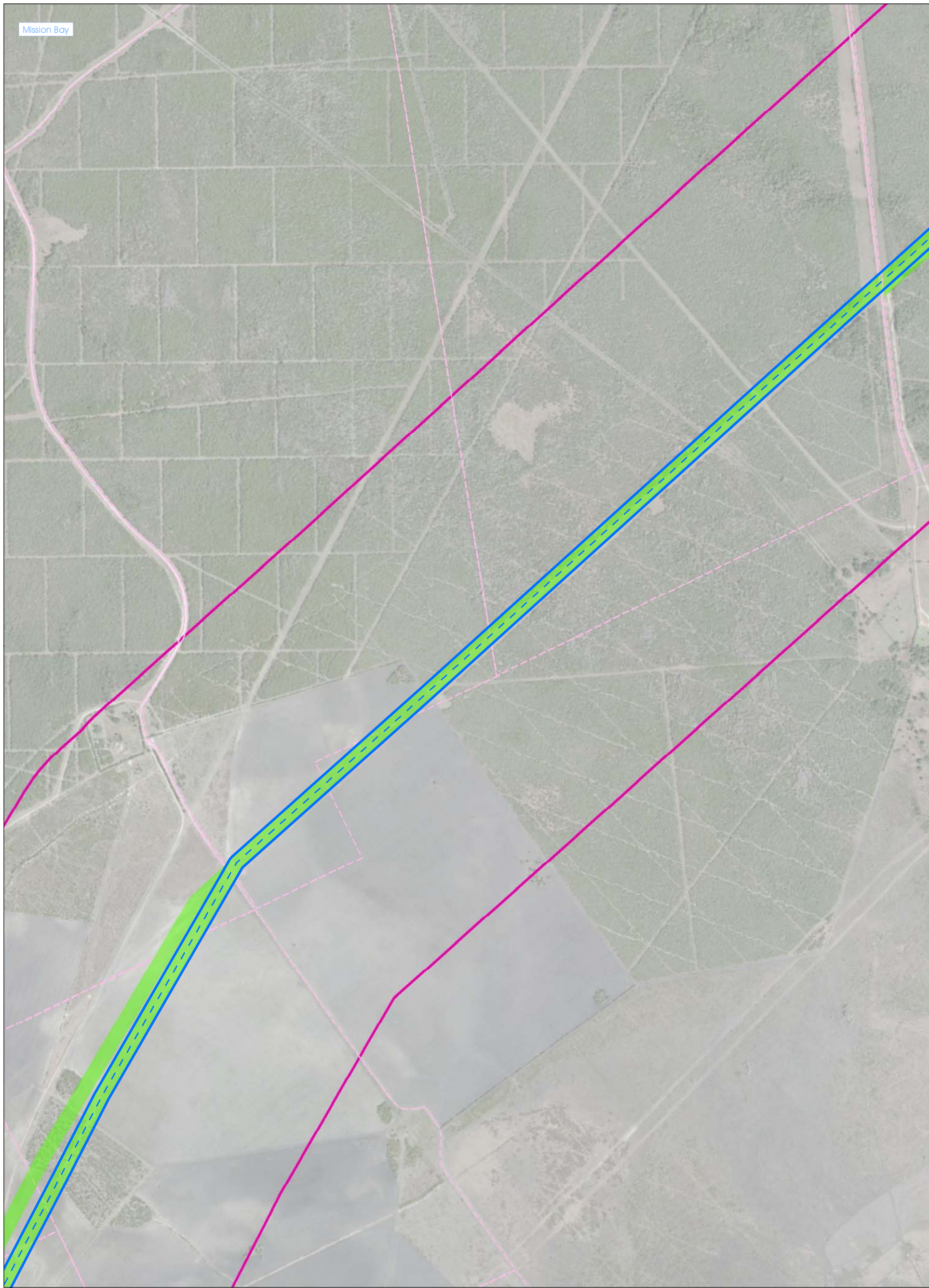
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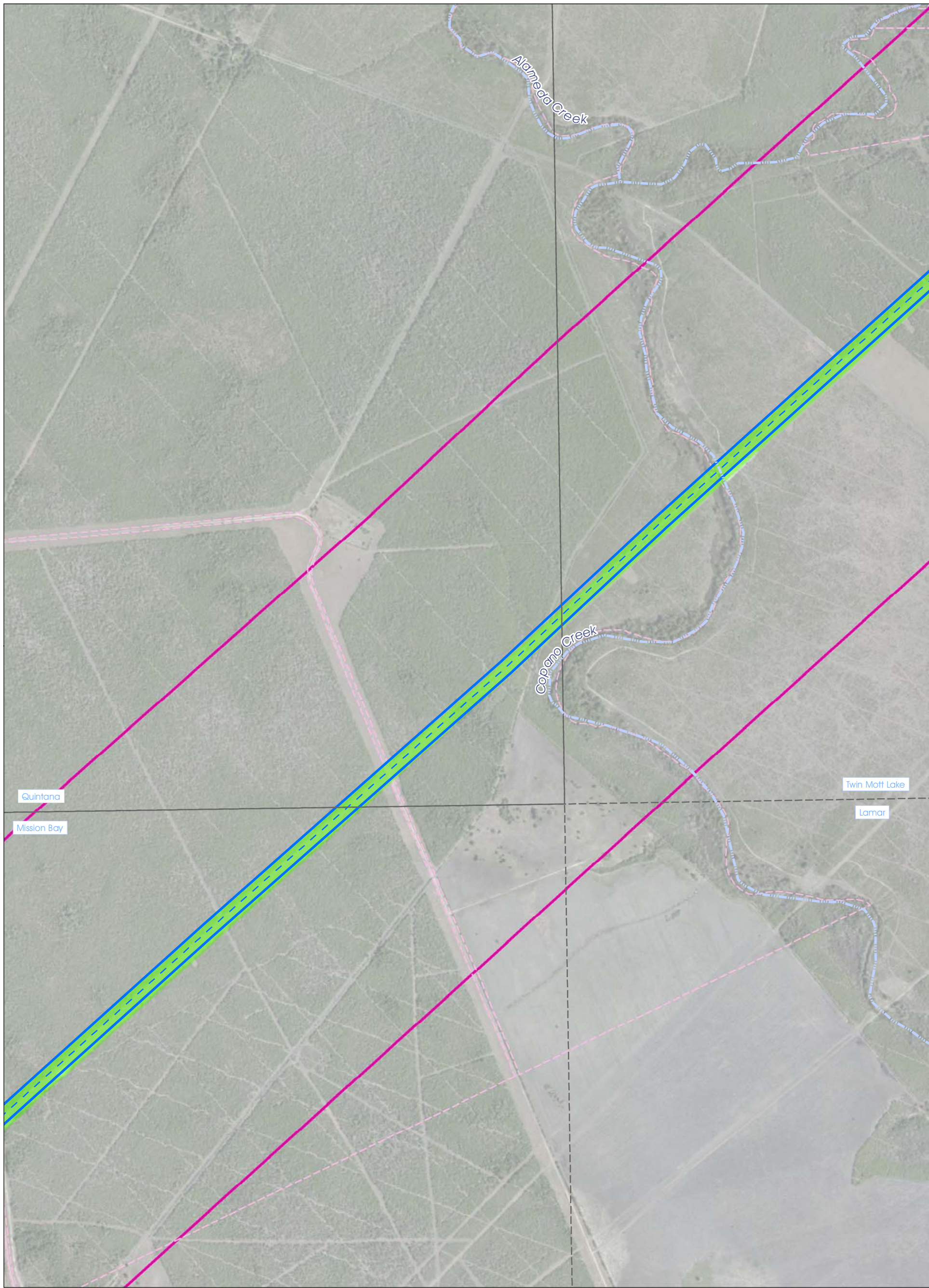
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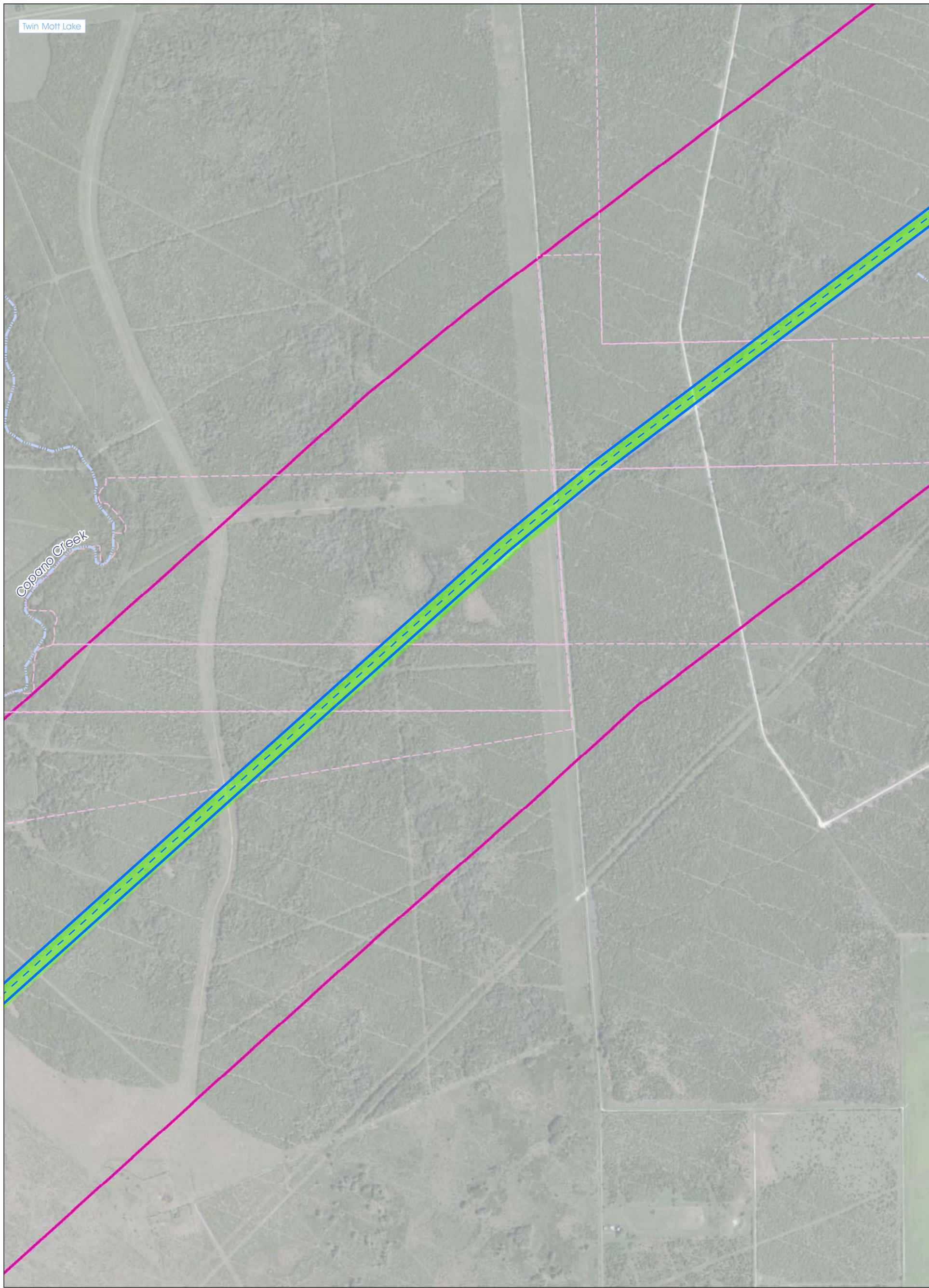
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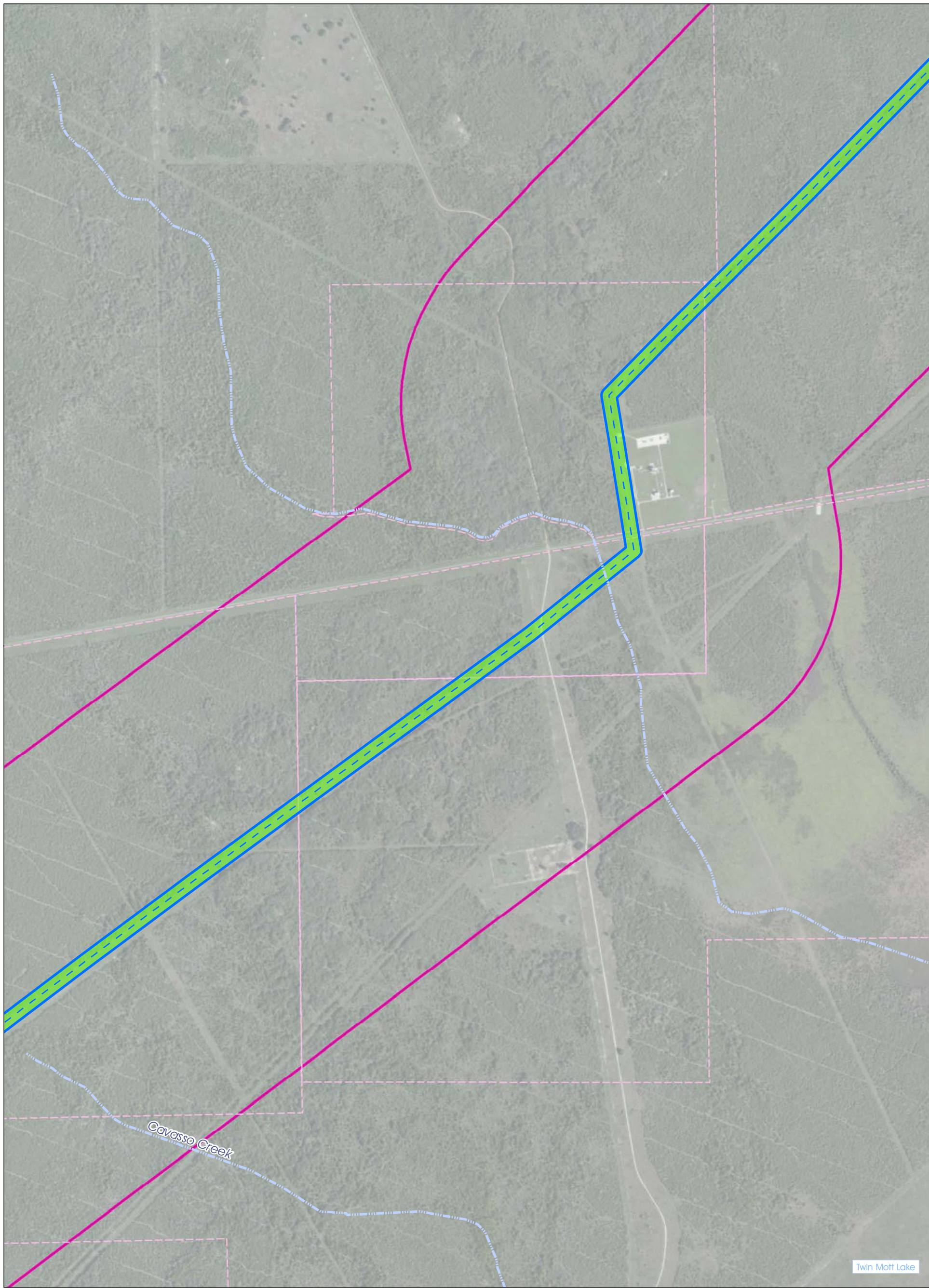
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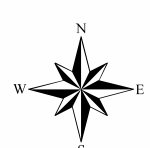



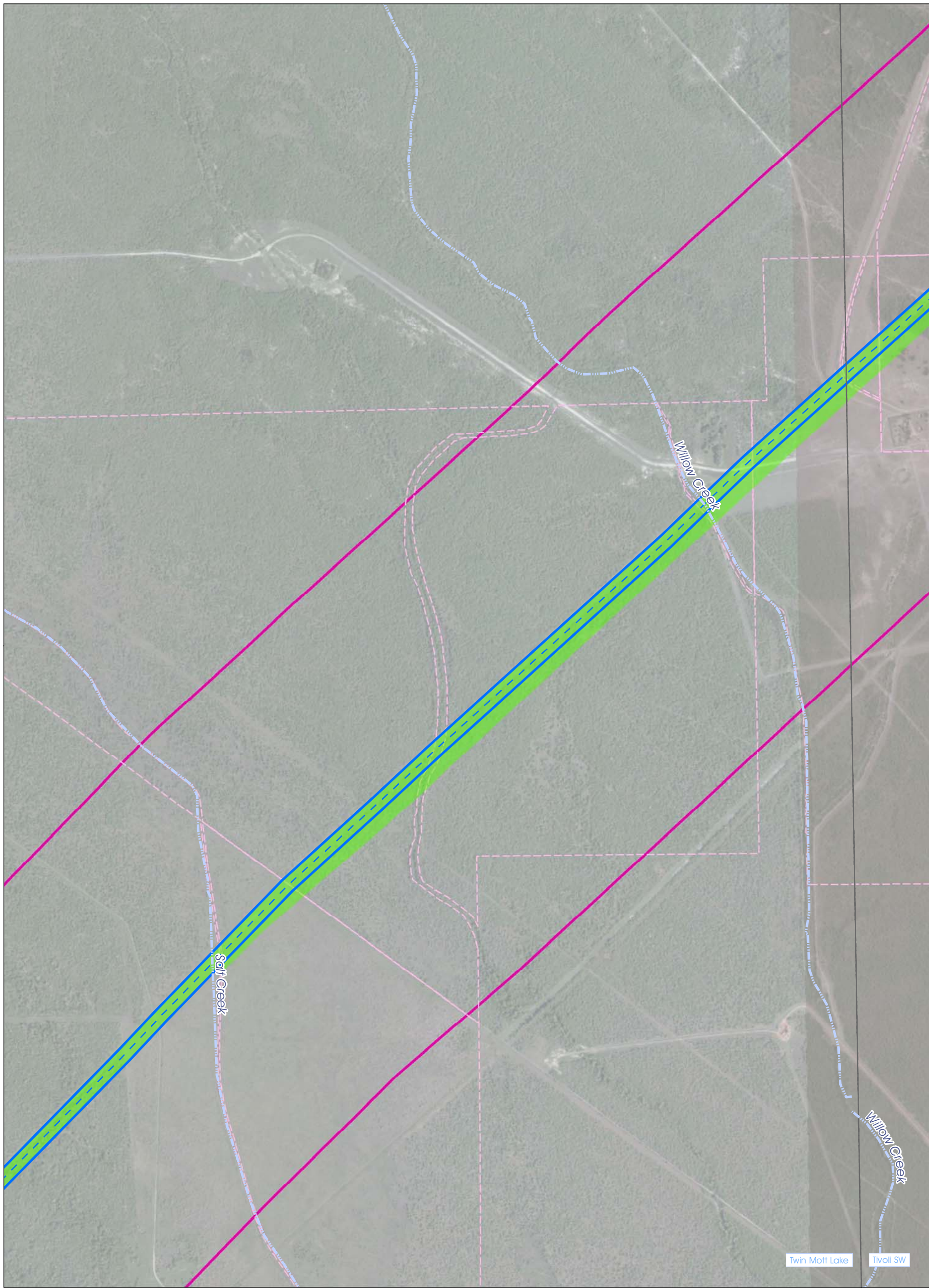
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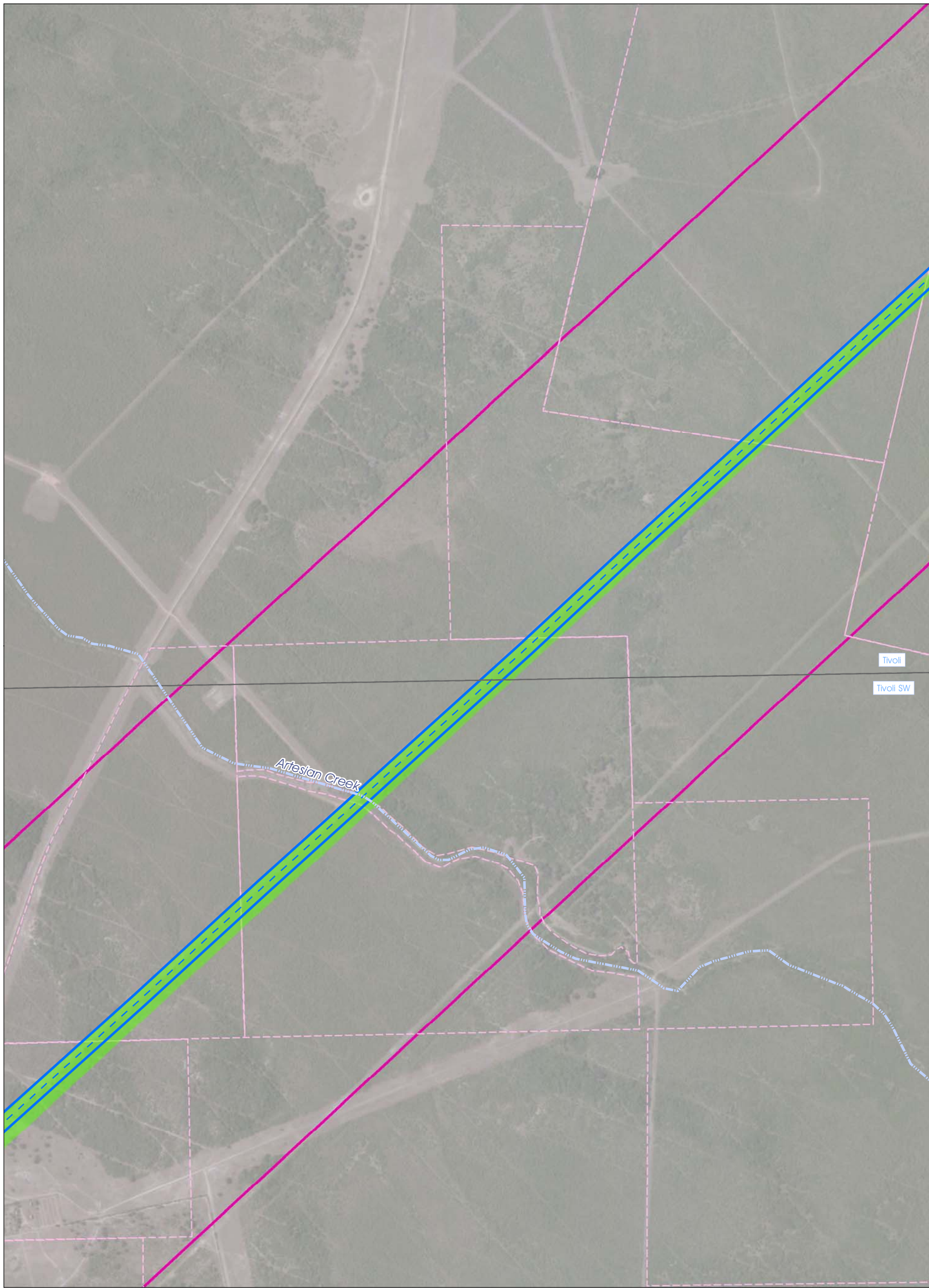


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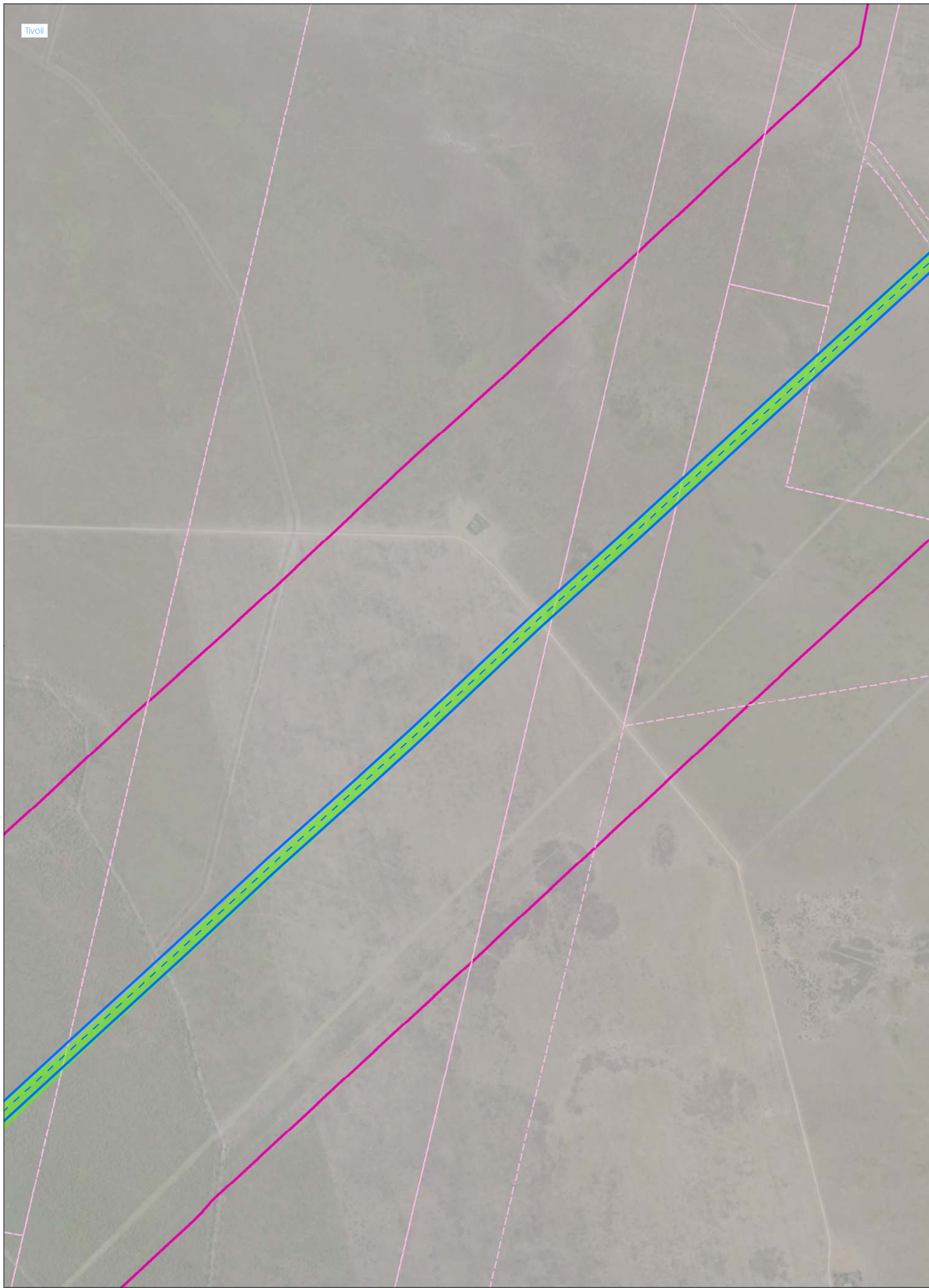
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USGS 7.5' Quadrangle Reference

0 0.125 0.25 Miles

0 0.25 0.5 Kilometers



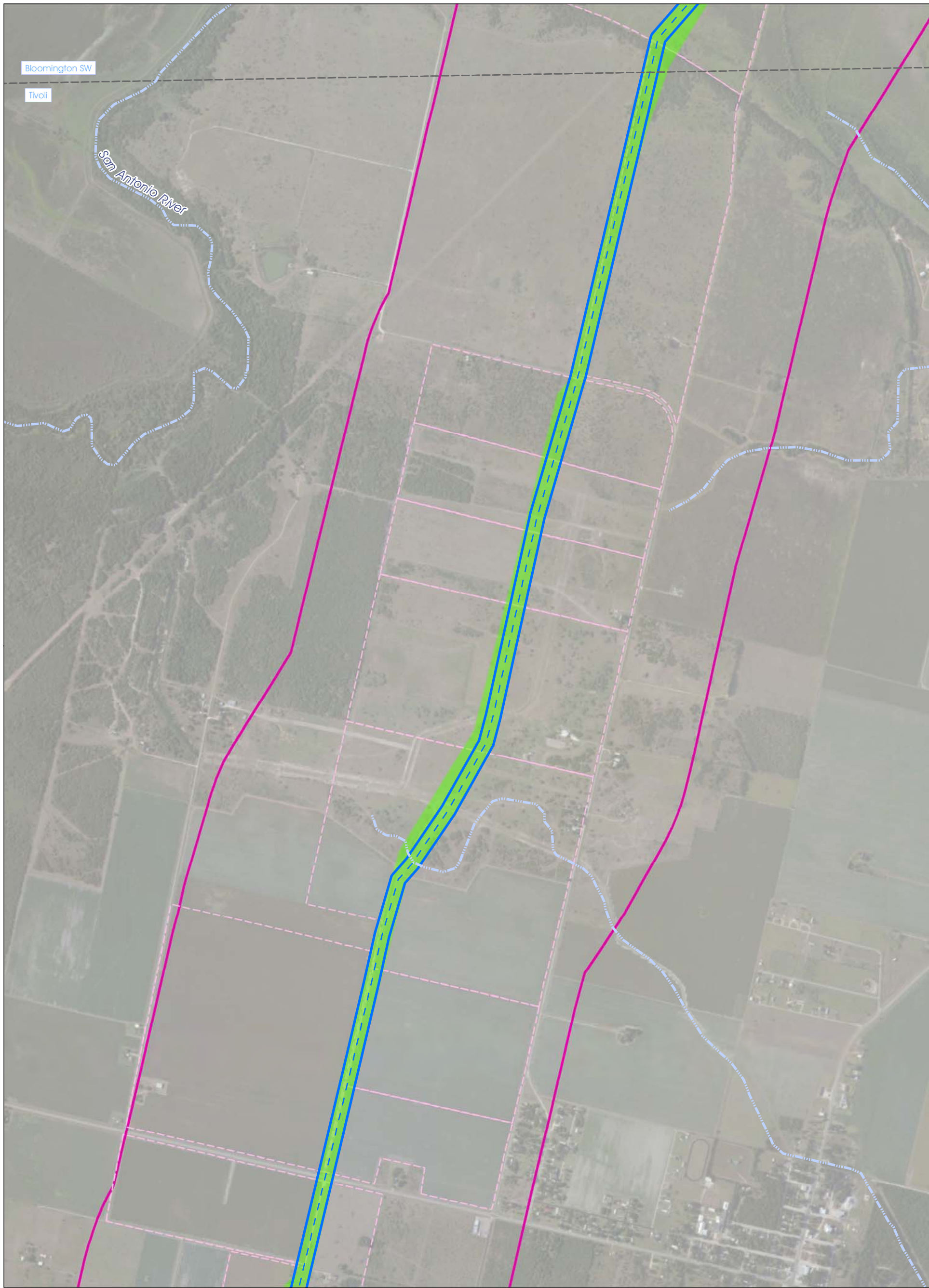
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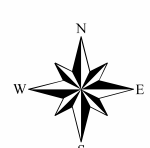



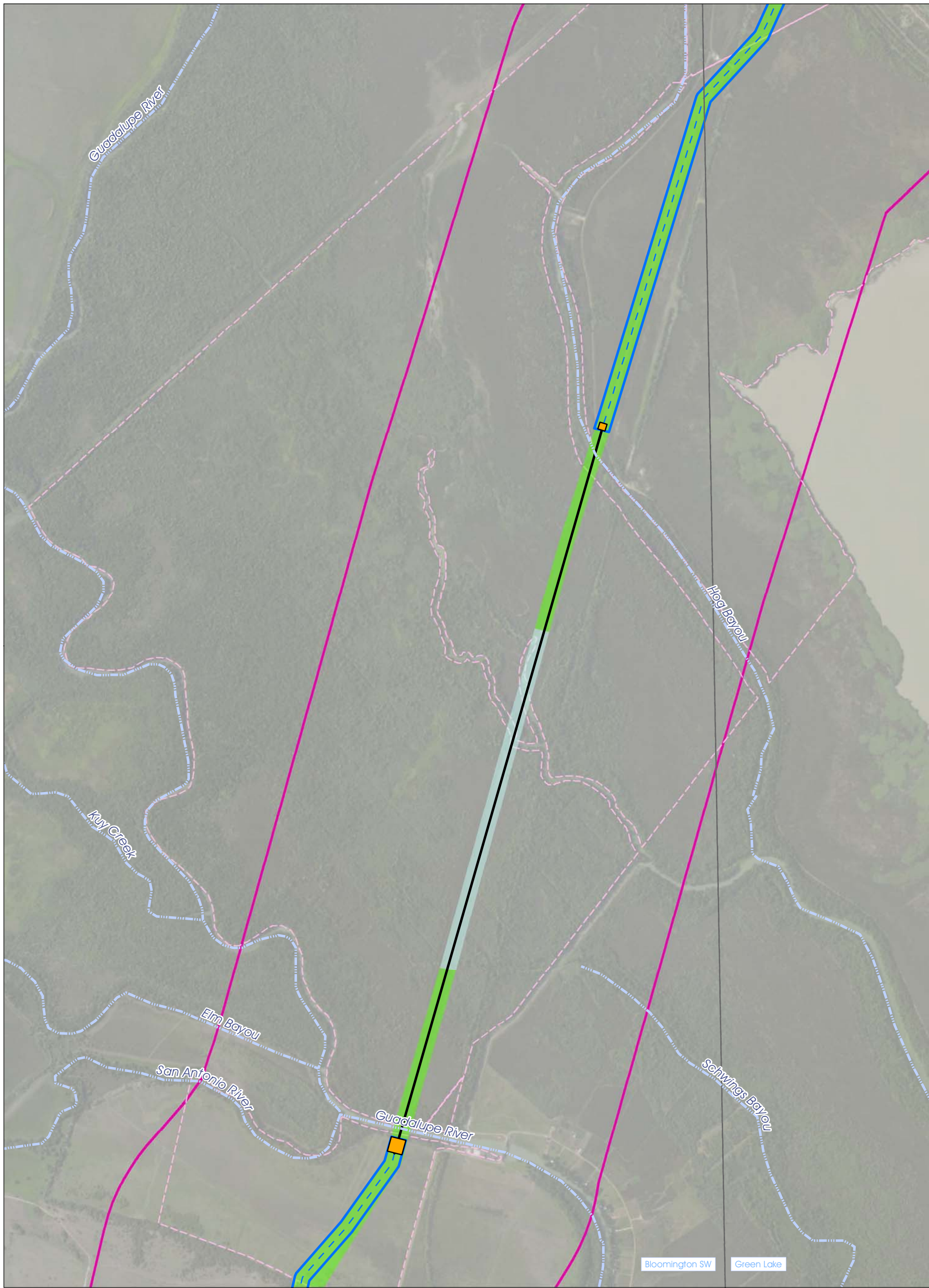
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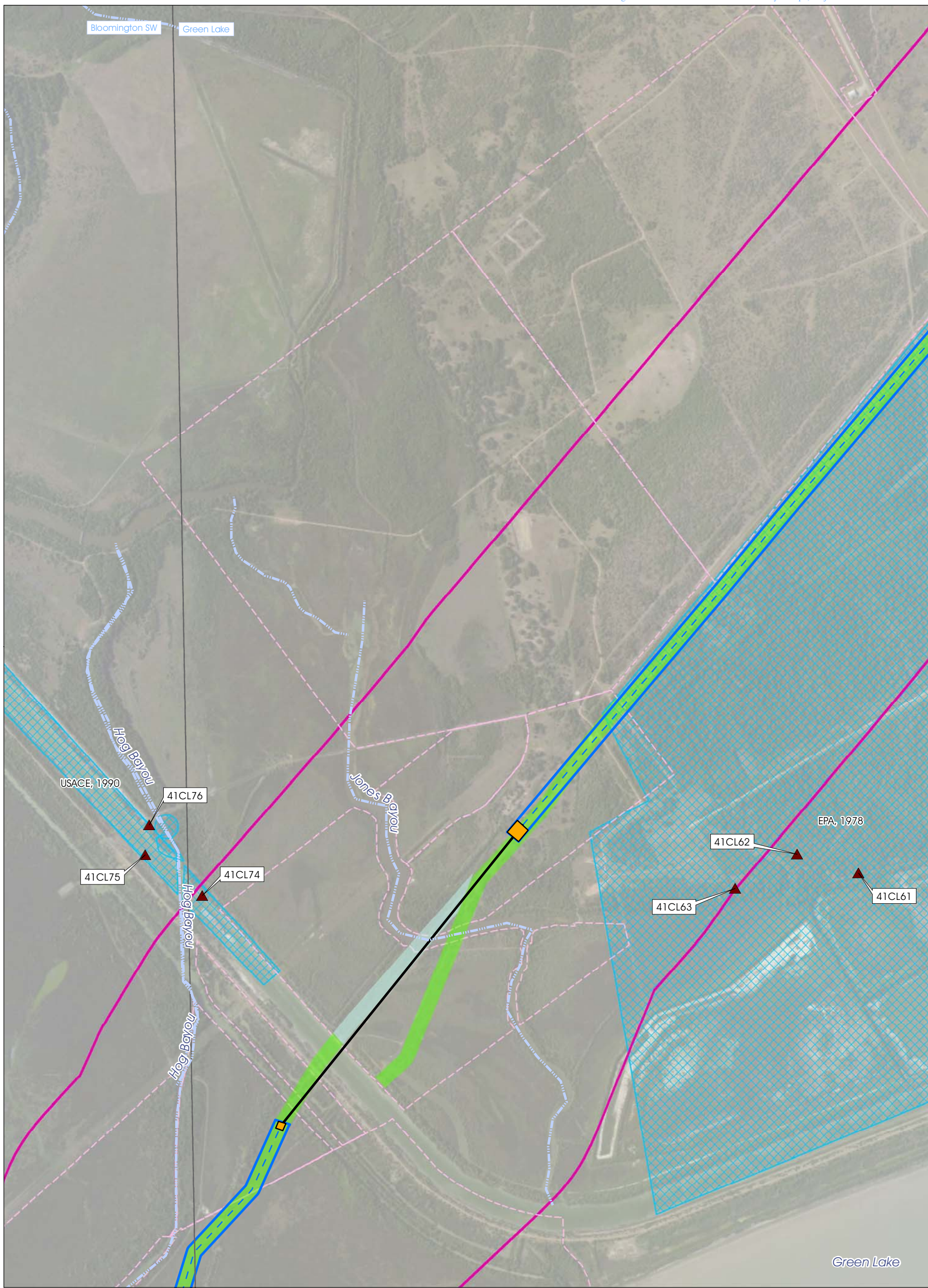
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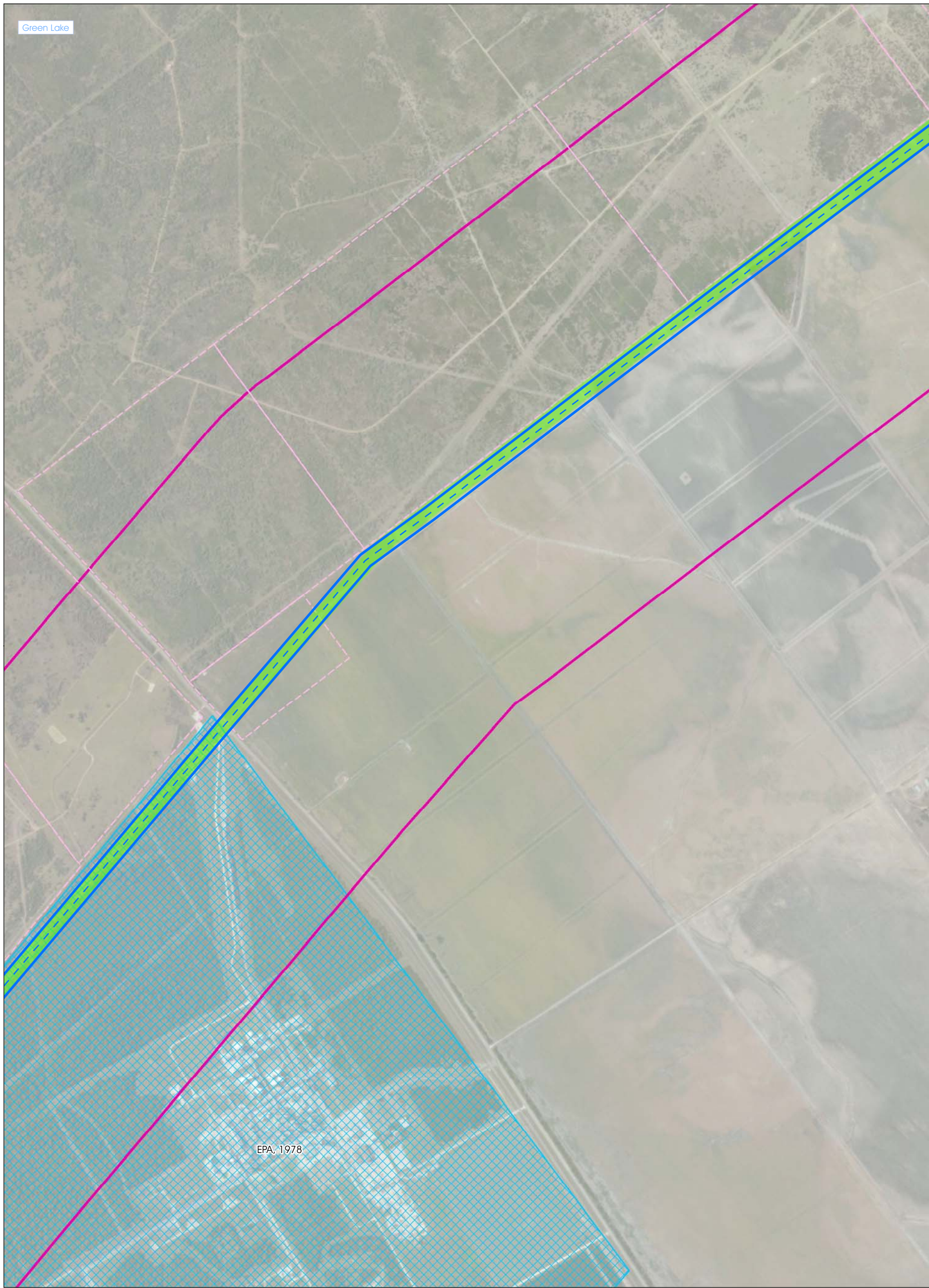
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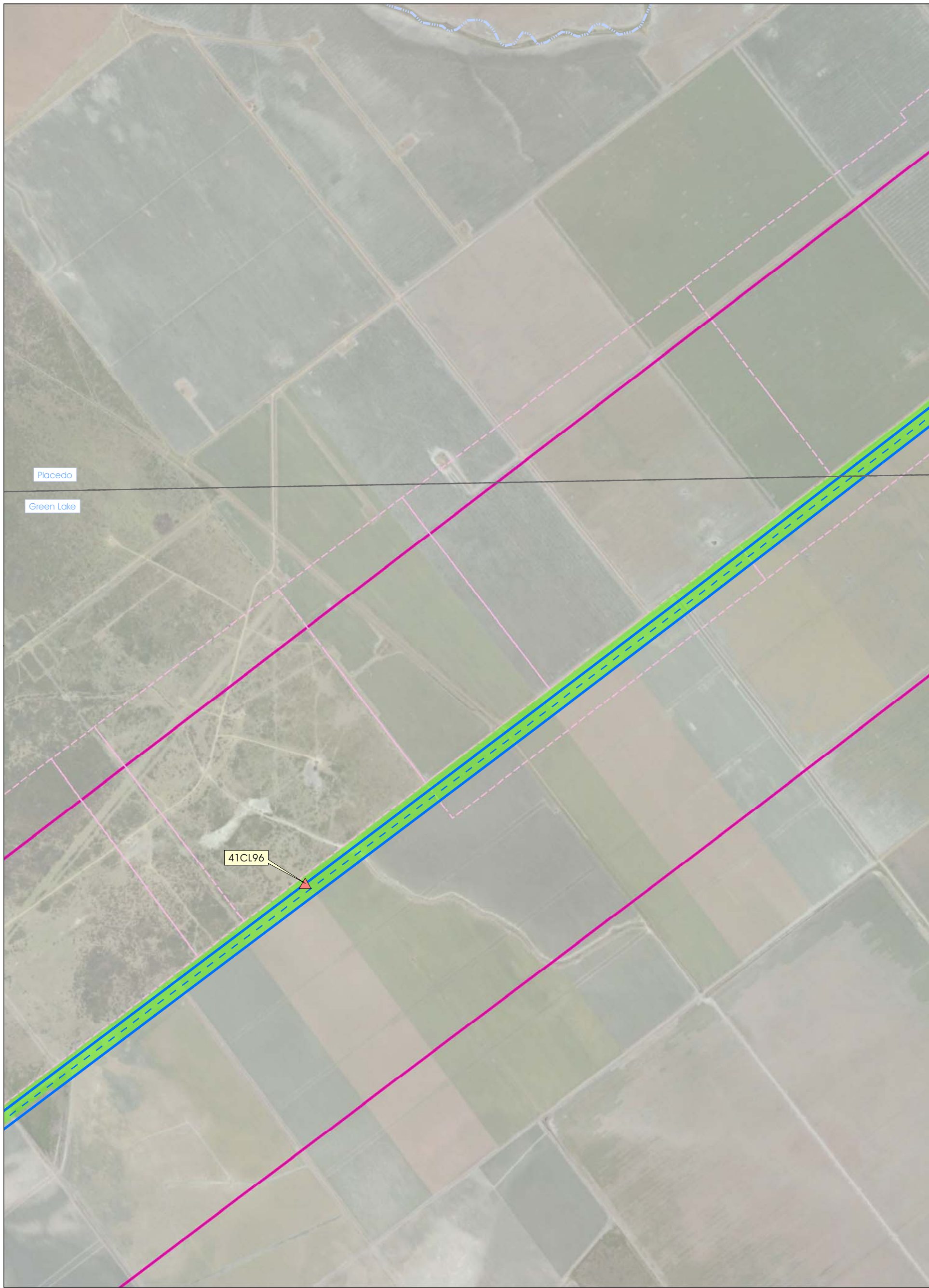
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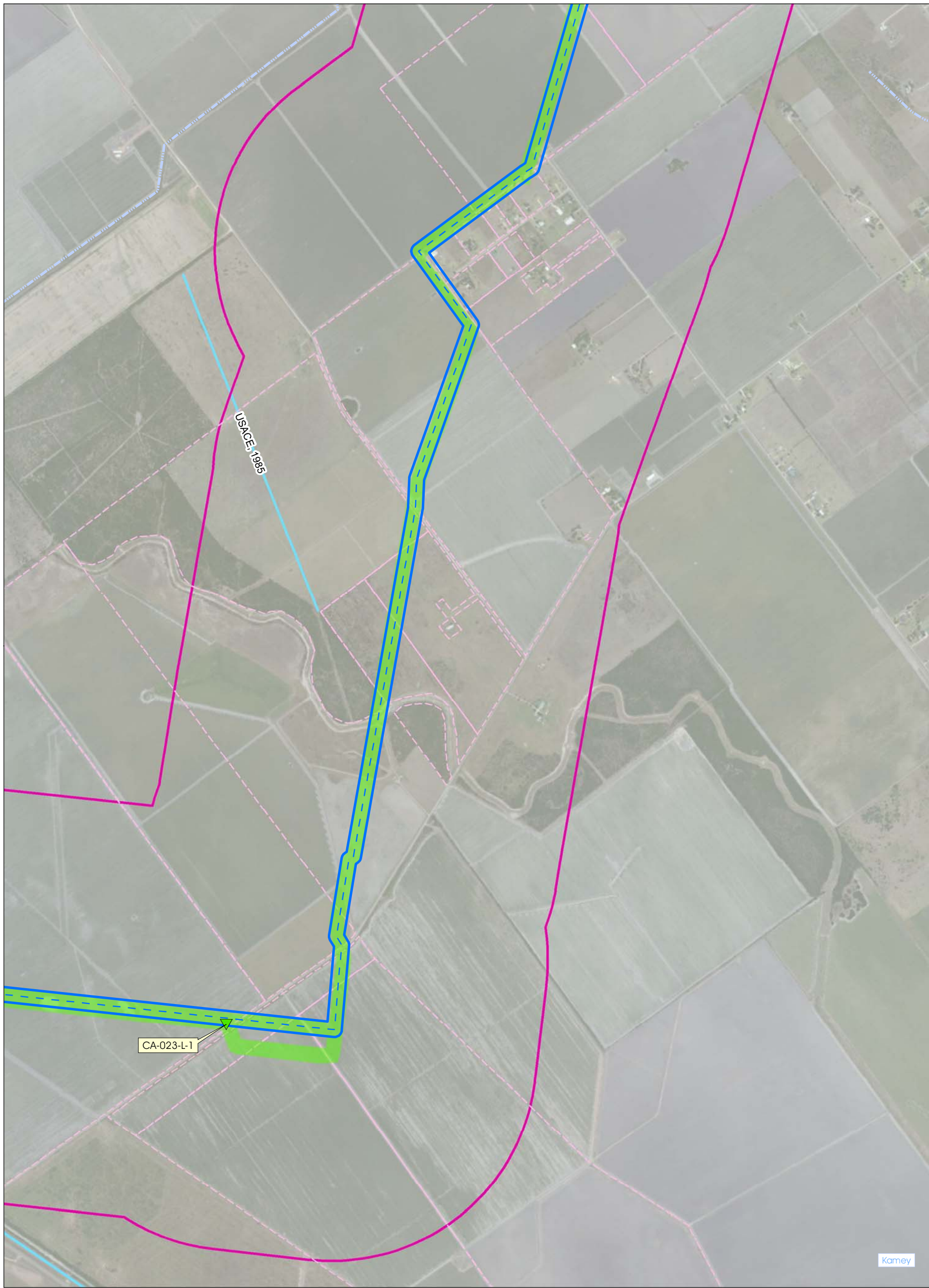
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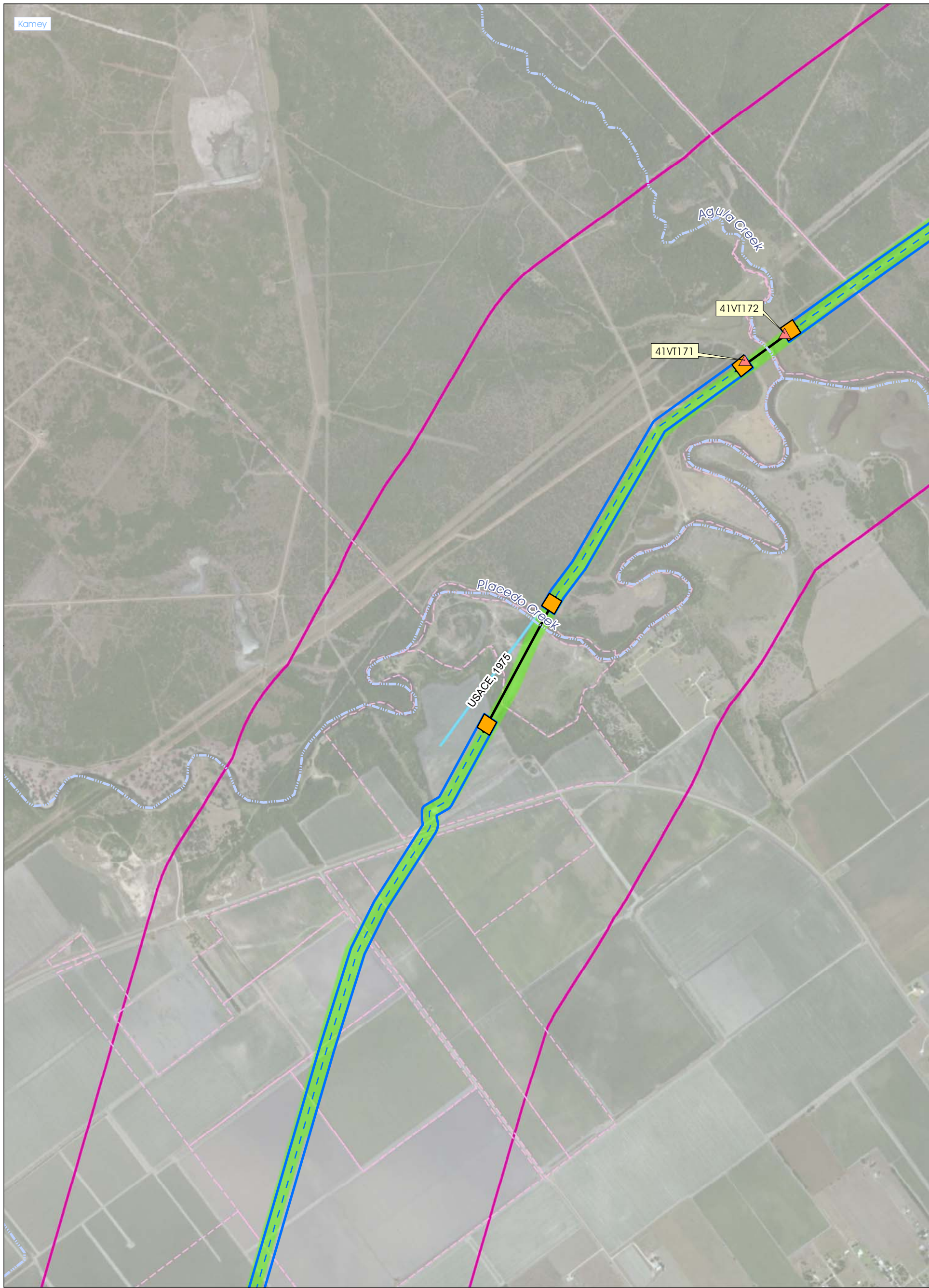
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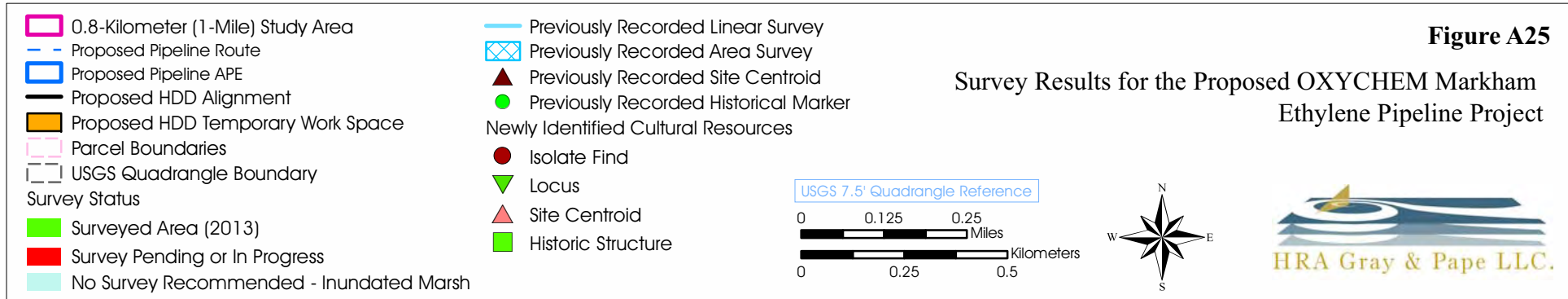


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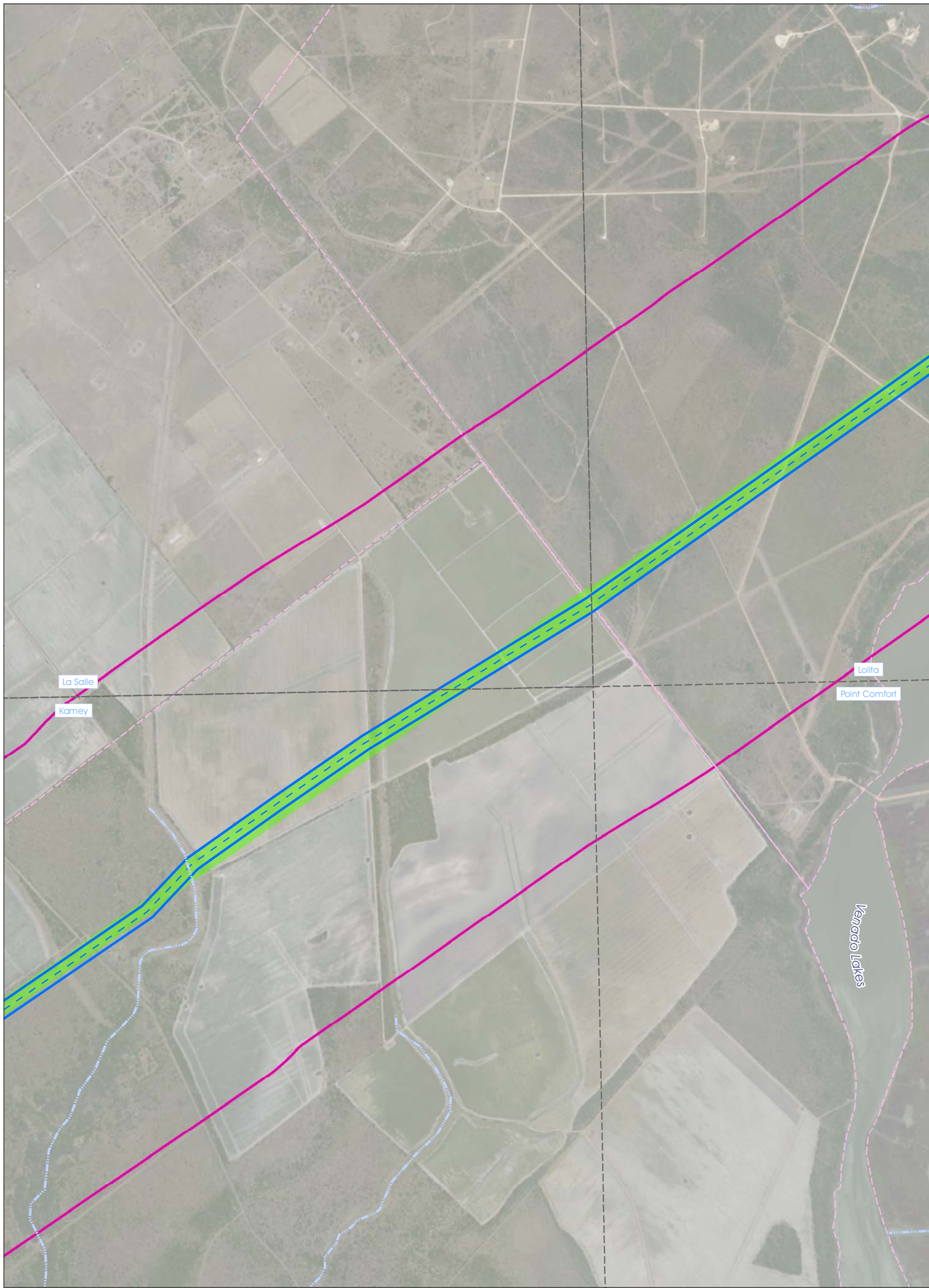
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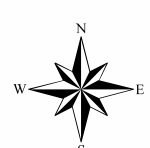



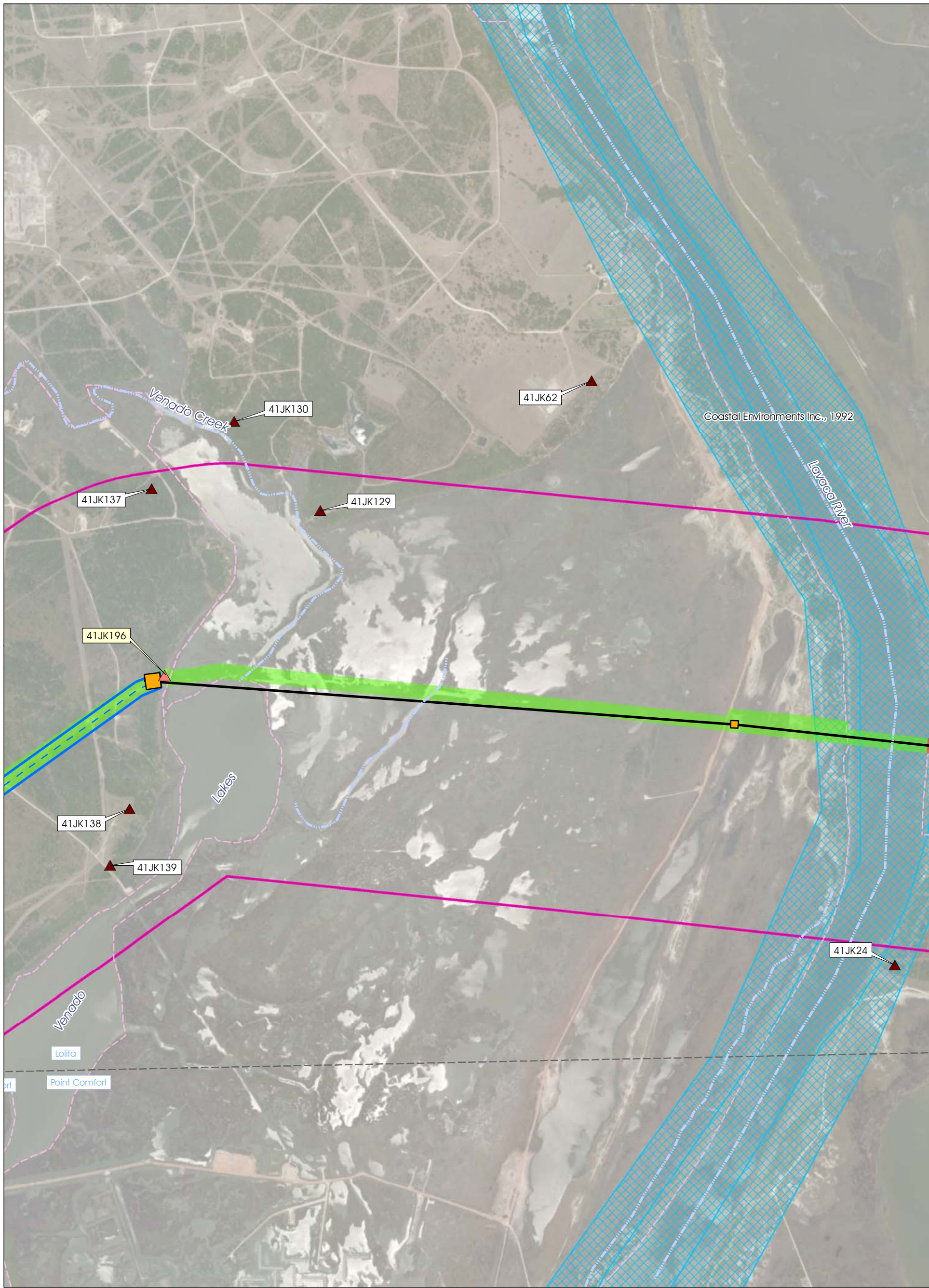
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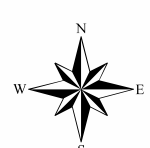



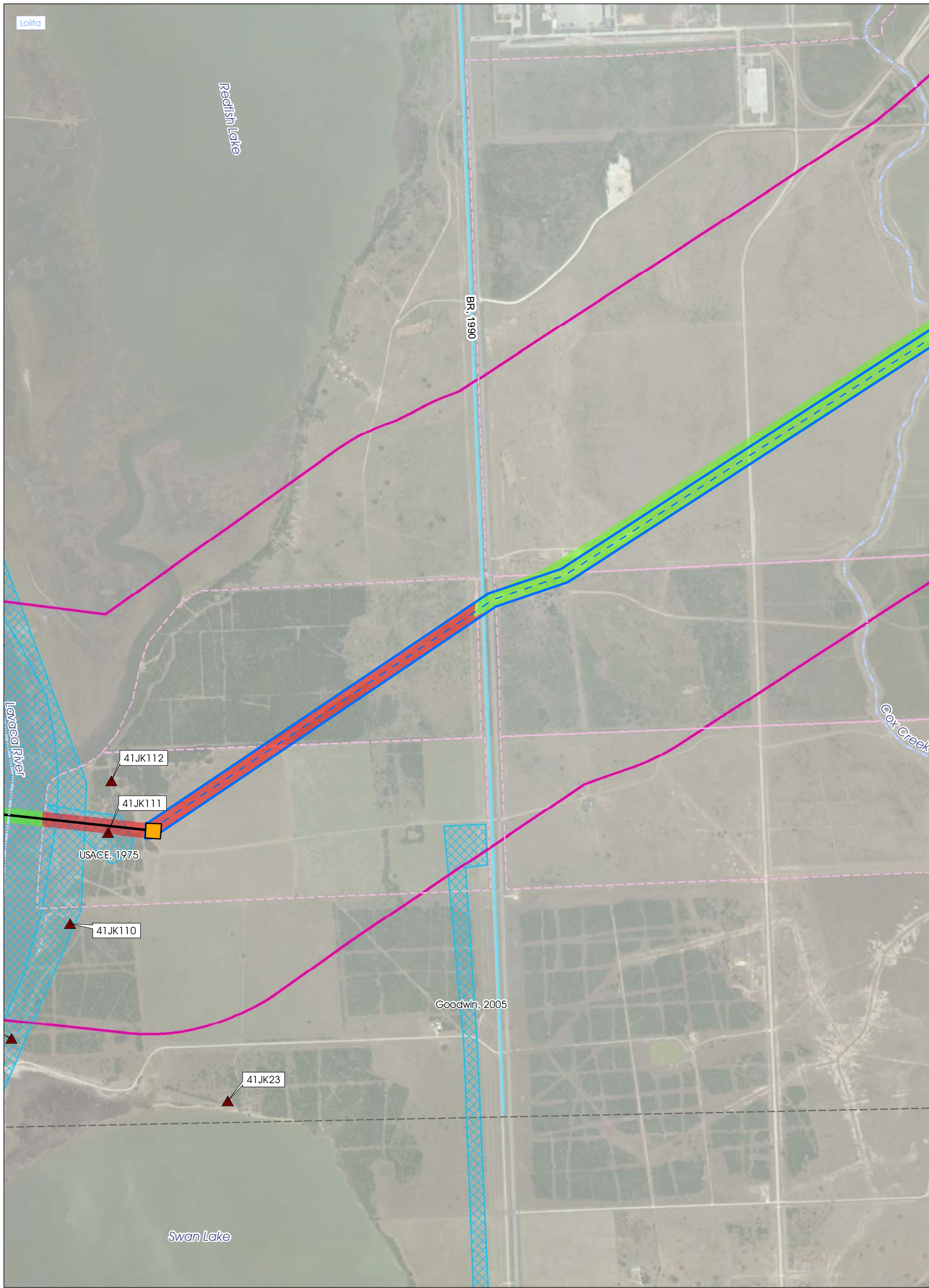
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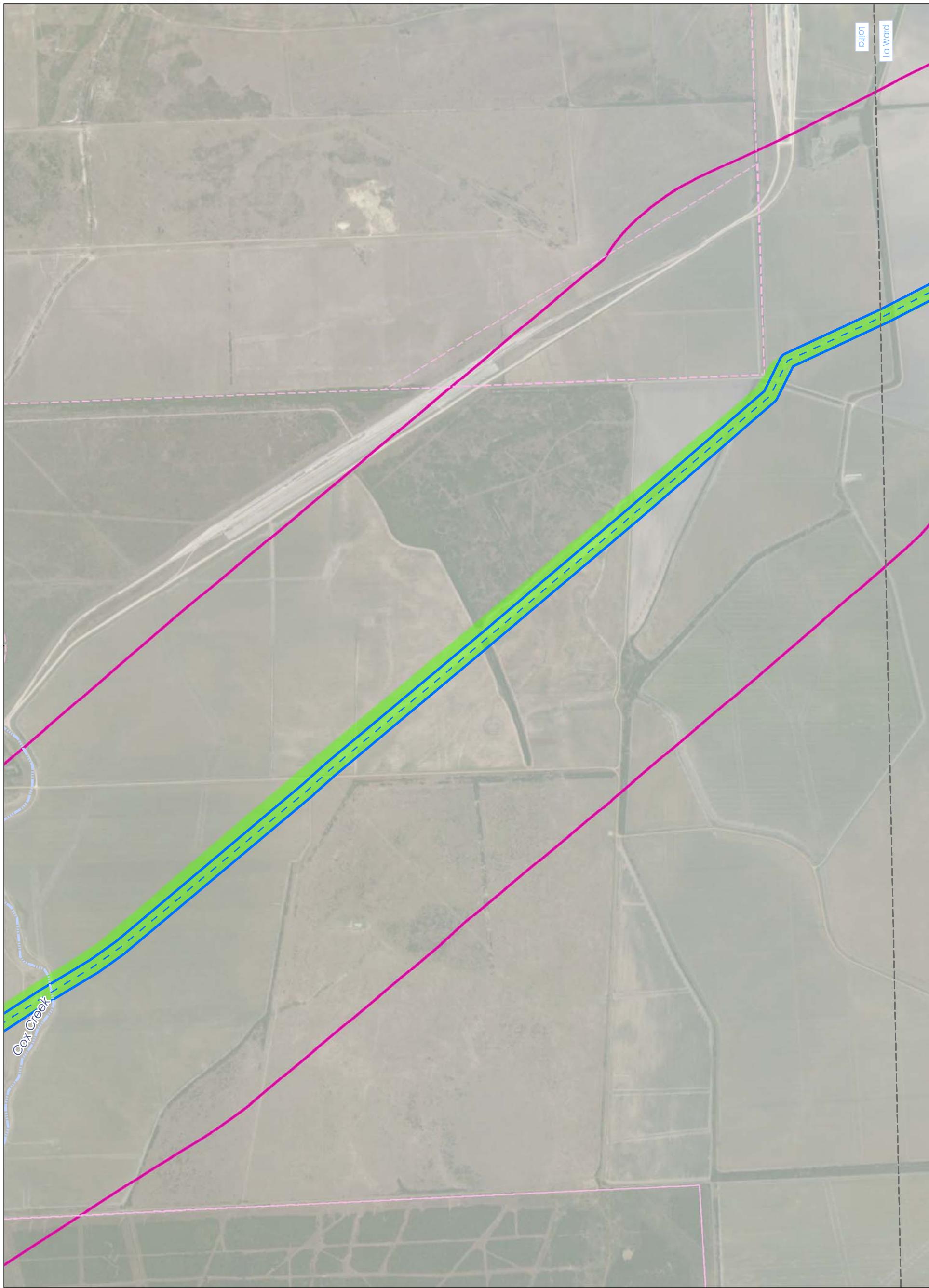
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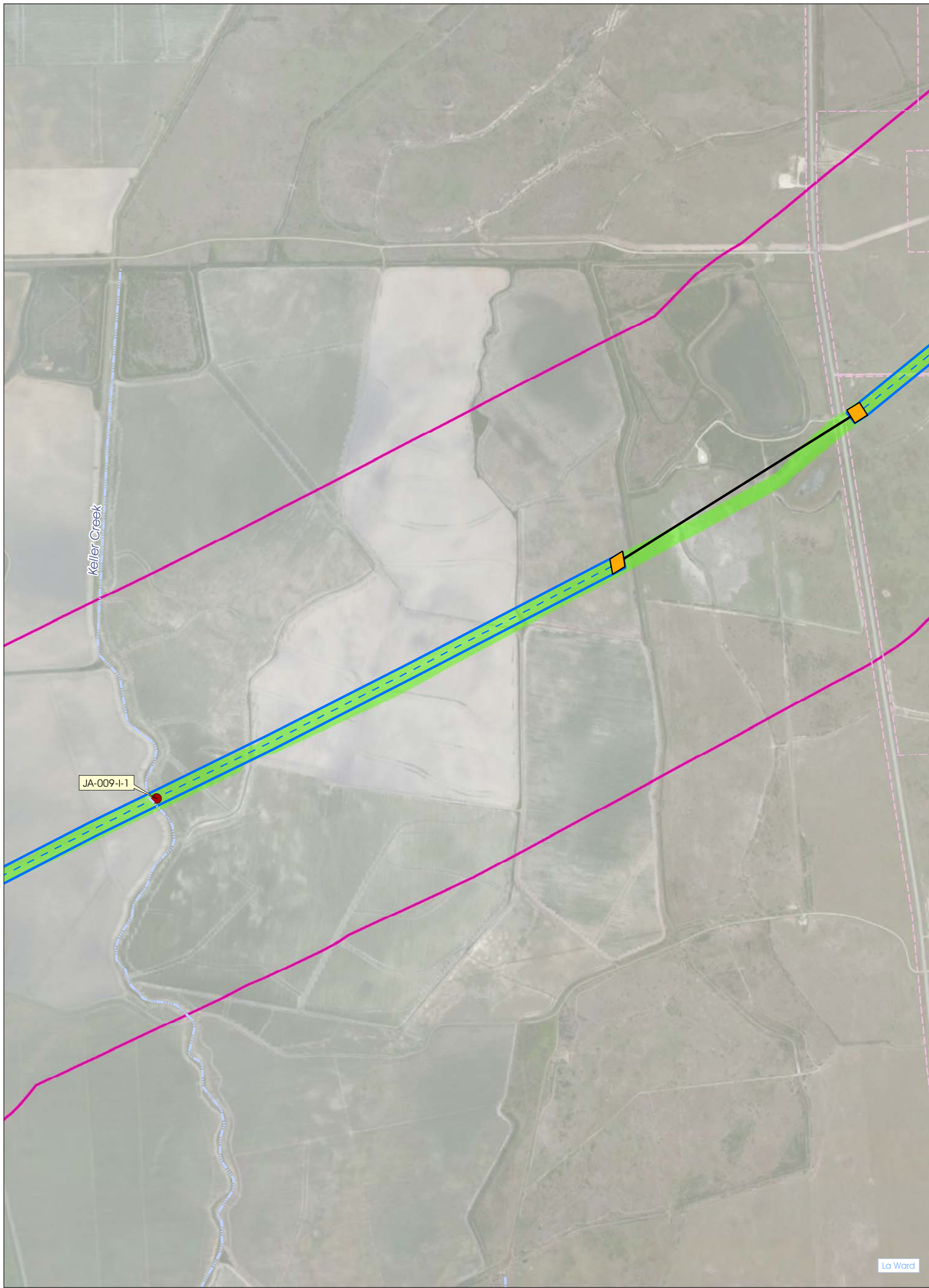
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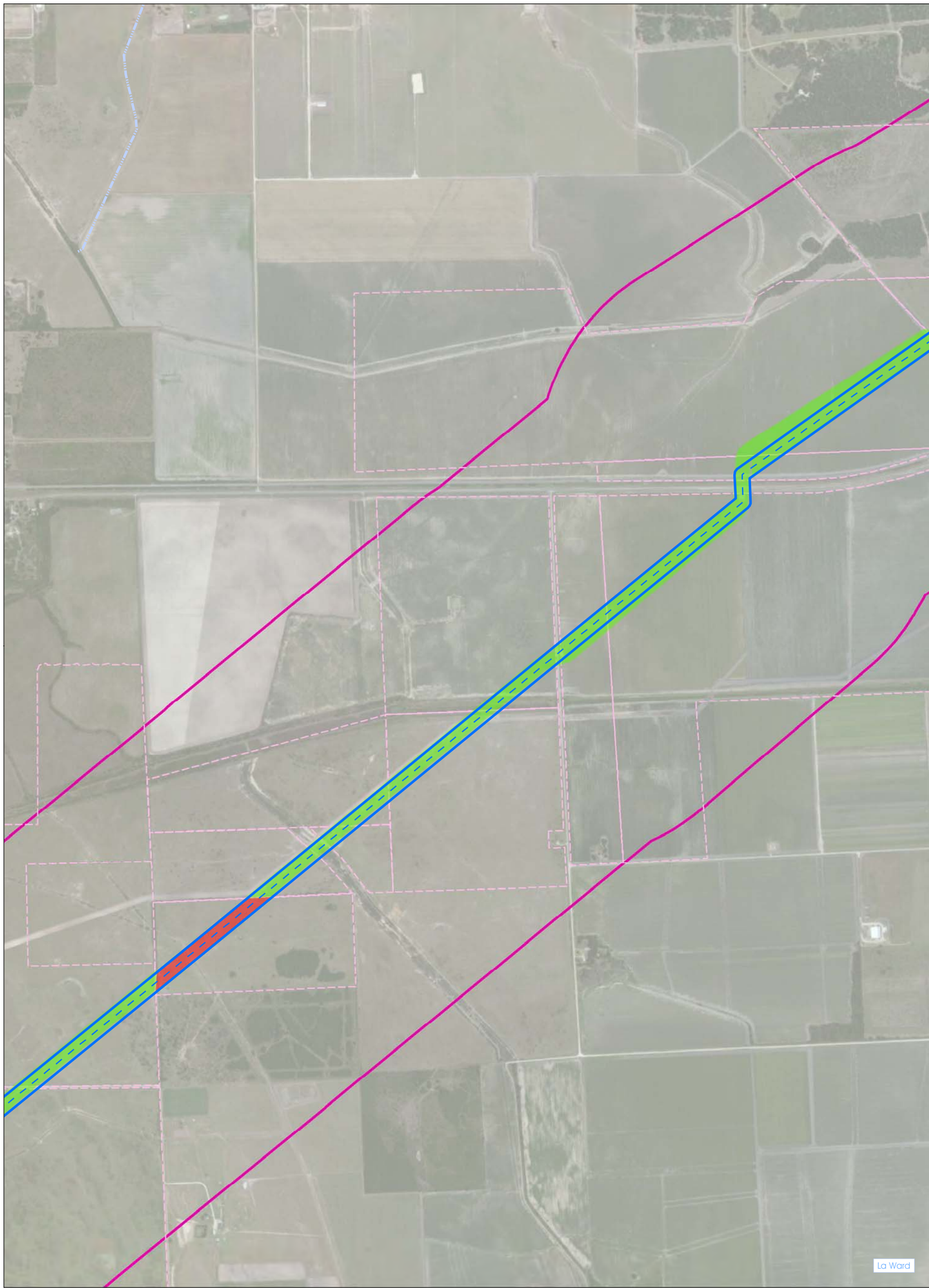
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<ul style="list-style-type: none"> 0.8-Kilometer (1-Mile) Study Area Proposed Pipeline Route Proposed Pipeline APE Proposed HDD Alignment Proposed HDD Temporary Work Space Parcel Boundaries USGS Quadrangle Boundary Survey Status Surveyed Area (2013) Survey Pending or In Progress No Survey Recommended - Inundated Marsh 	<ul style="list-style-type: none"> Previously Recorded Linear Survey Previously Recorded Area Survey ▲ Previously Recorded Site Centroid ● Previously Recorded Historical Marker Newly Identified Cultural Resources ● Isolate Find ▼ Locus ▲ Site Centroid Historic Structure 	<p>Figure A31</p> <p>Survey Results for the Proposed OXYCHEM Markham Ethylene Pipeline Project</p> <p>USGS 7.5' Quadrangle Reference</p> <p>0 0.125 0.25 Miles</p> <p>0 0.25 0.5 Kilometers</p>
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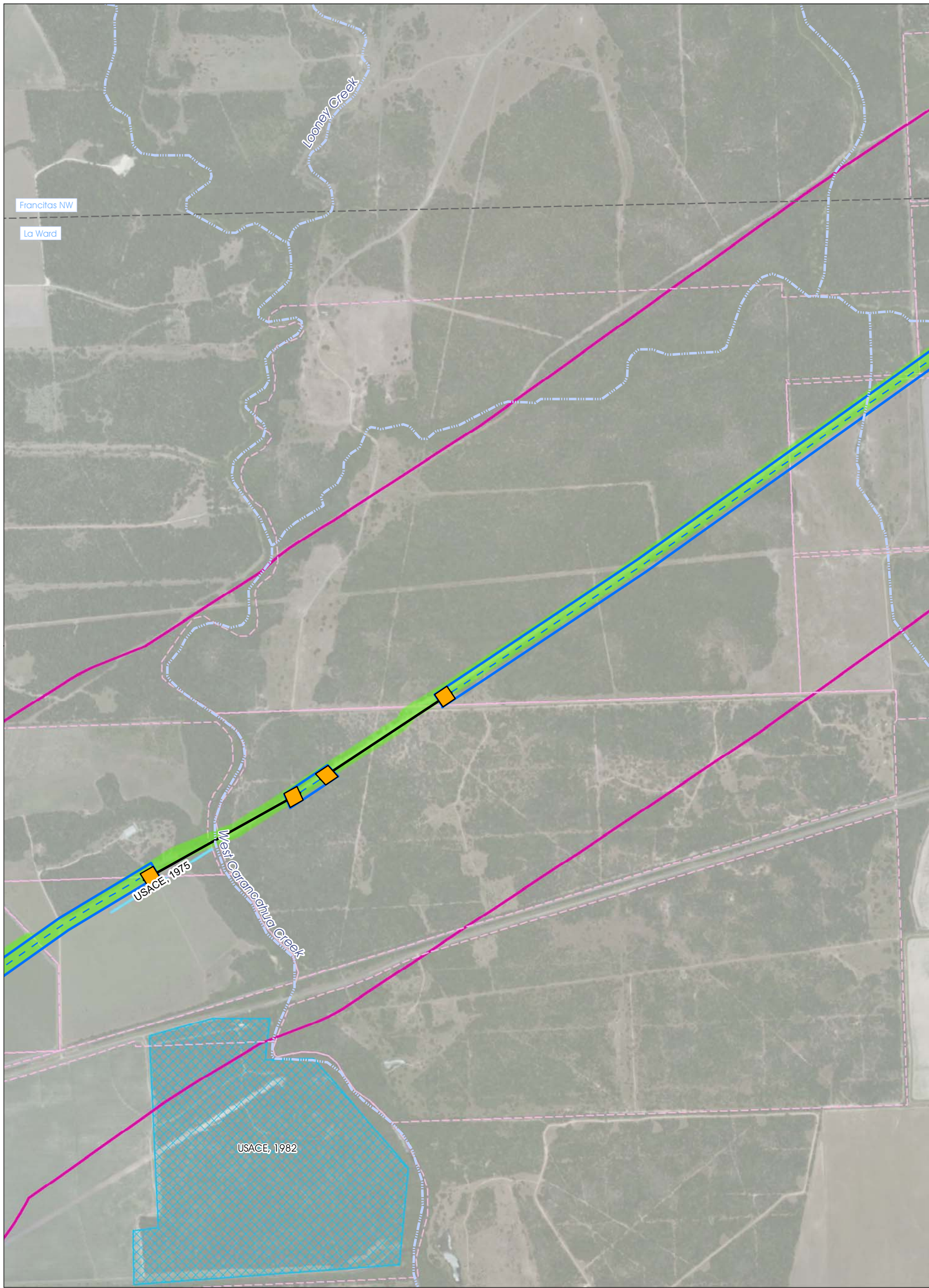
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USGS 7.5' Quadrangle Reference

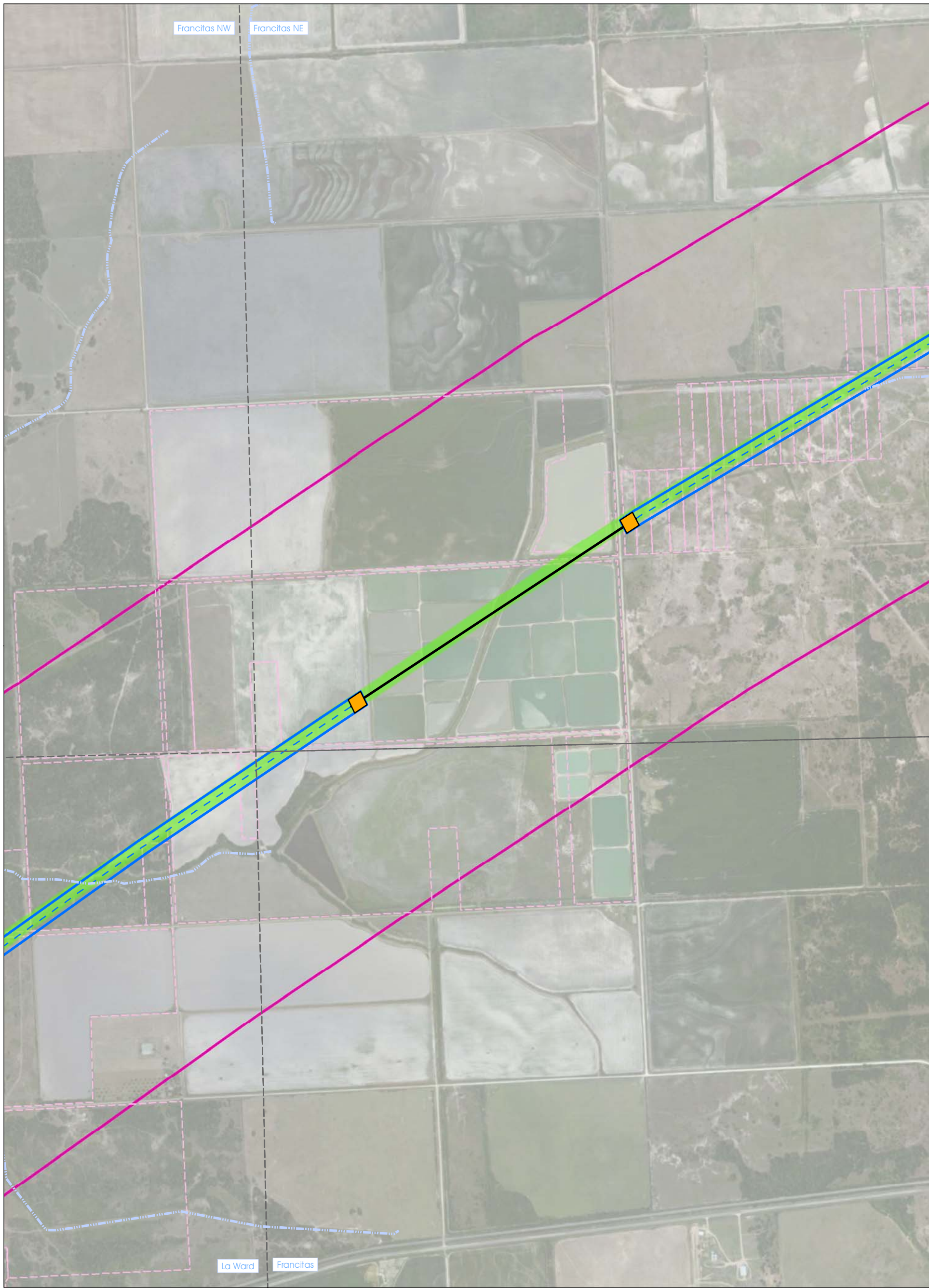
0 0.125 0.25 Miles

0 0.25 0.5 Kilometers



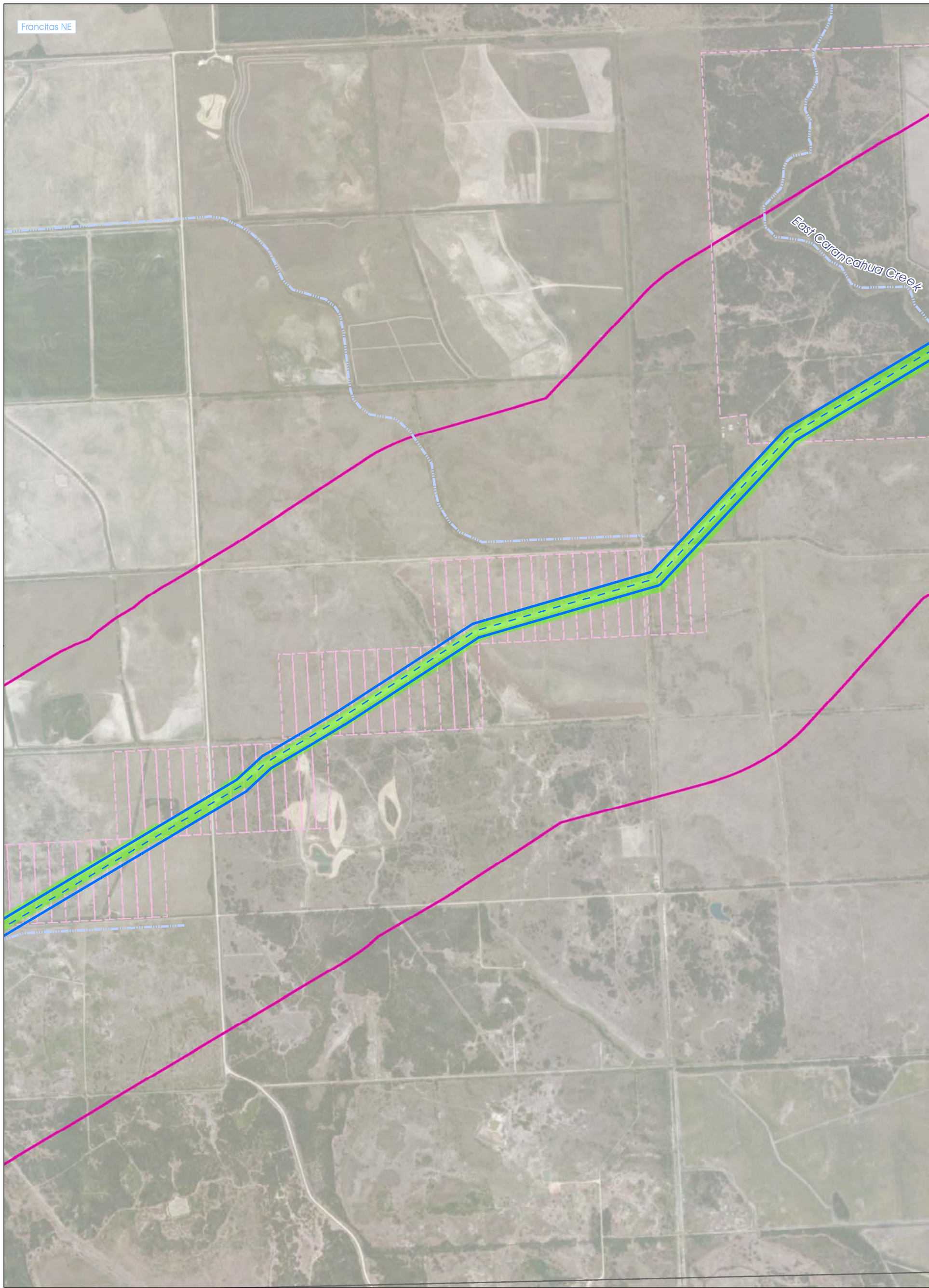
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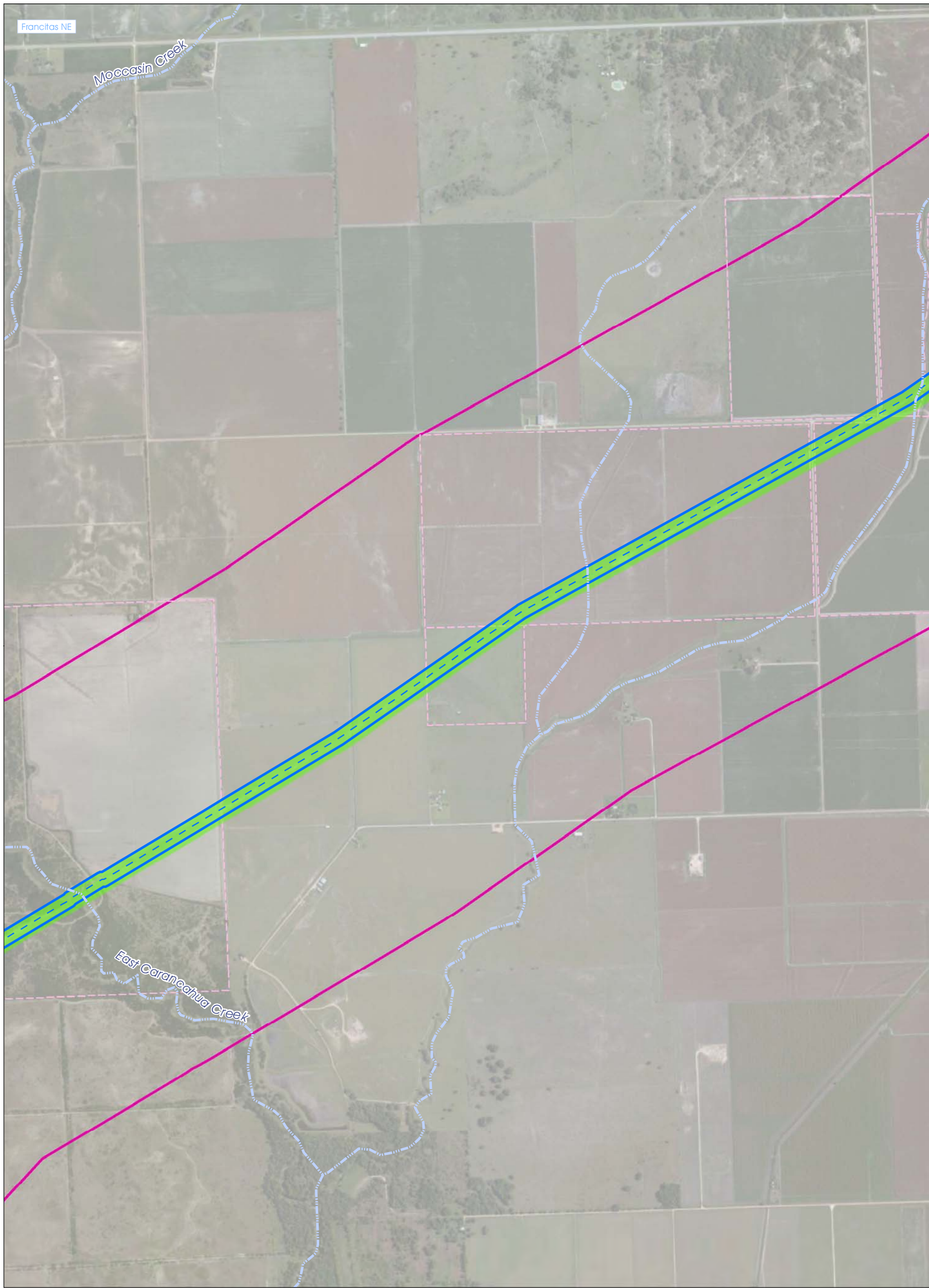
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<ul style="list-style-type: none"> 0.8-Kilometer (1-Mile) Study Area Proposed Pipeline Route Proposed Pipeline APE Proposed HDD Alignment Proposed HDD Temporary Work Space Parcel Boundaries USGS Quadrangle Boundary Survey Status Surveyed Area (2013) Survey Pending or In Progress No Survey Recommended - Inundated Marsh 	<ul style="list-style-type: none"> Previously Recorded Linear Survey Previously Recorded Area Survey ▲ Previously Recorded Site Centroid ● Previously Recorded Historical Marker Newly Identified Cultural Resources ● Isolate Find ▼ Locus ▲ Site Centroid Historic Structure 	<p style="text-align: center;">Figure A34</p> <p style="text-align: center;">Survey Results for the Proposed OXYCHEM Markham Ethylene Pipeline Project</p> <div style="text-align: center;"> <p>USGS 7.5' Quadrangle Reference</p> <p>0 0.125 0.25 Miles</p> <p>0 0.25 0.5 Kilometers</p> </div> <div style="text-align: center;"> </div> <div style="text-align: right;"> </div>
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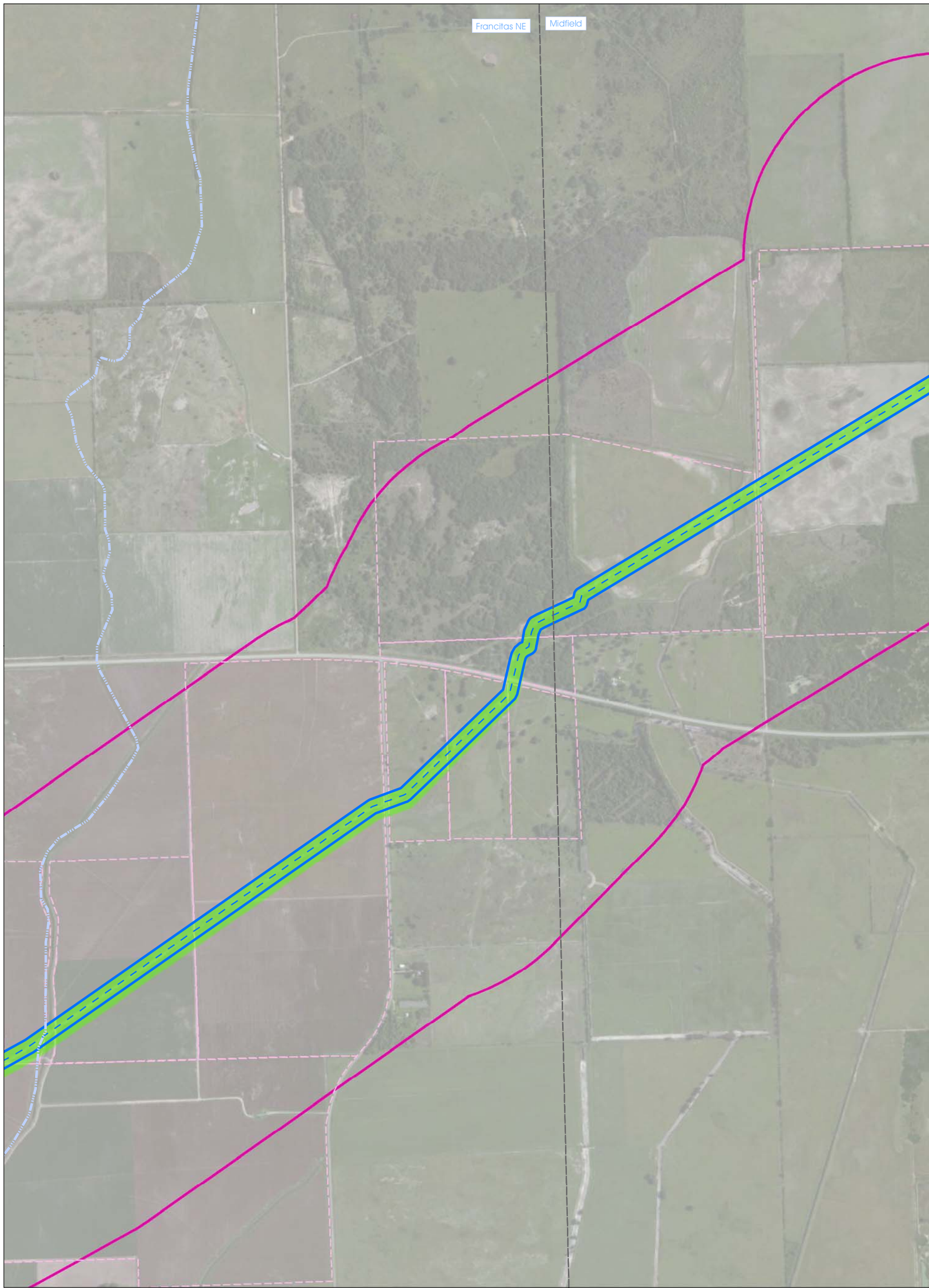
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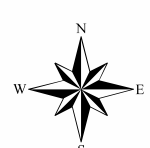



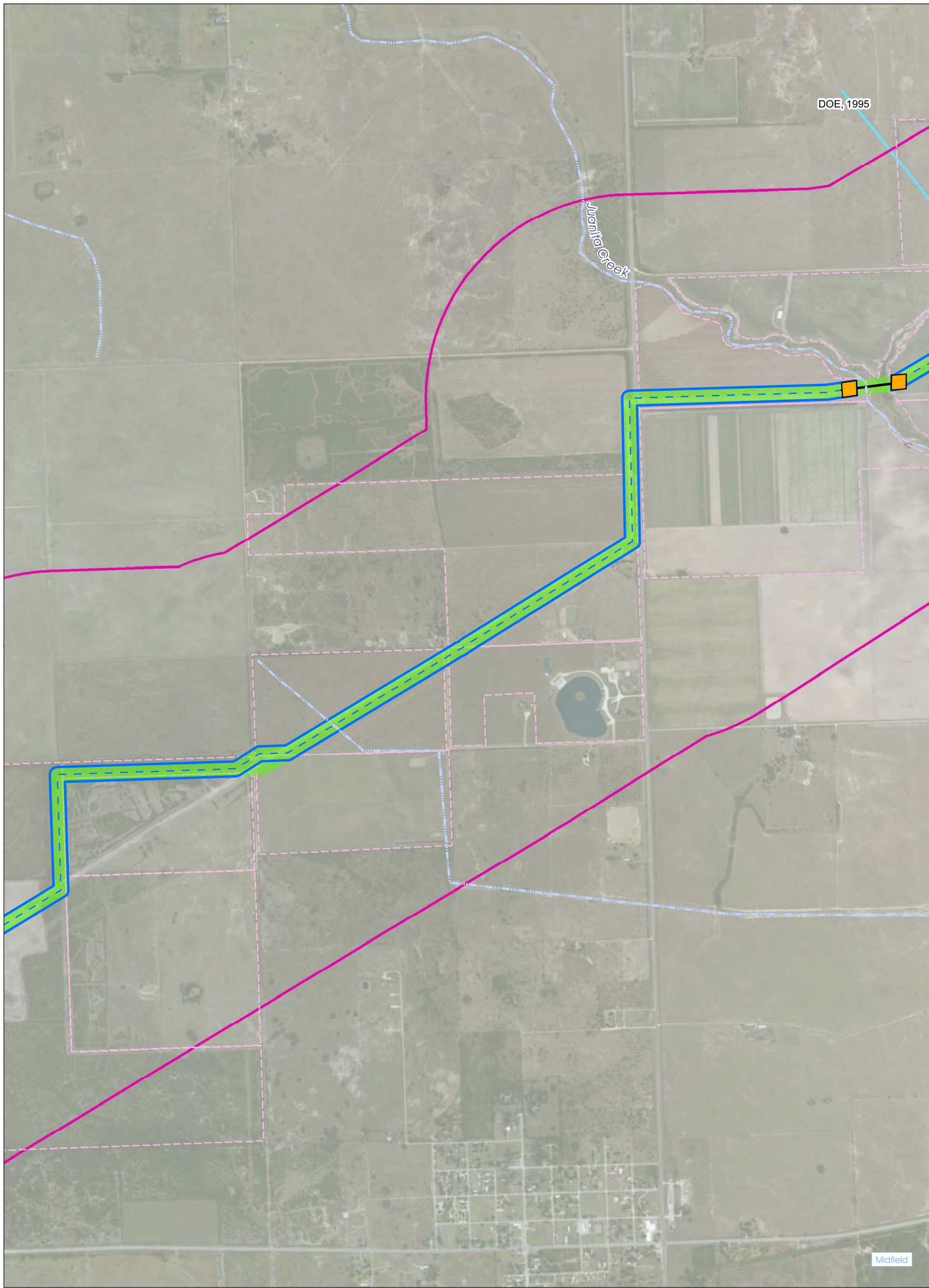
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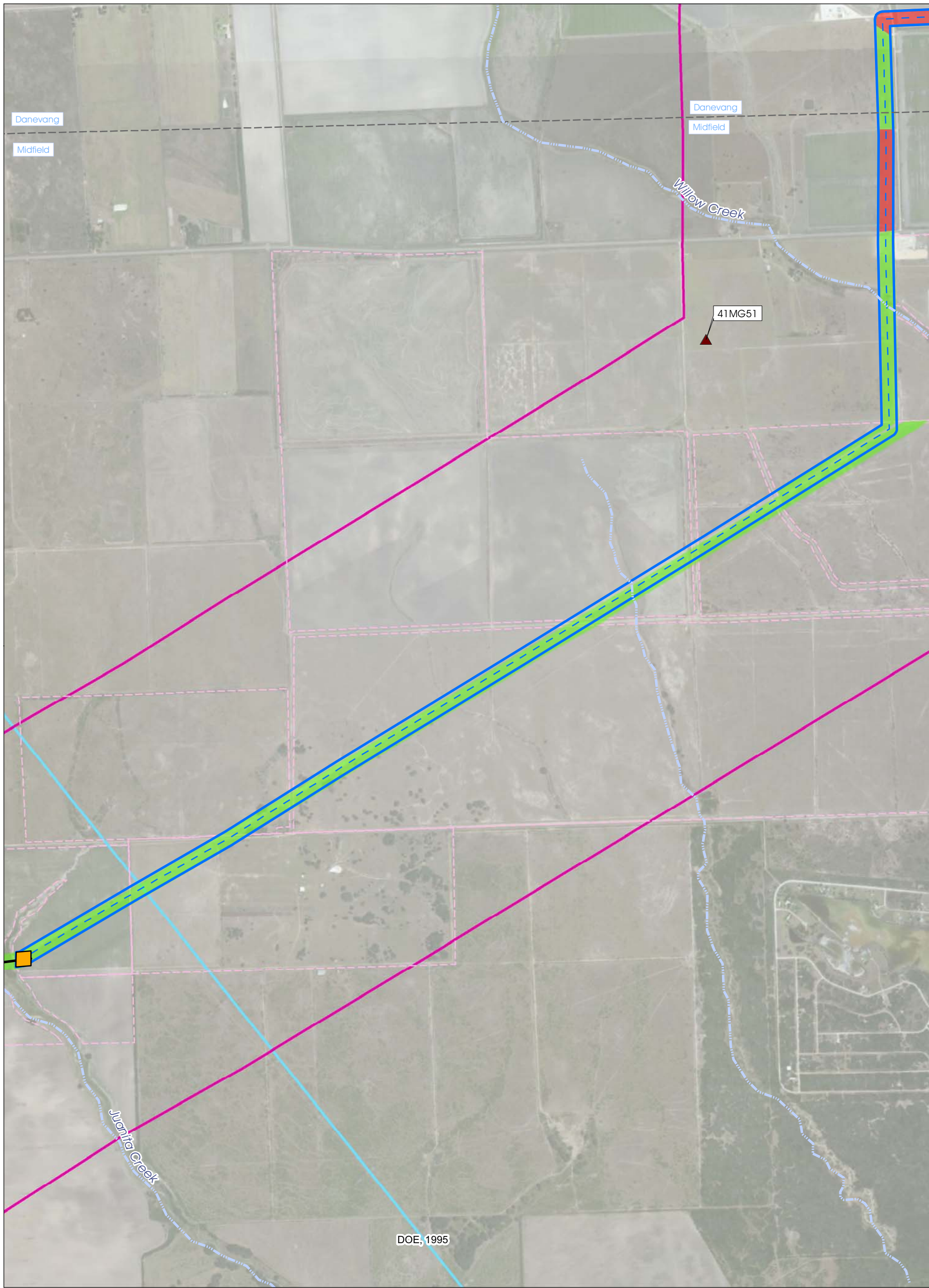
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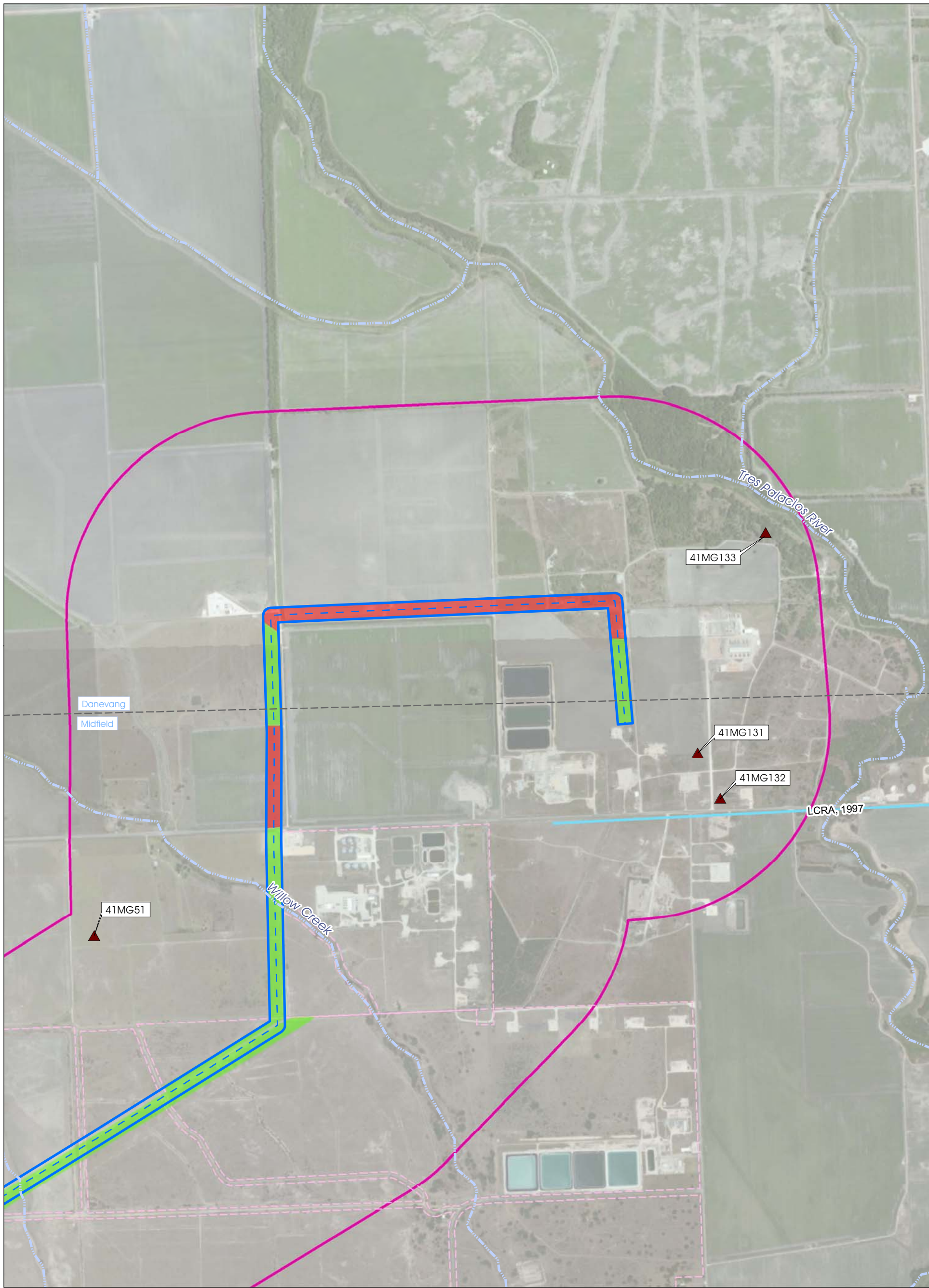
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US EPA ARCHIVE DOCUMENT

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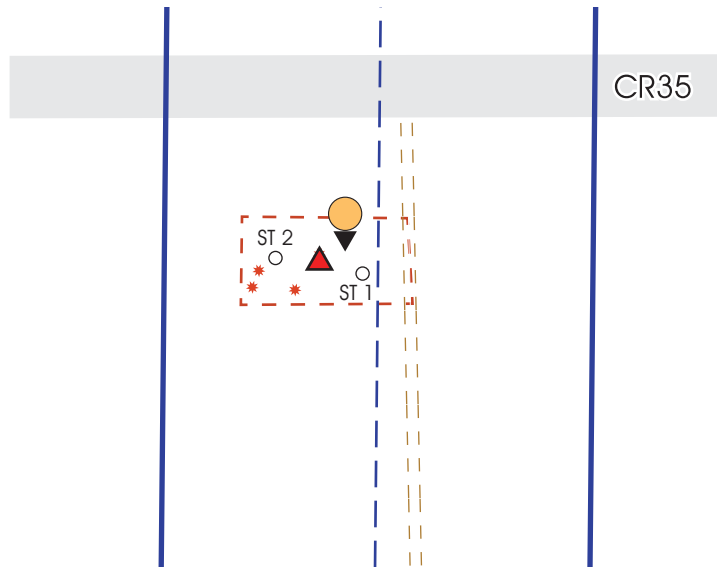
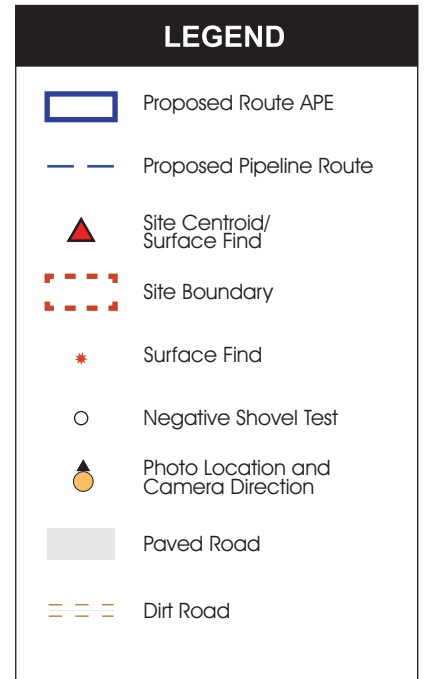
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**APPENDIX B:
Overview Plan Maps of Newly Recorded and Revisited Sites
(Figures B1 – B20)**



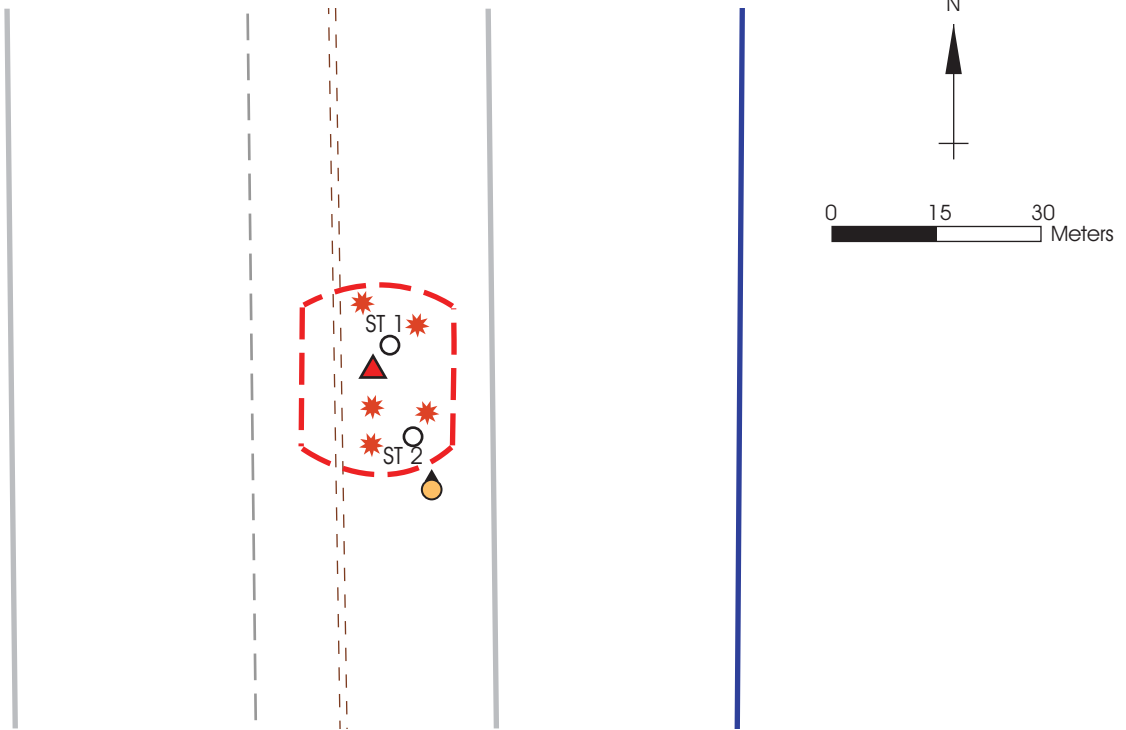
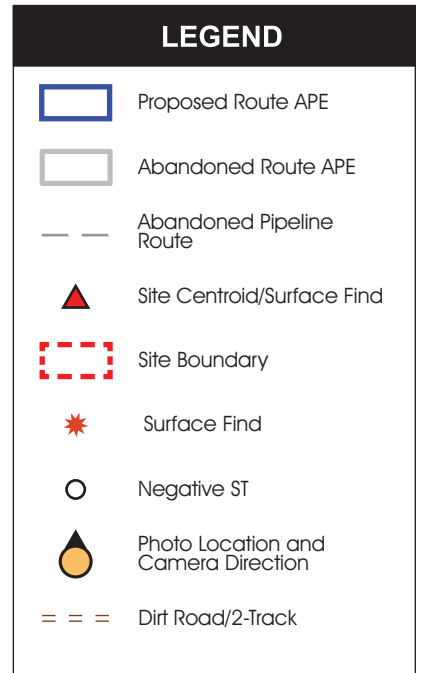
Overview of Site 41SP264. View is to the south.



Overview of Site 41SP264



Overview of Site 41SP265. View is to the north.



Overview of Site 41SP265



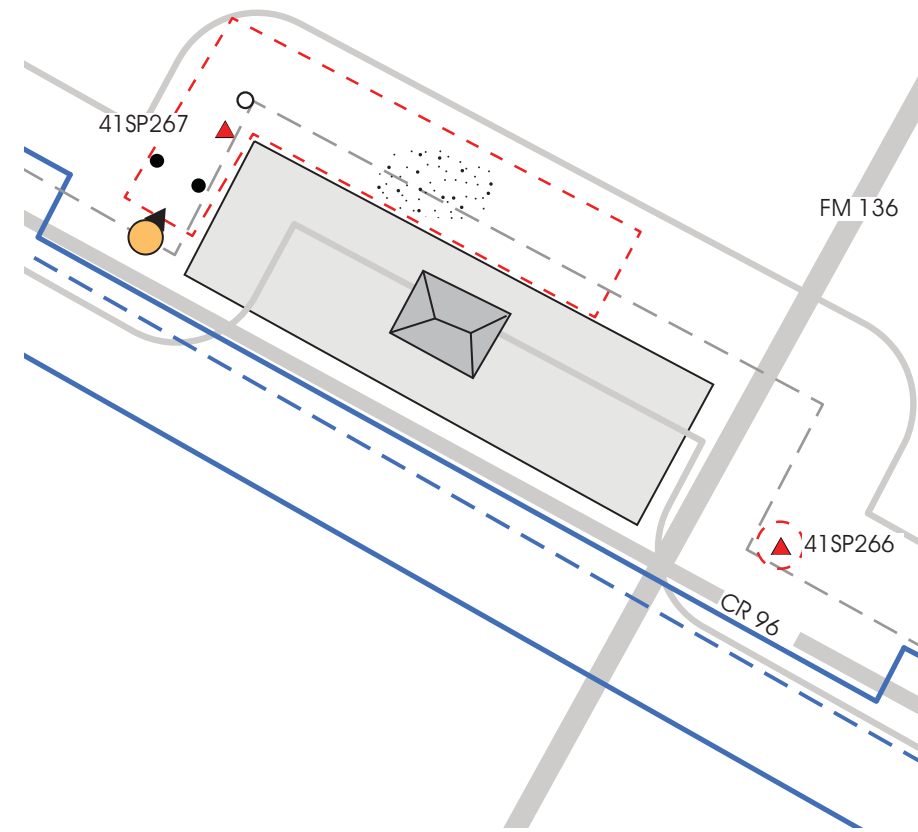
1950 Aerial imagery (Provided by Google Earth) showing original structures.



2011 Aerial imagery (Provided by Google Earth) showing new residence.



Overview of Site 41SP267. View is to northeast.



LEGEND	
	Proposed Route APE
	Proposed Pipeline Route
	Abandoned Route APE
	Abandoned Pipeline Route
	Site Centroid/ Surface Find
	Site Boundary
	Photo Location and Camera Direction
	Property Fence
	Standing Structure
	Property Boundary
	Paved Road
	Negative Shovel Test
	Positive Shovel Test
	Brick Scatter

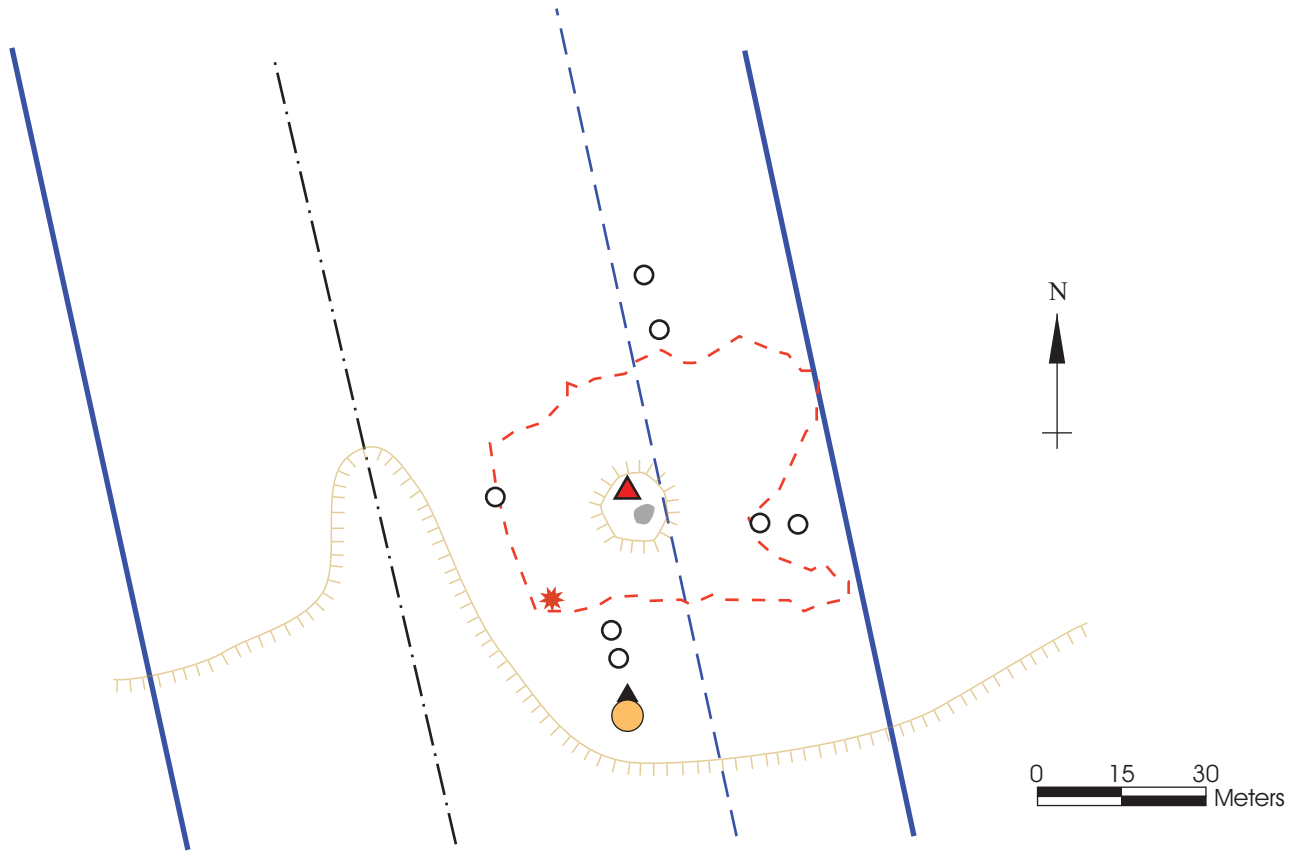
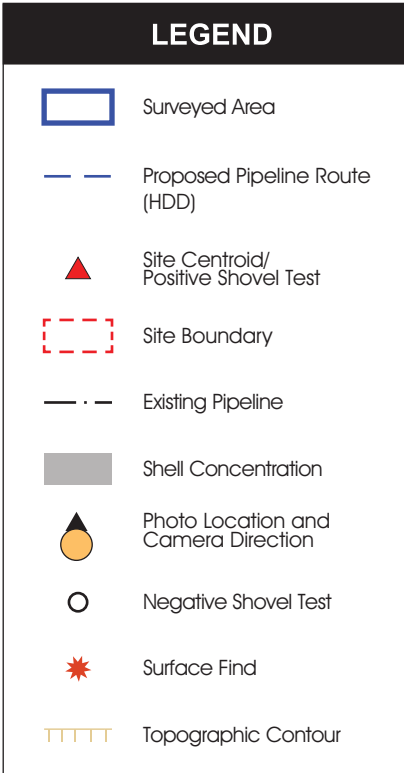
0 30
Meters



Overview of Sites 41SP267 and 41SP266



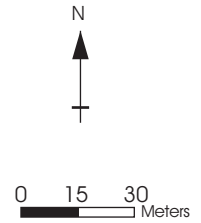
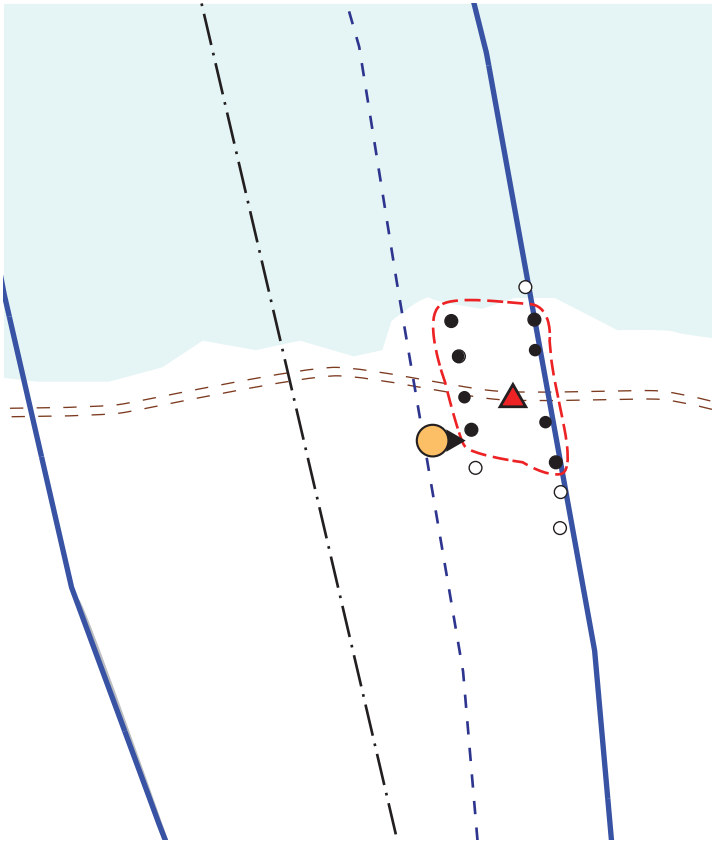
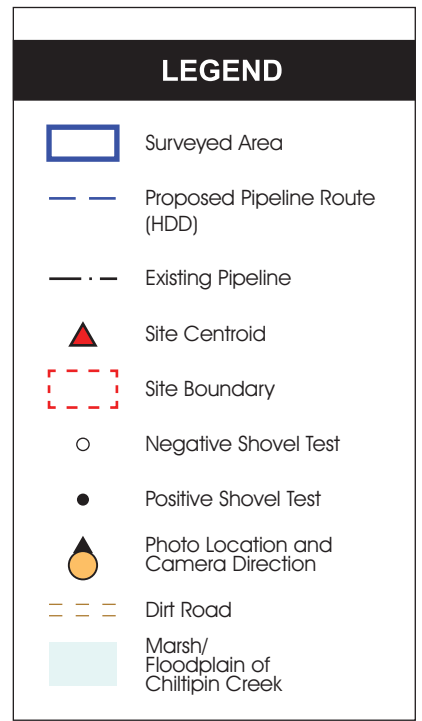
Overview of Site 41SP268. View is to the north.



Overview of Site 41SP268



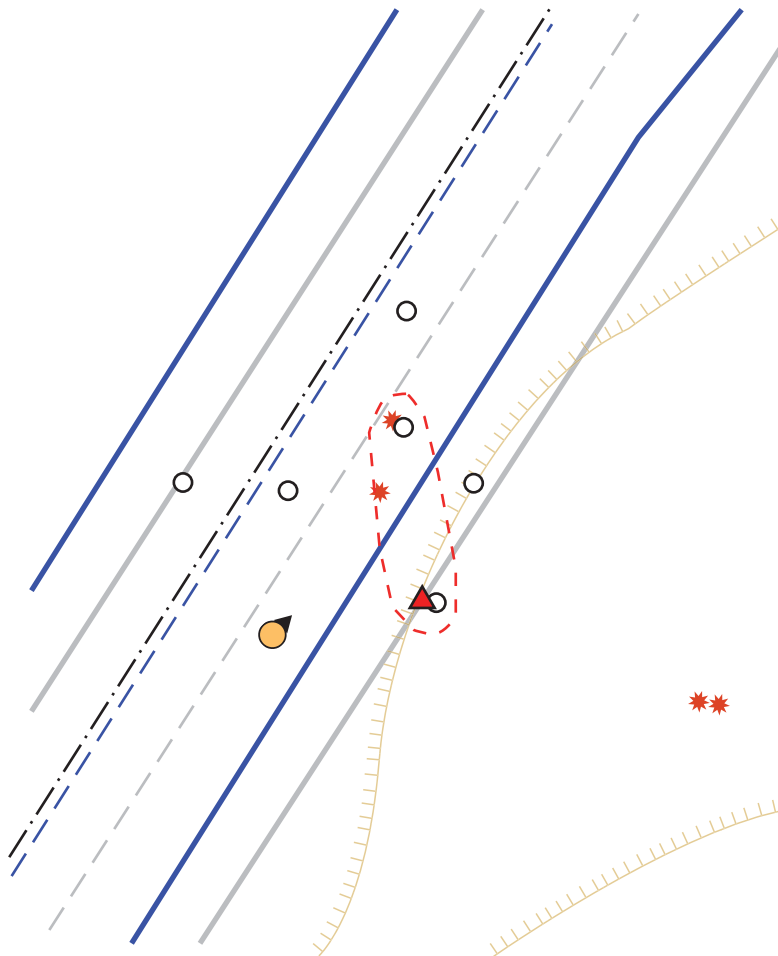
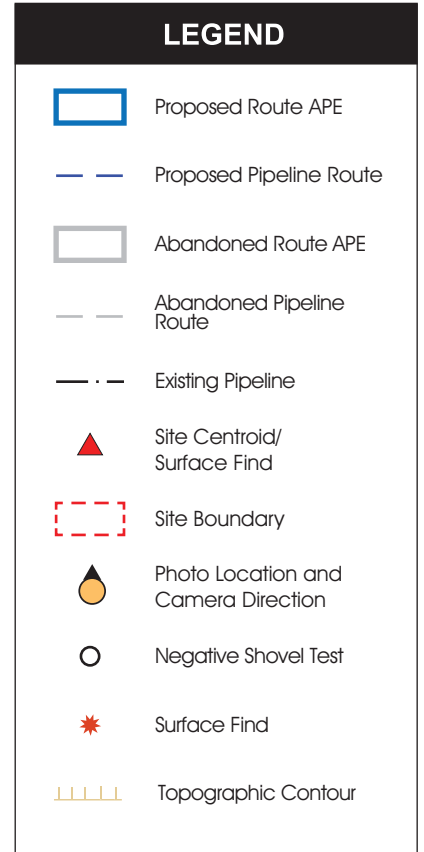
Overview of Site 41SP269. View is to the east.



Overview of Site 41SP269



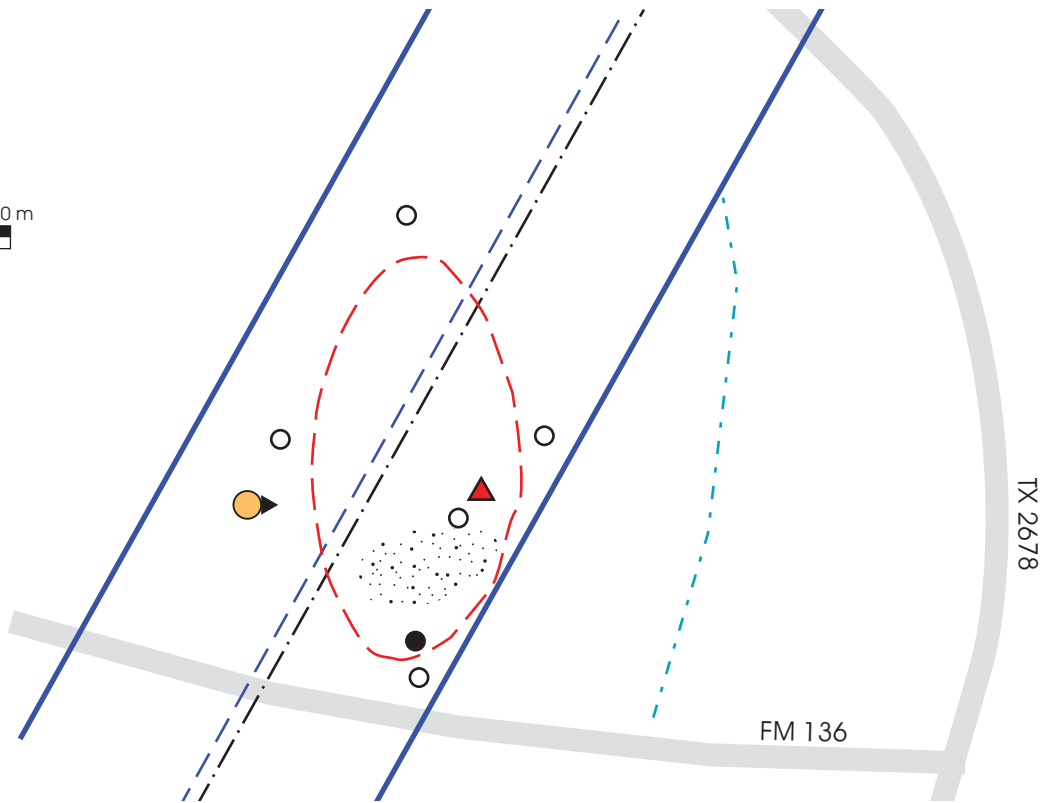
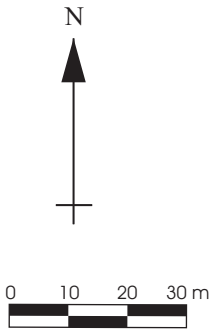
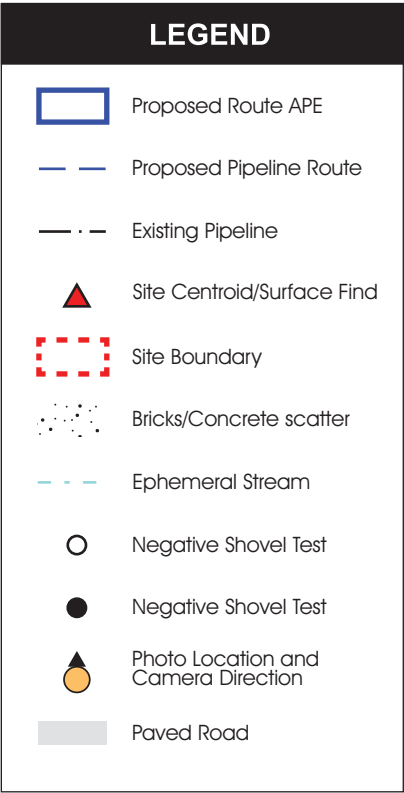
Overview of Site 41RF147. View is to the northeast.



Overview of Site 41RF147



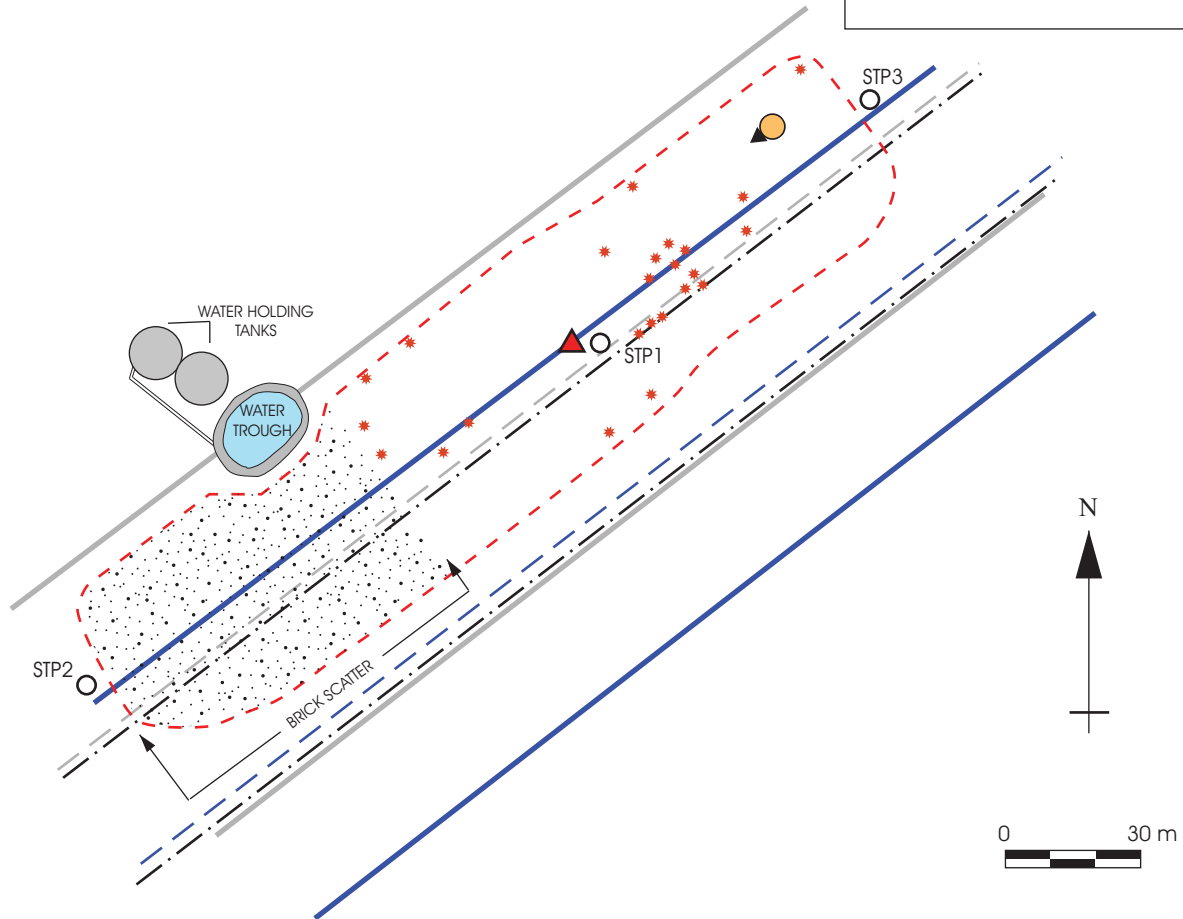
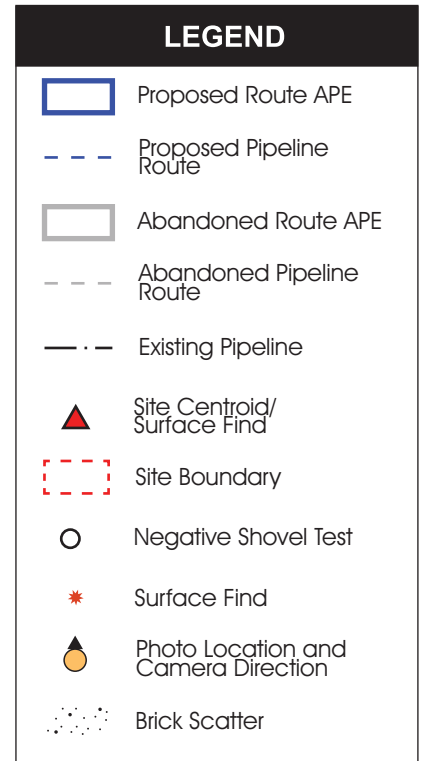
Overview of Site 41SP148. View is to the east.



Overview of Site 41SP148



Overview of Site 41CL96. View is to the southwest.

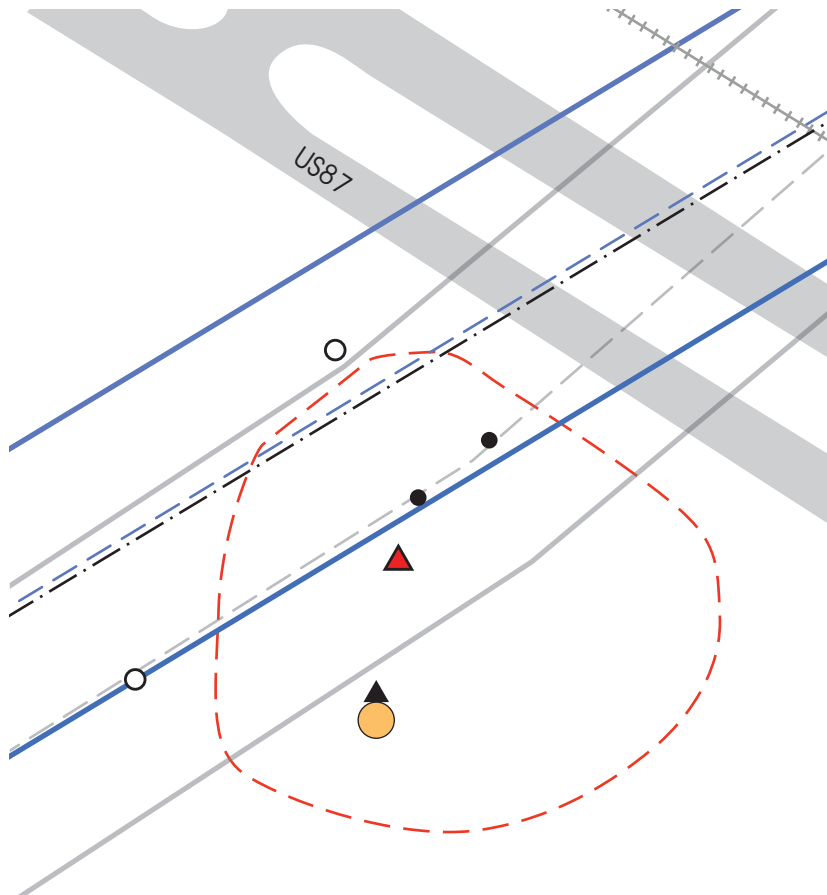
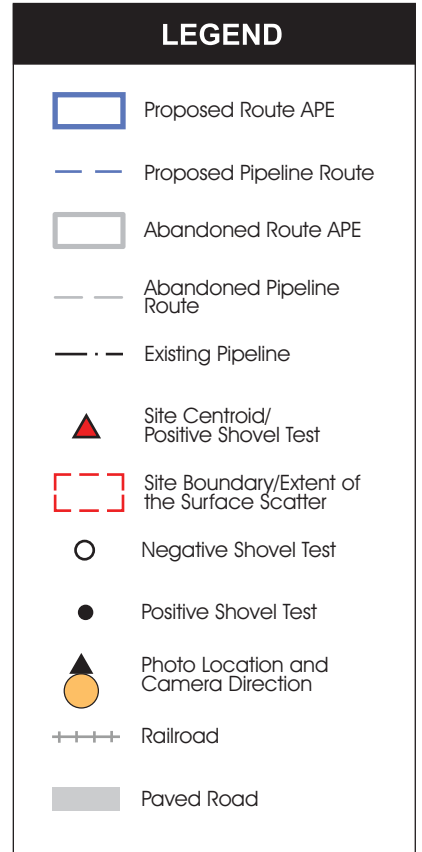


Overview of Site 41CL96

Figure B8



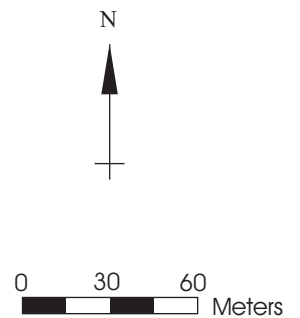
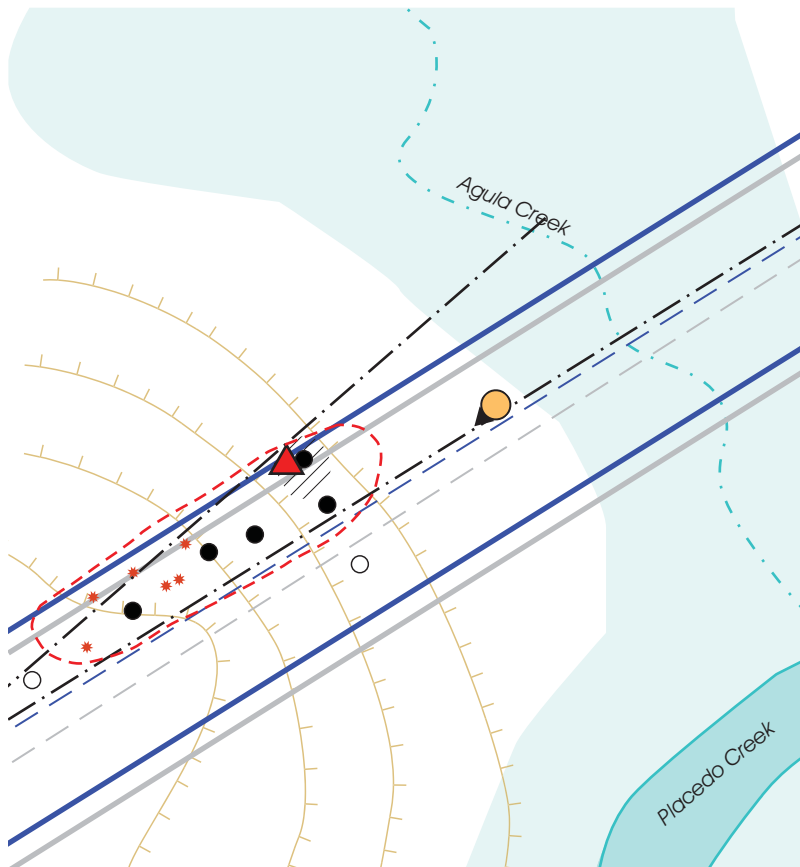
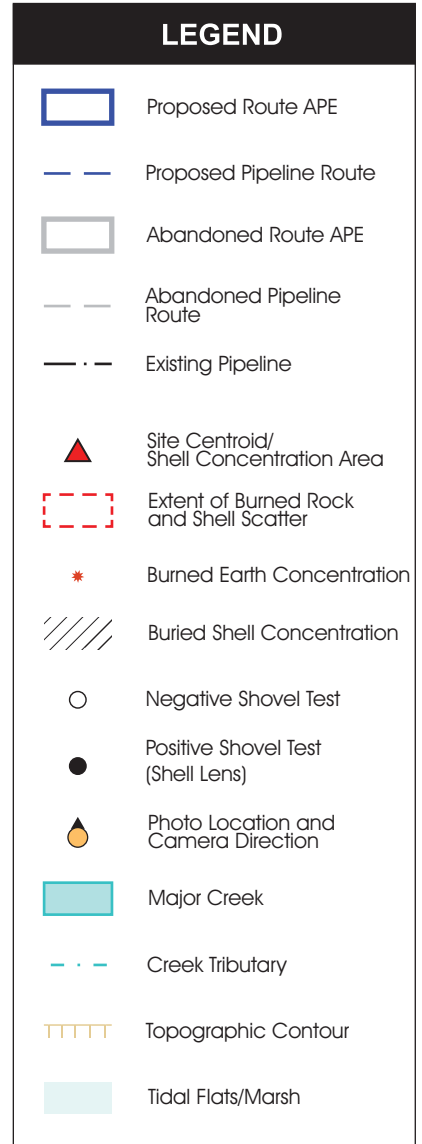
Overview of Site 41CL97. View is to the north.



Overview of Site 41CL97



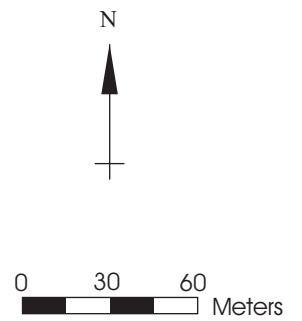
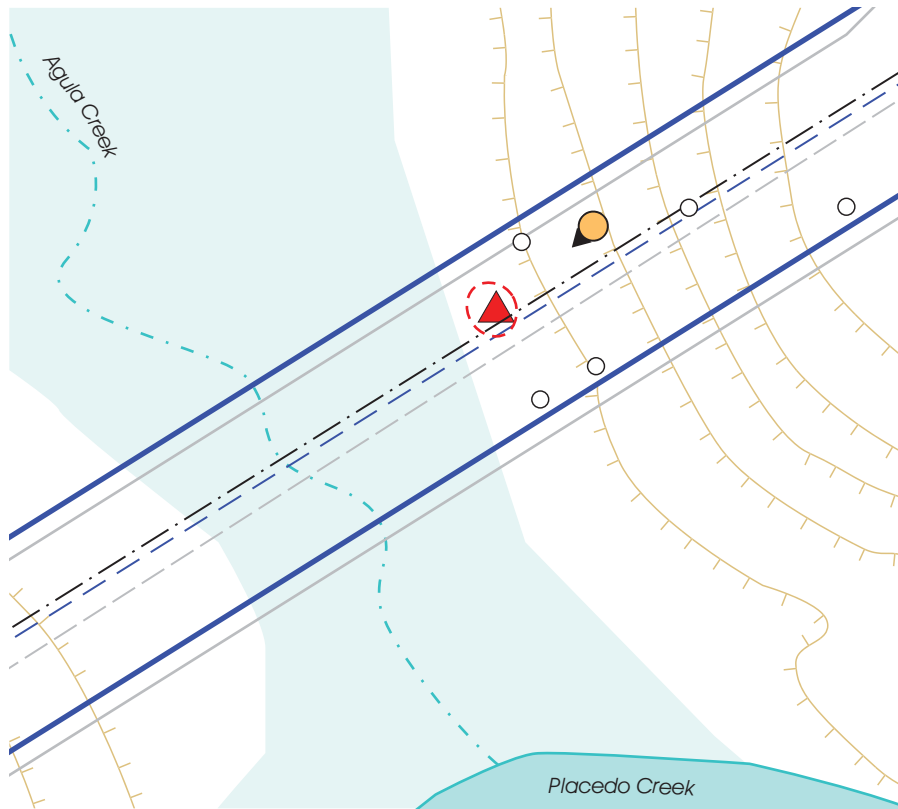
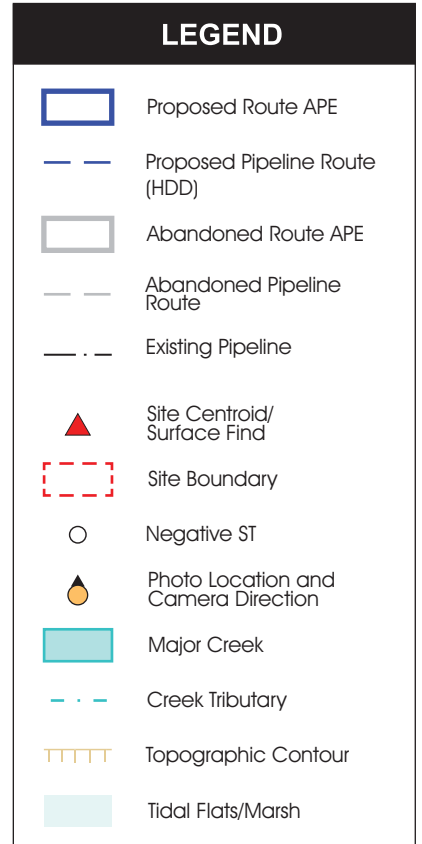
Overview of Site 41VT171. View is to the southwest.



Overview of Site 41VT171



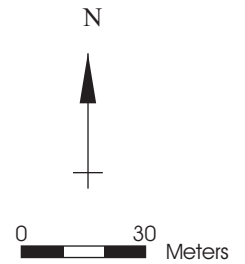
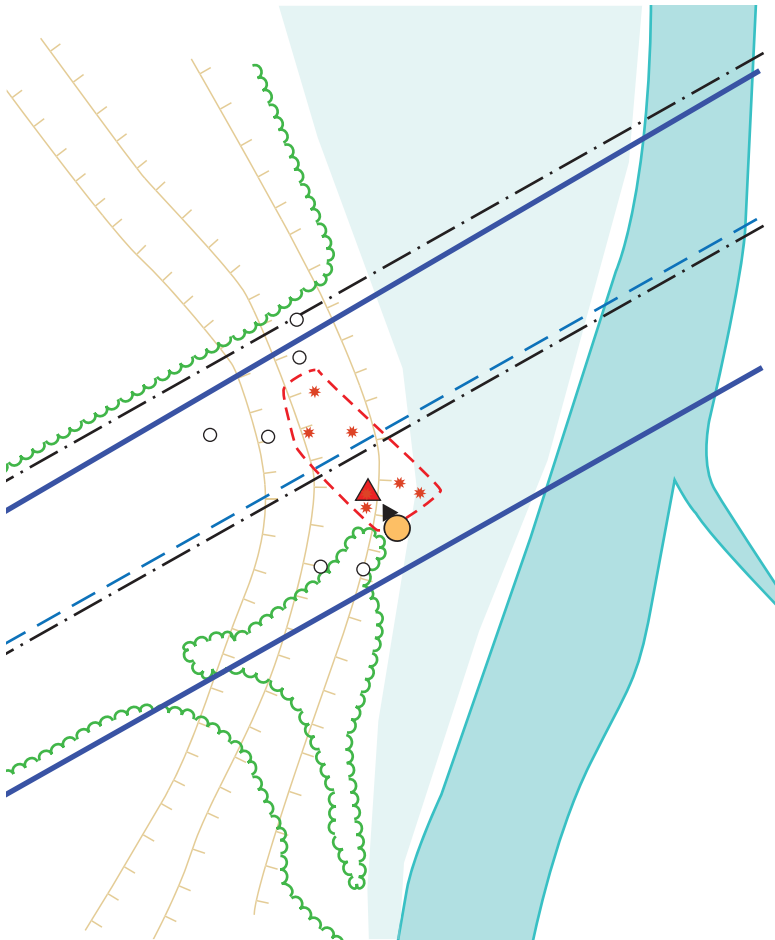
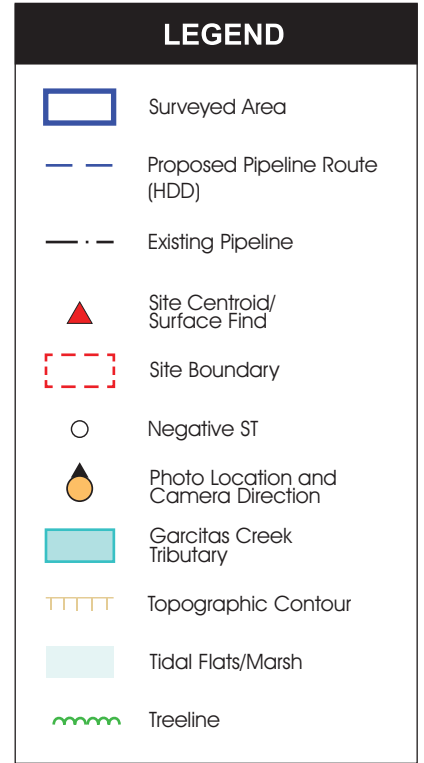
Overview of Site 41VT172. View is to the southwest.



Overview of Site 41VT172



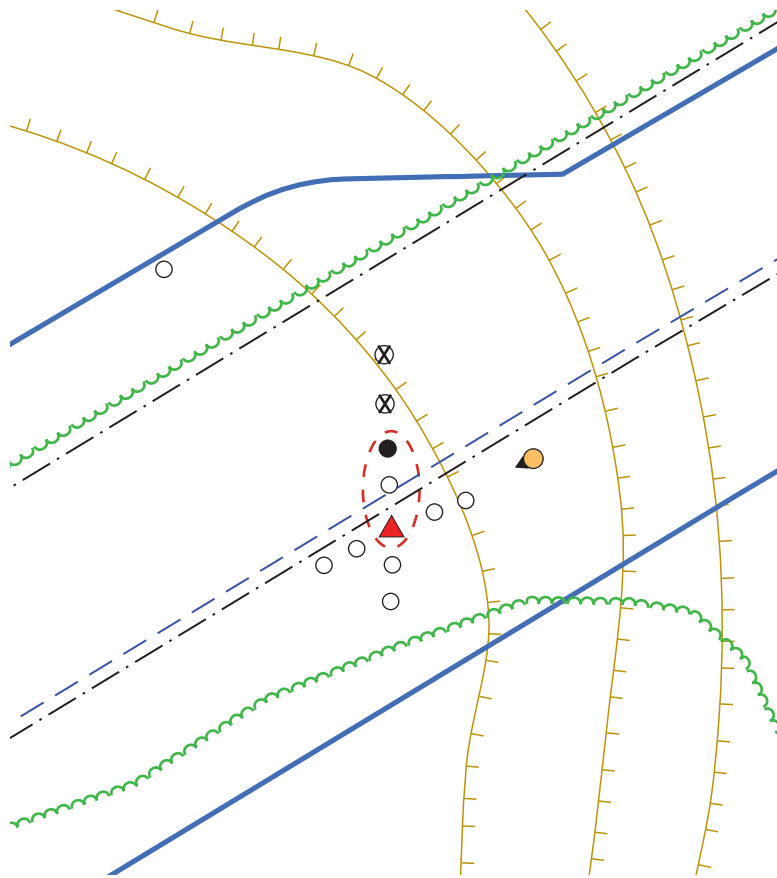
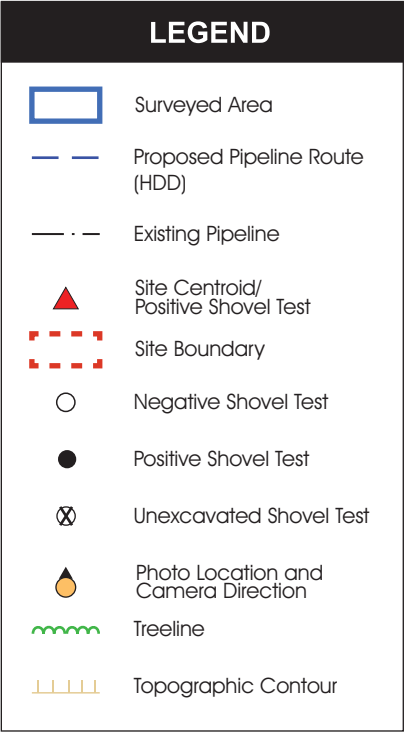
Overview of Site 1VT173. View is to the northeast.



Overview of Site 41VT173



Overview of site 41VT174. View is to the southwest.



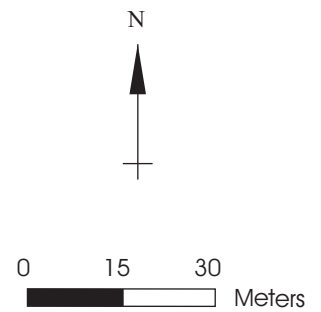
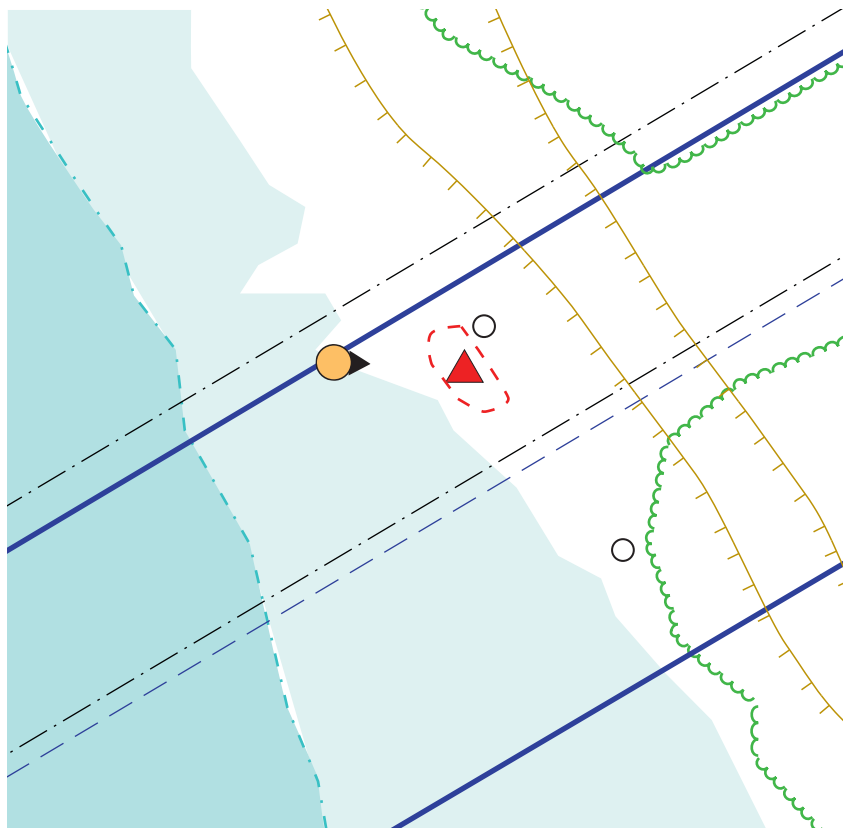
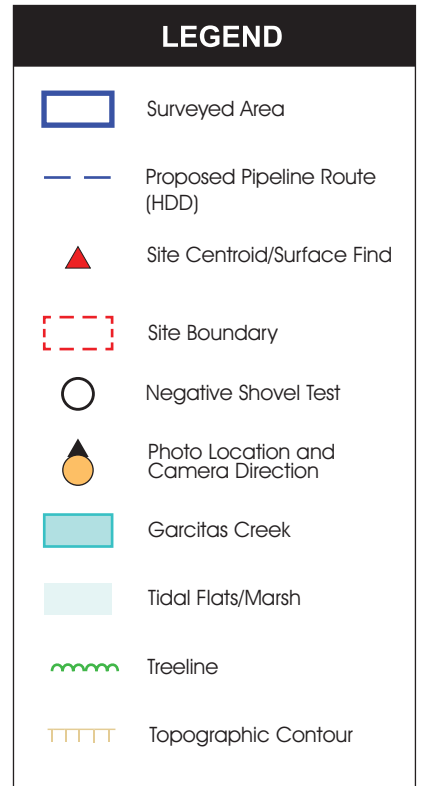
Overview of Site 41VT174



Figure B13



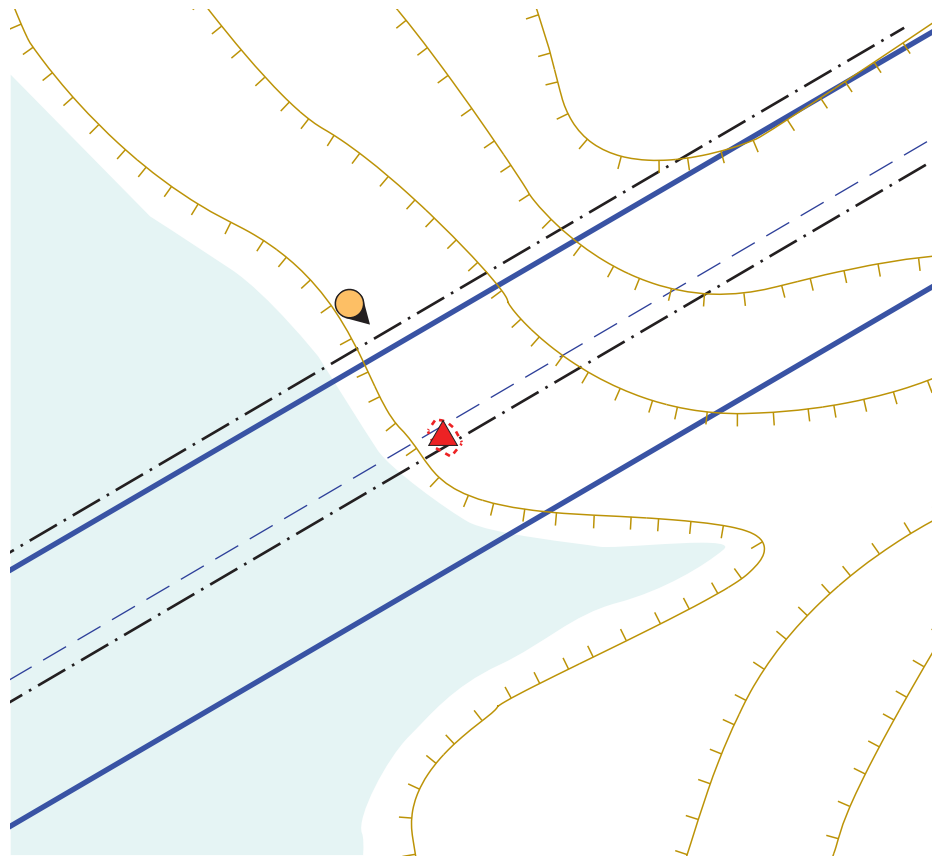
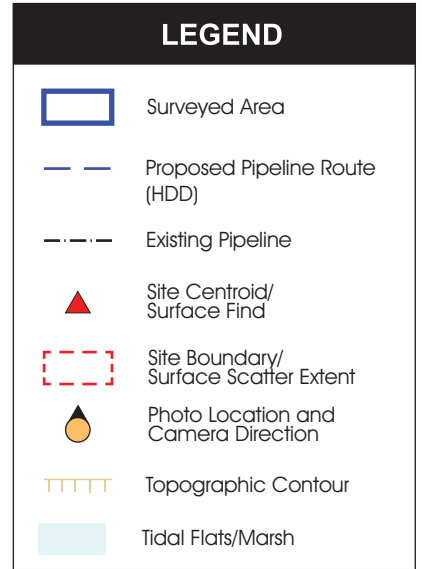
Overview of Site 41JK194. View is to southeast.



Overview of Site 41JK194



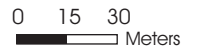
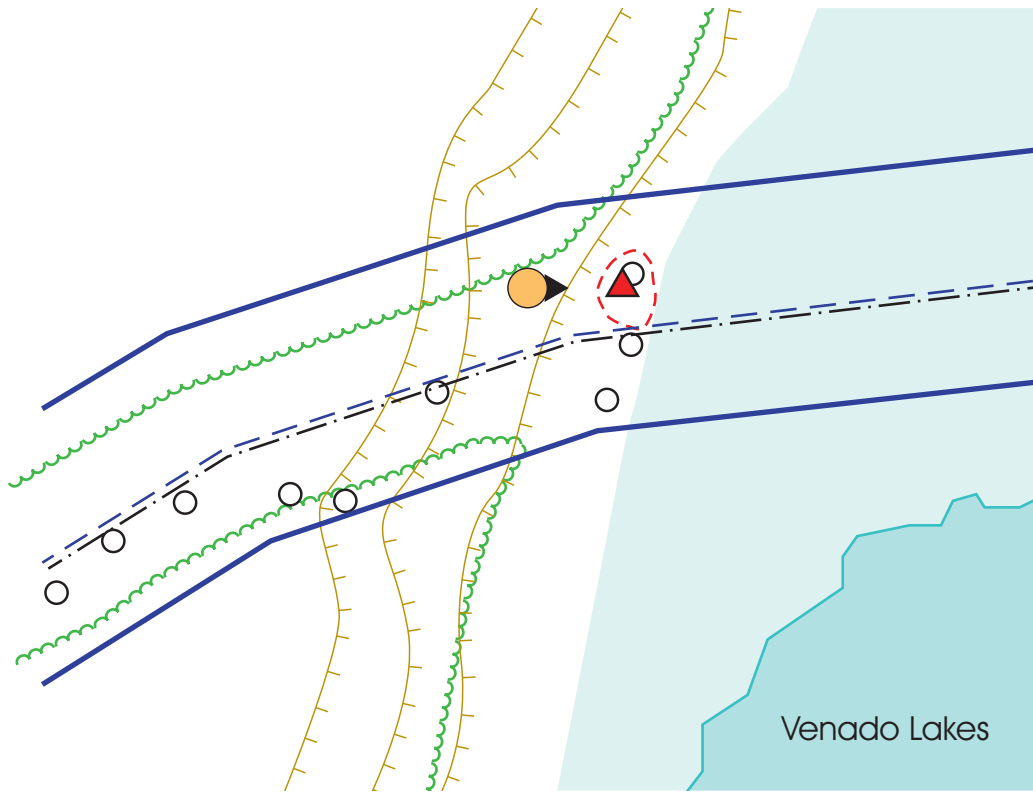
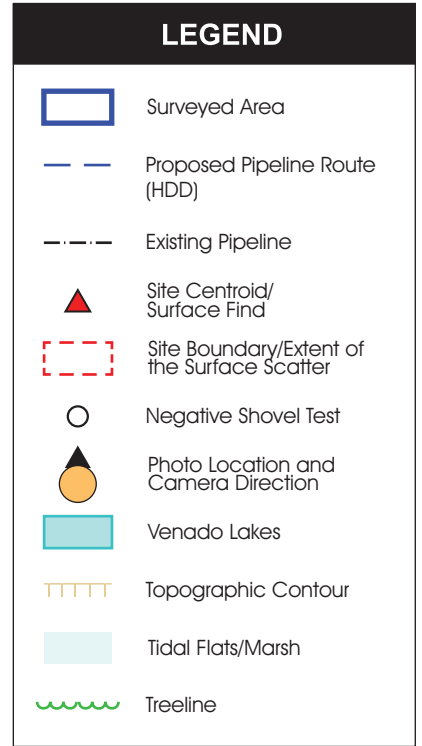
Overview of Site 41JK195. View is to southeast.



Overview of Site 41JK195



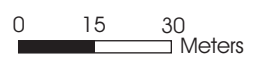
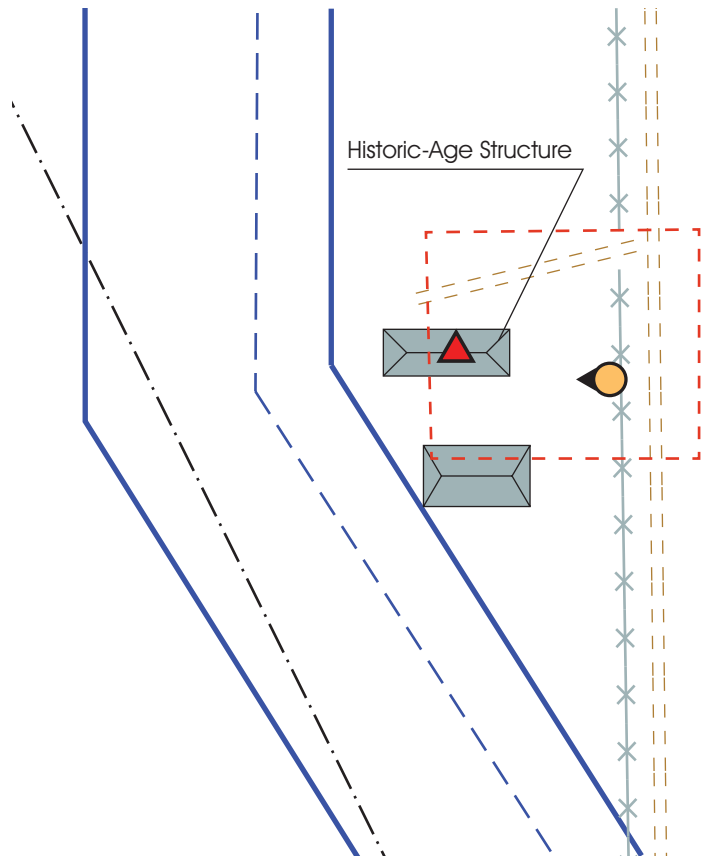
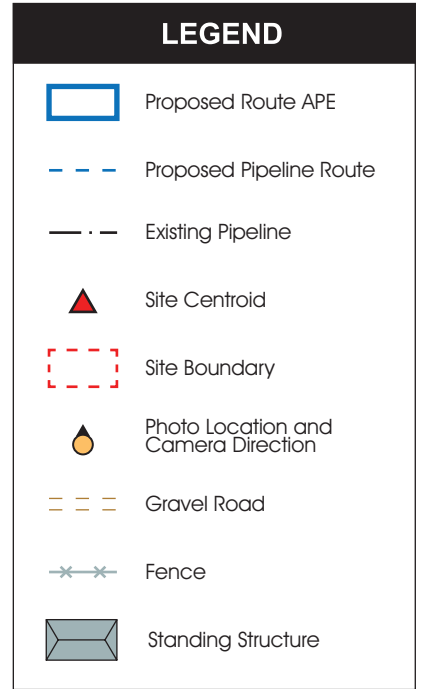
Overview of Site 41JK196. View is to east.



Overview of Site 41JK196



Overview of the Historic-Age Structure SP-017-S-1. View is to the west.



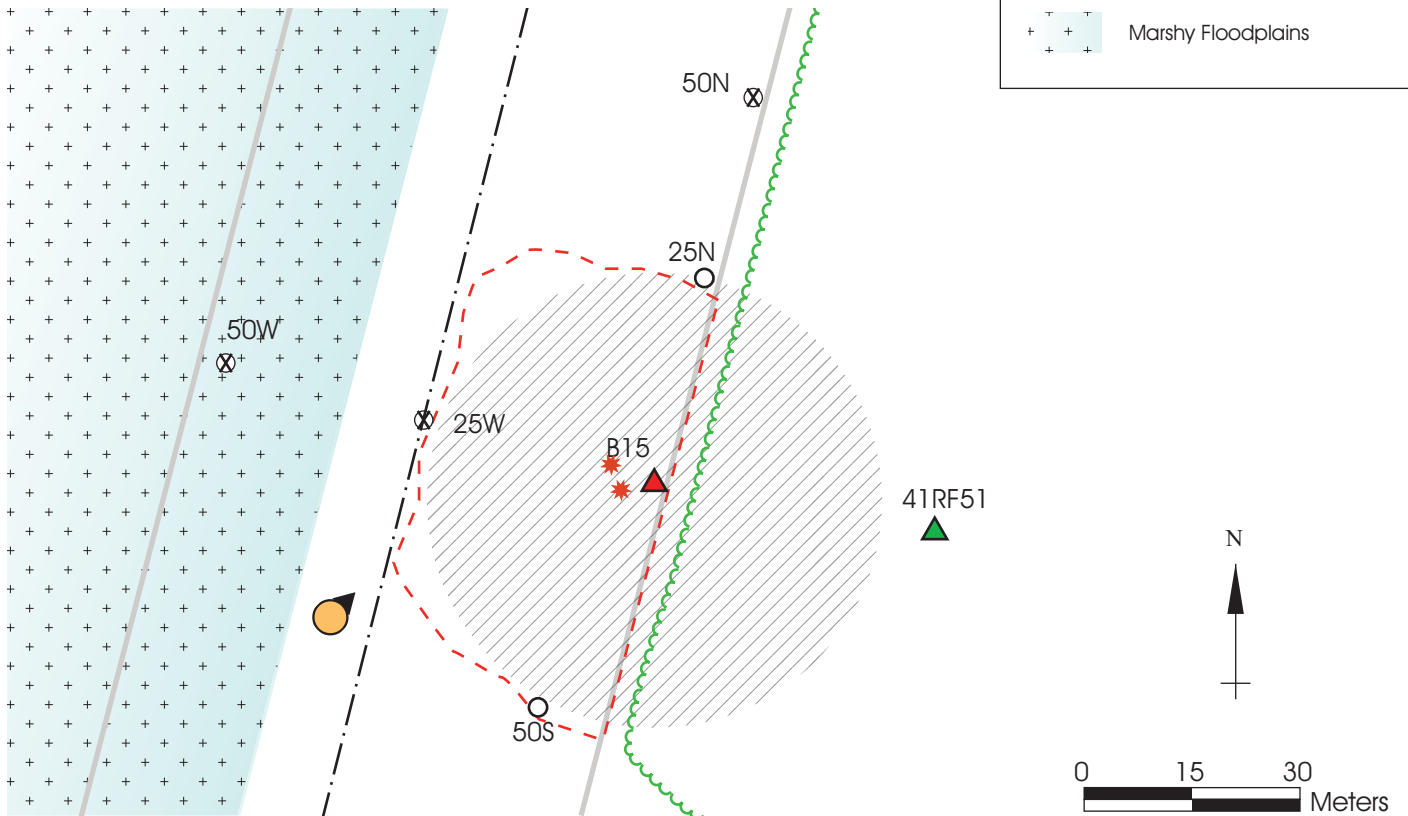
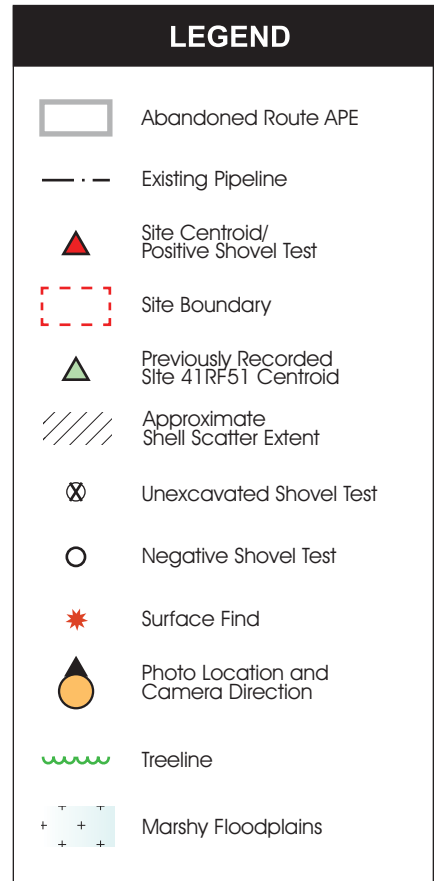
Overview of Historic-Age Structure SP-017-S-1



Figure B17



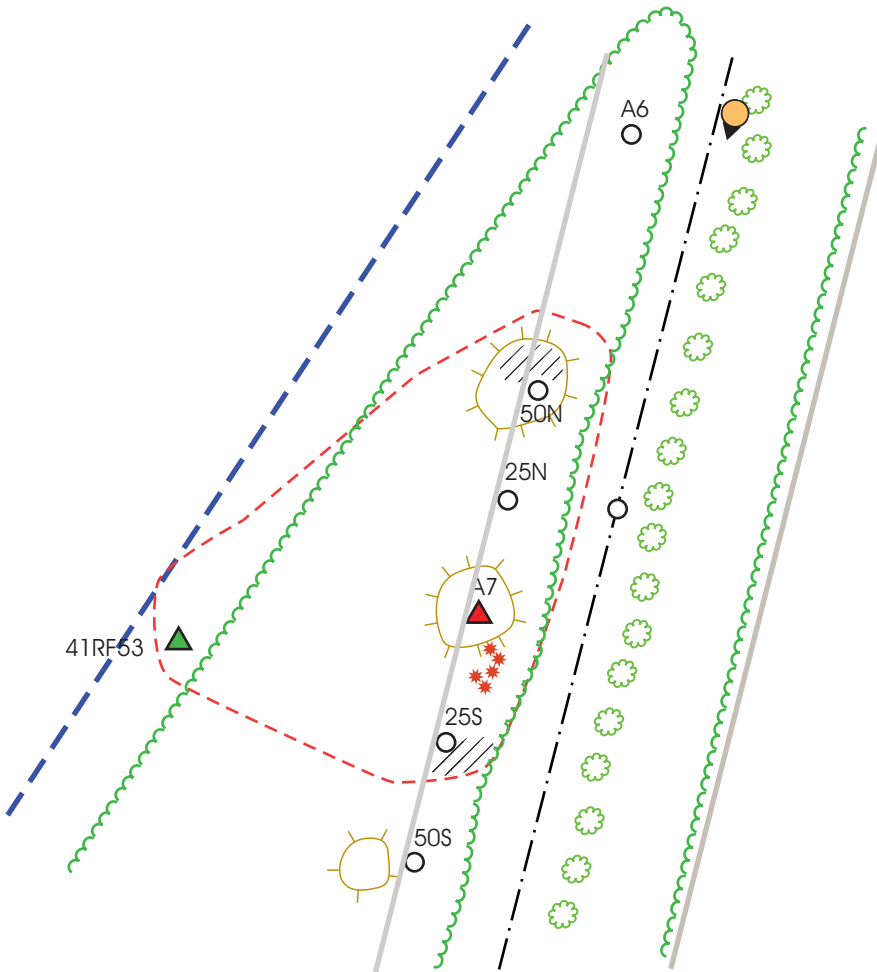
Overview of Site 41RF51. View is to the northeast.
















Overview of Site 41RF51



Overview of Site 41RF53. View is to the southwest.



LEGEND

-  Surveied Area (Abandoned APE)
-  Proposed Pipeline Route (HDD)
-  Site Centroid/
Positive Shovel Test
-  Site Boundary
-  Previously Recorded
Site 41RF53 Centroid
-  Photo Location and
Camera Direction
-  Negative Shovel Test
-  Surface Find
-  Shell Concentration
-  Existing Pipeline
-  Topographic Contour
-  Treeline
-  Tree

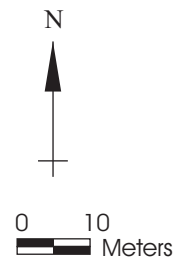
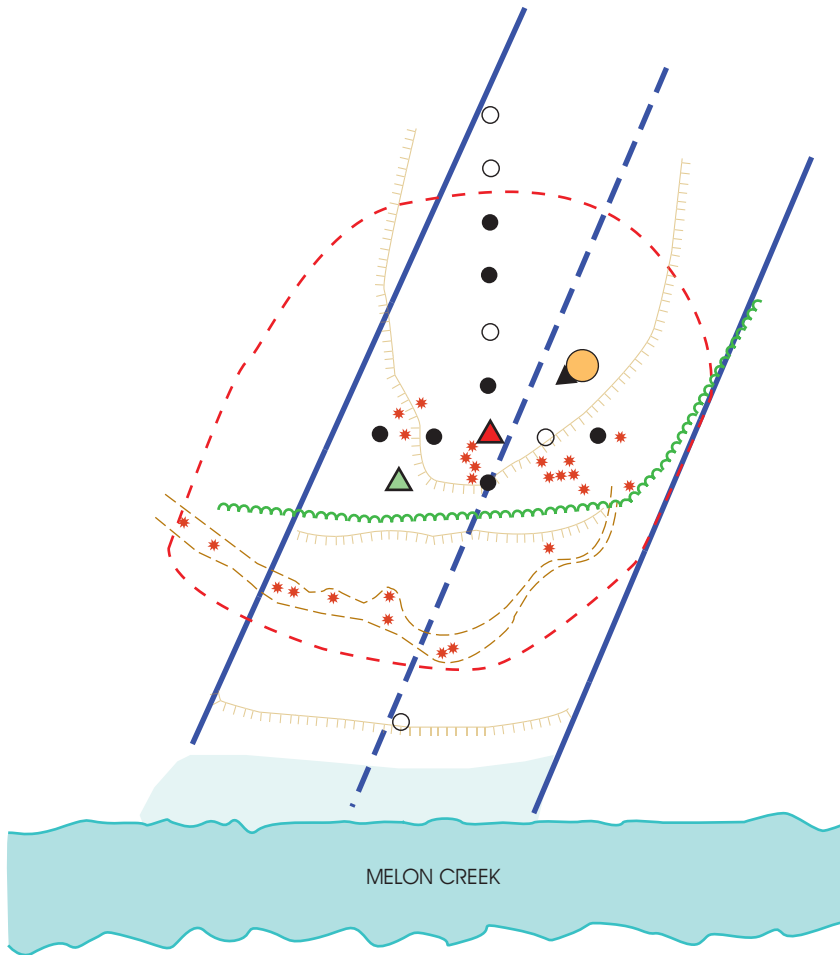
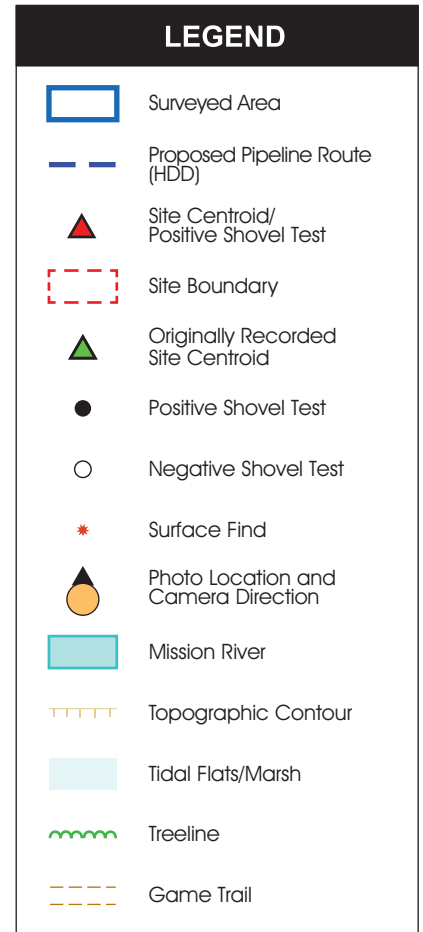


Overview of Site 41RF53





Overview of Site 41-RF-54. View is to the southwest.



Overview of the Relocated Site 41RF54

**APPENDIX C:
Figure Plates with Representative Artifacts Photos
(Plates 1-22)**



Plate 1. Sample of historic ceramic collected at Site 41SP264.



Plate 2. Sample of historic glass collected at Site 41SP264.



Plate 3. Sample of assorted glass recorded at Site 41SP267.



Plate 4. Sample of assorted ceramic and porcelain fragments recorded at Site 41SP267.



Plate 5. Sample of brick and iron fragments recorded at Site 41SP267.



Plate 6. Quartz projectile point collected at Site 41SP269.



Plate 7. Vesicular basalt wedge collected at Site 41RF148.



Plate 8. Representative historic ceramic fragments and marble collected at Site 41RF148.



Plate 9. Representative historic glass fragments collected at Site 41RF148.

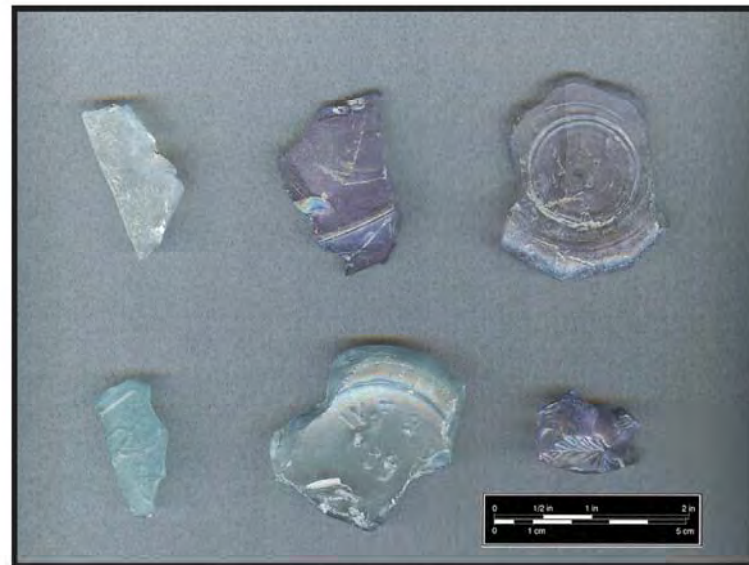


Plate 10. Representative historic glass fragments collected at Site 41RF148.



Plate 11. Sample of assorted glass collected at Site 41CL96.



Plate 12. Sample of assorted ceramic and porcelain fragments collected at Site 41CL96.



Plate 13. Sample of ceramic fragments and square nails collected at Site 41CL96.



Plate 14. Ornamental cast iron motif collected at Site 41CL96.

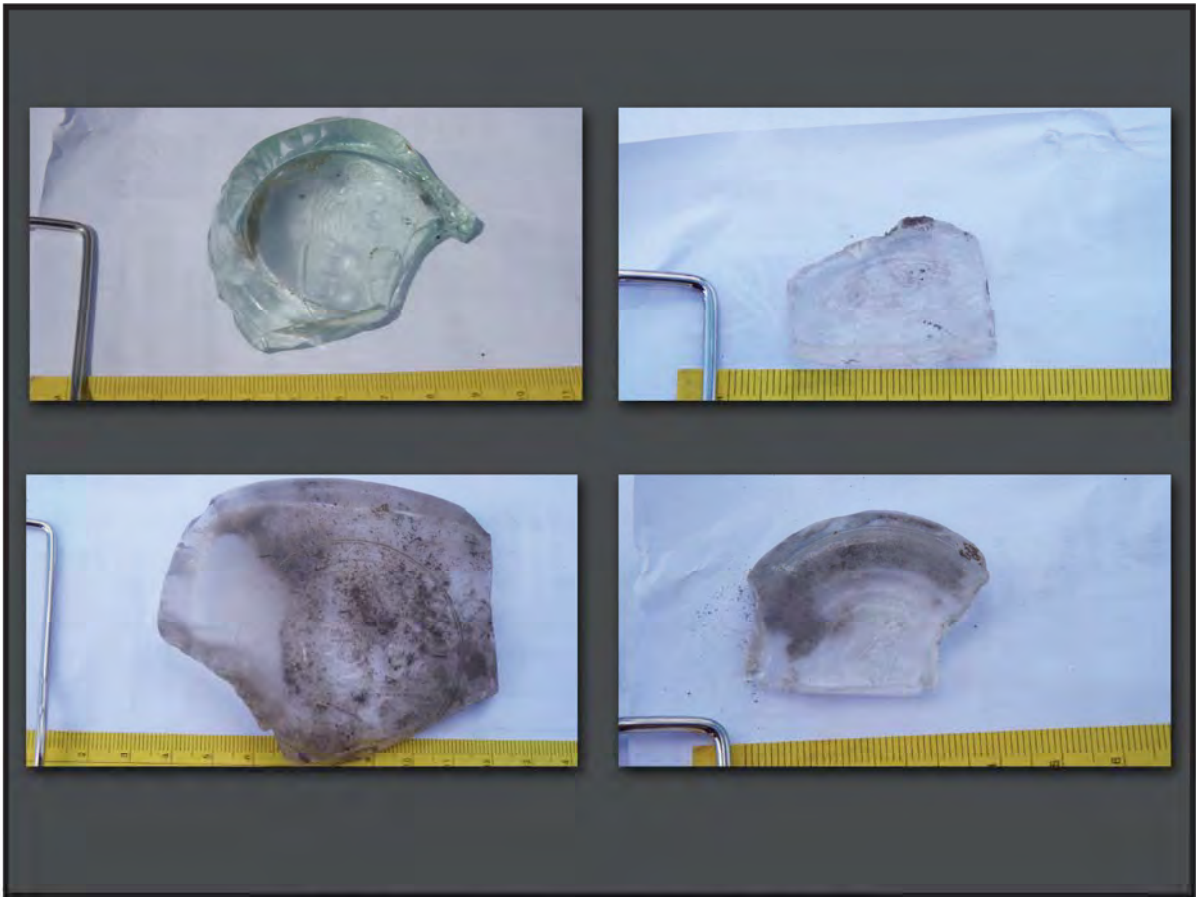


Plate 15. Sample of historic glass recorded at Site 41CL97.



Plate 16. Sample of historic glass recorded at Site 41CL97.



Plate 17. Sample of historic glass fragments recorded at 41CL97.



Plate 18. Sample of historic ceramic fragments recorded at Site 41CL97.



Plate 19. Historic rockingham ceramic recorded at Site 41CL97.



Plate 20. Personal/household items recorded at Site 41CL97.



Plate 21. Example of a baked earth concentration observed at 41VT171.



Plate 22. Lithic artifacts collected at Site 41VT173.

**APPENDIX D:
Agency Consultation**

TEXAS HISTORICAL COMMISSION

real places telling real stories

August 28, 2013

Jeff Robinson
Section Chief
Air Permits Section
United States Environmental Protection Agency
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733

RECEIVED
13 SEP 25 PM 3:04
AIR PERMITS SECTION

Attention: A.C. Dumaul

Re: Project review under Section 106 or the National Historic Preservation Act
Draft report: *Pedestrian Cultural Resources Survey for the Proposed Occidental Chemical Corporation Pipeline in San Patricio County, Texas.* (EPA)

Dear Mr. Robinson:

Thank you for allowing us to review the report referenced above. This letter serves as comment on the proposed undertaking from the State Historic Preservation Officer, the Executive Director of the Texas Historical Commission.

The review staff, led by Bill Martin, has completed its review. After reviewing the documentation, we concur that the construction of the proposed pipeline is unlikely to affect historic properties. Construction may proceed without further consultation with this office. However, additional information about site 41SP256 needs to be included in the final report. We believe there will be no adverse effect on the site because most of the artifacts are outside of the right-of-way and the shovel test within the right-of-way was negative, but the site description must be more fully developed. Please have the authors address the attached comments.

We look forward to receiving a revised final report that addresses our comments along with an electronic version in the form of a tagged PDF. Thank you for your cooperation in this federal review process, and for your efforts to preserve the irreplaceable heritage of Texas. **If we may be of further assistance, please call Bill Martin of our staff at 512/463-5867.**

Sincerely,



for
Mark Wolfe, State Historic Preservation Officer

MW/wam

Enclosure

