EARTHJUSTICE
BECAUSE THE EARTH NEEDS A GOOD LAWYER

February 12, 2025

Via email and US Mail
Martin Mayer, Chief
Regulatory Division
U.S. Army Corps of Engineers
New Orleans District
7400 Leake Ave.
New Orleans, La. 70118
Martin.S.Mayer@usace.army.mil

Re: MVN-2011-03218-MM, Air Products Blue Energy LLC – Orange Grove Plantation – Archeological Site 16AN89

Dear Mr. Mayer:

We are writing on behalf of RISE St. James to alert you to and request intervention on construction activities at the Air Products Blue Energy LLC ("Air Products") proposed facility site at issue in application no. MVN-2011-03218-MM ("application") pending before the USACE New Orleans District. Air Products' site is a known archeological site that warrants careful review. Nevertheless, the company has begun construction that could threaten or otherwise destroy cultural resources before the New Orleans District has conducted its Section 106 National Historic Preservation Act and National Environmental Policy Act reviews. Air Products has largely relied on an older archeological investigation of its site to assess cultural resources. But a recent investigation has revealed a new area of archeological significance, calling into question the sufficiency of the former investigation. RISE St. James asks the New Orleans District to require Air Products to cease construction activities until a full archeological investigation of the site has been completed and the agency has completed its required reviews of the cultural resources that Air Product's proposed project could impact.

Air Products' pending application is for a Clean Water Act Section 404 permit to construct a new hydrogen/ammonia production facility ("facility"), carbon dioxide pipelines, carbon sequestration sites, and related infrastructure across several parishes. Air Products has already begun construction and development of its facility at a 700+ acre archaeological site in Ascension Parish, known as the Orange Grove Plantation (Site 16AN89).[1] It has deployed heavy earthmoving equipment throughout its site to clear, grub, and grade.[2] The company to intends to

[1] *See* Aerial photos of Construction Activities at Air Products' Site, attached as Exhibit A.

[2] *See* Aerial photos of site taken Oct/Nov 2024, attached as Exhibit A; Air Products Letter to LDEQ, May 7, 2024, EDMS Doc. ID 14280981, https://edms.deq.louisiana.gov/app/doc/view?doc=14280981 (requesting Letter of No Objection from LDEQ to proceed with site preparation activities prior to receiving air permit), attached as Exhibit B; LDEQ letter to Air Products, June 6, 2024, EDMS Doc. ID

remove "approximately 600,000 cubic yards" of soil and "placement of engineered fill material."[3] These significant ground-altering activities put the cultural resources at risk before appropriate studies have been conducted and the New Orleans District has completed its Section 106 and NEPA reviews.

Air Products' site is a significant archeological site. Originally settled by the Houma and Bayou Goula tribes, Air Products' site became a large sugar plantation known as Orange Grove that was worked by hundreds of enslaved people from the early 1800s through the Civil War. [4] Just before the Civil War, census records show Orange Grove Plantation owner John Burnside enslaved 753 people at Orange Grove and his other contiguous plantations.[5] Indeed, Burnside was one of the largest holders of enslaved people in U.S. history.[6] The Orange Grove Plantation continued operations after slavery was abolished until the early 1900s.[7] The site remained agricultural land planted in sugar cane until Air Products purchased the land for its proposed facility and began to construct.[8]

The former survey on which Air Products mainly relies is a Phase I cultural resources investigation conducted in 2012-2013 by SURA Inc. for a different project that was abandoned.[9] This preliminary investigation identified "[f]our cultural resources locations" at Air Products' site (i.e., Site 16AN89) associated with the Orange Grove Plantation, which it designated as Location 1 (spice store), Location 2 (big house and enslaved/tenant houses), Location 3 (sugar mills/blacksmith shop/farming operations), and Location 4 (Orange Grove Cemetery).[10] SURA concluded that Locations 1-3 "could qualify for the [National Register of Historic Places]" and recommended they be avoided.[11] Regarding the cemetery, SURA said that "[i]t is almost certain the persons interred in the cemetery were the owners of Orange Grove Plantation and their

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14334508, https://edms.deq.louisiana.gov/app/doc/view?doc=14334508 (providing that Air Products may conduct activities prior to receiving an air permit), attached as Exhibit C.

[3] Air Products letter to LDEQ, Dec. 19, 2024, EDMS Doc. ID 14590863, https://edms.deq.louisiana.gov/app/doc/view?doc=14590863, attached as Exhibit D.

[4] Nathanael Heller, M.A., R.P.A., et al., *Phase I Cultural Resources Investigation of Proposed OxyChem Geisemar to Convent Pipeline Project in St. James and Ascension Parishes, Louisiana*, Goodwin & Assoc., (March 2024), Redacted (hereinafter "Goodwin Report") pp. 46-66, attached as Exhibit E.

[5] *Id.* at 60.

[6] Thomas Scott, *9 of the Biggest Slave Owners in American History*, ATLANTIC BLACK STAR, (Dec. 23, 2014),https://atlantablackstar.com/2014/12/23/9-of-the-biggest-slave-owners-in-american-history/. .

[7] Goodwin Report at 59, Table 3.2.

[8] *Id.* at 64–5.

[9] Shuman, K. Malcolm, et al., *Phase One Cultural Resources Survey Of 673.9 Acres (272.67 Hectares) Proposed for Industrial Use, Burnside, Ascension Parish, Louisiana*, SURA Inc., (April 2014), (report no. 22-4026 discussing investigations conducted in 2012-2013 by SURA, Inc. for Impala Warehousing, LLC Darrow, LA) (hereinafter "SURA Report" or "Shuman 2014"), attached as Exhibit F.

[10] *Id.* at 51–162.

[11] *Id.* at 163–4.

managerial employees and relatives," and recommended a 100-foot buffer.[12] SURA also pointed out that "no slave/tenant cemetery ha[d] been identified . . . at Orange Grove Plantation."[13] While no reports have indicated where the enslaved who died at Orange Grove would have been buried,[14] it would stand to reason there would be a cemetery on the property similar to the unmarked burial discovered at the adjacent Monroe Planation site that holds the remains of up to one-thousand people.[15]

Air Products stated over a year ago that it conducted further investigations of the sugar mill site and Orange Grove Cemetery that SURA had identified.[16] But according to our recent requests for documents with the New Orleans District and State Historic Preservation Office ("SHPO"), the company has not yet provided the agencies with reports or any written information concerning these investigations as it promised.[17] And while Air Products has partitioned Location 4 (Orange Grove Cemetery) and added a 100-foot buffer from the facility site,[18] Air Products has said nothing about avoiding the cultural resources identified in Locations 1-3 as SURA had recommended.[19] Additionally, a recent archeological report identifies a new area of cultural resources on Air Products' site that the company has also failed to discuss even though it plans to construct within that area.

The recent archeological investigation that covers a portion of Air Products' site found a new area with cultural resources that the decade-old SURA investigation missed.[20, 21] Goodwin & Associates, Inc. conducted a Phase I cultural resources investigation in 2023-2024 for an OxyChem pipeline project that would run through part of Air Products' site that SURA had previously surveyed.[22] Goodwin re-surveyed the swath of Air Products' site planned for the pipeline project because it was not within one of the "locations [that] had been examined

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[12] *Id.* at 158, 164.

[13] *Id* at 164.

[14] RISE retained a historian who performed research about the Orange Grove Plantation and published a report, which RISE released to the public. RISE is also engaged in ongoing outreach to descendants of people who were enslaved and buried at the Orange Grove Plantation or connected to the site in other ways. https://static1.squarespace.com/static/5eed506b38da704895463871/t/66296f99b445971413581d07/1713991586001/Final+Draft+K.Shannon.Orange+Grove+Report_4_19-2024_Redacted+%281%29.pdf.

[15] Goodwin Report, Fig. 1.2, p. 6; Table 4.4. p. 81 (noting a where "a sign indicates an unmarked African American cemetery that dates to the 1820s, with 'as many as a thousand' interments").

[16] Air Products JPA, 2-02a_Louisiana Public Trust Doctrine Analysis, Jan. 12, 2024, excerpt pdf. pp. 41–42, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=14673773, attached as Exhibit G.

[17] *Id.* at pdf. p. 42.

[18] *Id.*

[19] *Id.*

[20] Goodwin Report at 74 (discussing SURA survey).

[21] Goodwin also re-investigated another area for a different segment of its pipeline and again two historic artifacts where SURA had recorded no cultural resources. Goodwin Report at 167–168.

[22] Goodwin Report at 75, 148, and Figures 6.30 and 6.31 (pp. 155–56), attached as Exhibit E.

previously *using current survey standards*."[23] In fact, SURA did not indicate which if any standards it followed for its survey,[24] while Goodwin detailed the standards and methodology it had applied.[25] In its survey, Goodwin found "a dense surface scatter"[26] of artifacts "associated with the historic occupation of the Orange Grove Plantation."[27, 28] Oxychem then modified its project design[29] to avoid any adverse impact to Site 16AN89 for its pipeline project, recognizing that "undisturbed deposits and/or cultural features may exist below the plowzone."[30] Meanwhile, Air Products proposes to construct carbon dioxide and hydrogen pipelines, a facility access road, and laydown yards within and immediately adjacent to this documented area.[31]

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[23] Goodwin Report at 138 (emphasis added).

[24] *See* SURA Report at 1 (describing survey methodology as simply "consist[ing] of map research and shovel testing at high probability (HP) intervals").

[25] The Goodwin investigation was guided by a Scope of Work developed in consultation with Louisiana's State Historic Preservation Office, which details the procedures and standards followed. Goodwin Report at 1, Appendix 1 (Scope of Work); *see also id.* at Ch. V, Research Design and Methodology, pp. 83–86 (explaining that known archeological sites such as Air Products' site "were characterized as having a high probability for containing cultural resources and were investigated by intensive pedestrian survey and shovel testing at high probability intervals").

[26] Goodwin Report at 152.

[27] Goodwin Report at 166.

[28] Because "the large artifact scatter . . . was situated just east of Locations 2 and 3 of Site 16AN89 as recorded by [SURA] . . . [it] was designated as Location 2/3 Extension of Site 16AN89." Goodwin Report at 166; *see also id.* at 152–153 (citing SURA Report) (Figures 6.1 [Sheets 19, 20], 6.22, 6.25; Table 6.2); *id.* at 154 (explaining that the "newly-identified locus (Figures 6.30, 6.31) . . . measured 225 m (738.2 ft) in length and 60 m (196.9 ft) in width, and encompassed about 1.35 ha (3.34 ac) of area").

[29] Goodwin Report at 166-67 (explaining that pipeline will be installed by horizontal directional drilling ("HDD"), access road will be reduced to 10 meters and covered with protective matting). These measures were employed after "an attempt was made to reroute around the artifact scatter by extending the project ROW further east to and avoid impacting the site," but testing in the new area "produced surface finds of historic artifacts." *Id.* at 152.

[30] *Id* at 166. "[T]he portion of Site 16AN89 identified within the Project ROW have not been evaluated and assessed applying the NRHP Criteria for Evaluation (36 CFR 60.4 [a-d]) and those areas will be avoided during construction." *Id.* at 9.

[31] *See* Air Products JPA, 2-02a Louisiana Public Trust Doctrine Analysis, Jan. 12, 2024, Figure 1-3, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=14673773 (Facility Site Plan); 1-2-1a Proposed CO2 Pipeline Alignment, Aug. 6, 2024, Sheets 1-3, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=14869711; 1-2-1b Proposed CO2 Pipeline Alignment, Aug. 6, 2024, Sheet 4, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=14869719; 1-2-2 Proposed H2 Pipeline, Aug. 6, 2024, Sheets 1-3, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=14869715; 1-1a Facility Site Permit Drawings, Aug. 6, 2024, Sheets A-1 through A-7, https://sonlite.dnr.state.la.us/dnrservices/redirectUrl.jsp?dID=14869734.

It is important to highlight that Goodwin only re-investigated a relatively small area of Air Products' site and found a significant new area of cultural resources, begging the question as to what other cultural resources could be found throughout the entirety of the site using current survey standards. Indeed, Air Products' reliance on the old SURA report is careless as Goodwin's findings strongly suggest that there are more artifacts in the footprint of works where Air Products is either already constructing or plans to construct. The fact that Air Products did not identify the dense cluster of surface artifacts on its own initiative, or a result of its own discoveries is alarming especially since Air Products' ground disturbance could impact other undiscovered artifacts.

Air Products is rushing into a process that could do irreversible damage to cultural resources. There is no reason for Air Products to rush as the company does not even have its air or CWA 404 permits. Air Products will not be harmed by delaying any further construction at its site until it has conducted a sufficient site-wide archeological investigation detailed in a public report. The New Orleans District must ensure it has the opportunity to carry out its required reviews.

For these reasons, we ask the New Orleans District to require Air Products to cease its construction activities and conduct a full survey of the entire site that meets current survey standards.

Sincerely,

Corinne Van Dalen, Senior Attorney
Earthjustice

Cc:

Brad Laborde, Eastern Evaluation Branch Chief
Regulatory Division
U.S. Army Corps of Engineers
New Orleans District
7400 Leake Ave.
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brad.laborde@usace.army.mil

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Rachael Mangum, Assistant Director
Federal Permitting, Licensing, and Assistance Section
Advisory Council on Historic Preservation
401 F. Street, NW, Suite 308
Washington, DC 20001-2637
rmangum@achp.gov

Dr. Charles "Chip" McGimsey, State Archaeologist and Director
Division of Archaeology
Office of Cultural Development
1051 N. 3rd St., Room 316
Baton Rouge, La. 70802
cmcgimsey@crt.la.gov

Air Products' Facility Site
October/November 2024

EXHIBIT A

EXHIBIT A

PER20240001

MAIN FILE

original to IDA
cc to 9B
copy to MF6/Reed
PAAR

LDEQ
2024 MAY -9 AM 11:50

Air Products Blue Energy LLC
Darrow, Louisiana

May 7, 2024

Dr. Amanda Vincent, Assistant Secretary
Louisiana Department of Environmental Quality
Office of Environmental Services
602 N. Fifth Street
Baton Rouge, LA 70802

Air Products Blue Energy LLC
Clean Energy Production Facility
Ascension Parish, LA
Agency Interest No. 233211
Request for a Letter of No Objection

Dear Dr. Vincent,

Louisiana Department of Air Quality (LDEQ) is currently processing a minor source air permit application submitted by Air Products Blue Energy LLC (Air Products) on March 21, 2022, to construct and operate the Clean Energy Production Facility in Ascension Parish, Louisiana (Agency Interest No. 233211).

Air Products is requesting a Letter of No Objection (LONO) from LDEQ to proceed with activities associated with initial site preparation. Air Products believes the following activities are considered allowable prior to the issuance of the minor source air permit and is seeking concurrence from the Department before initiating work on these activities:

1. Clearing and grubbing;
2. Grading the land; and,
3. Soil stabilization.

Air Products is submitting this LONO request to complete these activities for the entire site prior to obtaining the minor source air permit. The completed Application for Approval of Miscellaneous Permitting Actions is attached.

If you require any additional information to assist with this request, please contact me at (225) 390-9154 or landruc@airproducts.com.

Sincerely,

Chandler Landrum
Principal Environmental Engineer

RECEIVED
MAY - 9 2024
By

EXHIBIT B

ATTACHMENT

APPLICATION FOR APPROVAL OF MISCELLANEOUS PERMITTING ACTIONS

Department of Environmental Quality Office of Environmental Services Air Permits Division P.O. Box 4313 Baton Rouge, LA 70821-4313 (225) 219-3417	**LOUISIANA** **Application for Approval of Miscellaneous Permitting Actions**	DEQ LOUISIANA

PLEASE TYPE OR PRINT

1. Facility Information

Facility Name or Unit Name (if any) Clean Energy Production Facility	☒ All Process Units ☐ Process Unit-Specific Action
Agency Interest Number (A.I. Number) 233211	**Currently Effective Permit Number(s)** Not Issued Yet
Company - Name of Owner Air Products Blue Energy LLC	
Company - Name of Operator (if different from Owner)	
Parent Company (if Company – Name of Owner given above is a division)	
Parish(es) where facility is located: Ascension	
Federal Tax-ID 23-1274455	

2. Type of Request

Check only one box to indicate the type of request being made.

☐ Small Source Exemption*†
☐ Exemption To Test†
☐ Variance**†
☒ Letter of Response/Letter of No Objection†
☐ Administrative Amendment†
☐ Permit Rescission Date of closure: ____/____/____
☐ Application Withdrawal
☐ Change of Tank Service
☐ Relocation of a Portable Facility
☐ Authorization to Construct and Operate (ATC)†

* Fee required
† Justification required
** Fee required unless source is operating under an air permit.

Estimated date that requested activity will commence 05/20/2024

3. Application Fee

Complete this section if a fee is required for the request being made. Consult instructions.

Fee Code: _____ Amount Enclosed: $ _____

Electronic Fund Transfer (EFT): If paying the application fee using an Electronic Fund Transfer (EFT), please include the EFT Transaction Number, the Date that the EFT was made, and the total dollar amount submitted in the EFT. If not paying the application fee using EFT, leave blank.

EFT Transaction Number	**Date of Submittal**	**Total Dollar Amount**
_____	_____	$_____

EXHIBIT B

4. Description of Exceptional Circumstances to Justify a Variance Request

Requested Duration of Variance: _____ *Months* _____ *Days*

Explain the need for the variance.
Identify the affected source(s), as well as the applicable regulation(s) from which the source(s) need a variance. Include relevant details as necessary (e.g., a description of the how the process normally functions and how it is operating now) and describe any measures undertaken or that will be undertaken to remedy the situation prompting the variance request.

N/A – Not a Variance Request

Identify the exceptional circumstances.
Identify the exceptional circumstances that preclude strict conformity with the regulation(s) identified above. Explain how strict conformity with such regulations would cause would 1.) cause undue hardship; 2.) be unreasonable; 3.) be impractical; or 4.) not be feasible under the circumstances; or would otherwise result in the practical closing and elimination of any lawful business, occupation, or activity without sufficient corresponding benefit or advantage to the people of the state.

N/A – Not a Variance Request

Note: It is important that the reason for the variance request be made plain. The explanation of extenuating circumstances will form the primary basis upon which LDEQ will either grant or deny the variance request.

5. Required Information

Submittal of this Information Is Not Optional

For all requests:

Detailed description of the proposed activity is included. ☒

Justification for the request is included. (Justification may include supporting calculations, reasoning to support a determination of why strict conformity with the regulations is not feasible, etc) ☒

For Relocation of a Portable Facility requests only:

Documentation is attached that shows compliance with all applicable zoning criteria for the proposed location (for Relocation of a Portable Facility requests only). [Required per LAC 33:III.513.C.1.a] ☐

A map showing the proposed location of the Portable Facility is included (for Relocation of a Portable Facility requests only) [Required per LAC 33:III.513.C.2] ☐

Enter the **current** location of the facility (for Relocation of a Portable Facility requests only):

Street	**City**	**Parish**

Latitude _____ **Longitude** _____

Enter the **proposed** location of the facility (for Relocation of a Portable Facility requests only):

Street	**City**	**Parish**

Latitude _____ **Longitude** _____

Enter the Make, Model, and Serial Number of each portable combustion emissions source to be permitted. Otherwise, leave blank. Do *NOT* list any motor vehicles. Add rows as necessary (for Relocation of Portable Facility requests only).

Make	**Model**	**Serial Number**

EXHIBIT B

6. Emissions Summary Table

For each pollutant, enter the pre-project emission rate in the "Before" column and enter the post-project emission rate in the "After" column. Enter the difference between the "Before" and "After" values in the "Change" column. Add rows as necessary to show any Toxic Air Pollutant (TAP) or Hazardous Air Pollutant (HAP) emissions. All values in this table should be represented in tons per year or per variance period (if applying for a variance).

Pollutant	Before (tons per year/variance period)	After (tons per year/variance period)	Change (tons per year/variance period)
$PM_{10}/PM_{2.5}$			
SO_2			
NO_X			
CO			
VOC			

7. Contact Information

a. Person to contact with written correspondence					
Name	Chandler Landrum				
Title	Principal Environmental Engineer				
Company	Air Products Blue Energy LLC				
Suite, mail drop, or division					
Street or P.O. Box	305 E Hwy 30				
City	Prairieville	**State**	LA	**Zip**	70737
Business phone	(225) 390-9154				
Email address	landruc@airproducts.com				

b. Person who prepared this report					
Name	Sami Aouad				
Title	Senior Environmental Engineer				
Company	C-K Associates, LLC				
Suite, mail drop, or division	300				
Street or P.O. Box	8591 United Plaza Blvd.				
City	Baton Rouge	**State**	LA	**Zip**	70809
Business phone	(225) 755-1000				
Email address	sami.aouad@c-ka.com				

8. Certification of Compliance With Applicable Requirements

For corporations only: By signing this form, I certify that, in accordance with the definition of Responsible Official found in LAC 33:III.502, **(1)** I am a president, secretary, treasurer, or vice-president in charge of a principal business function, or other person who performs similar policy or decision-making functions; or **(2)** I am a duly authorized representative of such person; am responsible for the overall operation of one or more manufacturing, production, or operating facilities addressed in this permit application; and either the facilities employ more than 250 persons or have gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars); or the delegation of authority has been approved by LDEQ prior to this certification.*

I certify, under provisions in Louisiana and United States law which provide criminal penalties for false statements, that based on information and belief formed after reasonable inquiry, the statements and information contained in this Application for Approval of Miscellaneous Permitting Actions, including all attachments thereto, are true, accurate, and complete. Further, I have been informed that any written approval from LDEQ does not relieve the proposed activity from the requirement to comply with any other city, parish, state, and/or federal requirements.

Responsible Official:

Name (please print or type): Nile Bolen

Signature:

Title: Vice President

Date: 5/8/24

*Approval of a delegation of authority can be requested by completing a Duly Authorized Representative Designation Form (Form_7218) available on LDEQ's website at http://deq.louisiana.gov/page/air-permit-applications.

EXHIBIT B

AIR PERMIT ROUTING/APPROVAL SLIP-Misc.

6-18-2024

AI No.	233211	Company	Air Products Blue Energy LLC	Date Received	May 9, 2024
Activity No.	PER20240001	Facility	Darrow Blue Energy Facility		
CDS No.		Permit No.		Expedited Permit	☐yes ☒no

Regulatory Permit	Variance	Exemption	Authorization to Construct	Change of Tank Service
☐	☐	☐	☐	☐
Case by Case Insignificant Activity	**Letter**	**Additional Information Request**	**Company Notification Letter**	**Other:**
☐	☒	☐	☐	☐

1. Technical Review	Approved	Date received	Date forwarded	Comments
Permit Writer JER			5/14/24	
Air Quality / Modeling				
Toxics				
PSD/NNSR				
Technical Advisor	TBK		5/16/24	
Supervisor				
Other				

2. Final Approval	Approved	Date received	Date forwarded	Comments
Supervisor				
ES Manager	AGV		5/16/24	as noted
Administrator	BDJ		6/4/24	as noted
Assistant Secretary	AGV		6/6/24	

Other Information		Comments
Fee Assessment Created	☐yes ☒no	

JEFF LANDRY
GOVERNOR

AURELIA S. GIACOMETTO
SECRETARY

STATE OF LOUISIANA

DEPARTMENT OF ENVIRONMENTAL QUALITY
OFFICE OF ENVIRONMENTAL SERVICES

Certified Mail No. 9589 0710 5270 0157 0971 89

Agency Interest (AI) No. 233211
Activity No. PER20240001

Mr. Chandler Landrum
Air Products Blue Energy LLC
305 E Hwy 30
Gonzales, LA 70737

RE: Letter of Response
Air Products Blue Energy LLC – Clean Energy Production Facility
Darrow, Ascension Parish, Louisiana

Dear Mr. Landrum:

Air Products Blue Energy LLC (Air Products) proposes to construct and operate the Clean Energy Production Facility, a low-carbon hydrogen and ammonia manufacturing facility. A permit application for the facility has been submitted and is currently being reviewed by LDEQ.

By application dated May 8, 2024, Air Products requested authorization to conduct activities associated with initial site preparation prior to the issuance of an air permit. The activities to be conducted are:

1. Clearing and grubbing;
2. Grading the land; and
3. Soil stabilization.

The aforementioned activities do not constitute construction as prohibited by LAC 33:III.501.C.2 and may commence prior to the issuance of an air permit.

Should you have any questions regarding this matter, please contact James Reed of the Air Permits Division at (225) 219-4058 or james.reed@la.gov.

Sincerely,

Amanda Vincent

Amanda Vincent, PhD, PMP
Assistant Secretary
AV: jer

June 6, 2024
Date

EXHIBIT C

AIR PRODUCTS

Air Products Blue Energy LLC

December 19, 2024

Dr. Amanda Vincent, Assistant Secretary
Louisiana Department of Environmental Quality
Office of Environmental Services
602 N. Fifth Street
Baton Rouge, LA 70802

Air Products Blue Energy LLC
Clean Energy Production Facility
Ascension Parish, LA
Agency Interest No. 233211
Request for Concurrence

Dear Dr. Vincent,

Air Products Blue Energy LLC (Air Products) is conducting soil stabilization activities at its proposed Clean Energy Production Facility site (the Site), located on a former agricultural property historically used for sugarcane farming in Ascension Parish, Louisiana (Agency Interest No. 233211). Soil stabilization involves the removal of soil that lacks load-bearing capacity to support future facility foundations, followed by the placement of engineered fill material necessary to achieve stability. It is anticipated that approximately 600,000 cubic yards (CY) of uncontaminated soil (Soil) that is suitable for future reuse will be removed.

Air Products understands that L'Alumina LLC (L'Alumina) owns property in Ascension Parish, Louisiana (Agency Interest No. 3420), that the property is currently under a closure plan monitored by LDEQ pursuant to Solid Waste Permit-P-0158-R1-M3, and that dirt or other fill material is needed for use as fill cover under the closure plan. L'Alumina has approached Air Products for the purpose of obtaining soil to use in providing fill cover for the closure. Should L'Alumina and Air Products reach an agreement regarding L'Alumina's use of the Soil from Air Products' Site, such soil would be used for the beneficial purpose of providing fill cover and, accordingly, would not be discarded and would not constitute a disposal of the Soil as waste.

Air Products is submitting this request to the Louisiana Department of Environmental Quality (LDEQ), seeking concurrence that the Soil, which will be removed from the Air Products Site and used for the purpose of fill cover at the L'Alumina property, does not meet the definition of solid waste under LAC 33:VII Subpart 1.

If you require any additional information to assist with this request, please contact me at landruc@airproducts.com.

EXHIBIT D

Air Products Blue Energy LLC

Sincerely,

Chandler Landrum
Principal Environmental Engineer

CC: Danna Leblanc
Commercial Executive Director
Air Products

EXHIBIT D

Phase I Cultural Resources Investigations of the Proposed OxyChem Geismar to Convent Pipeline Project in St. James and Ascension Parishes, Louisiana

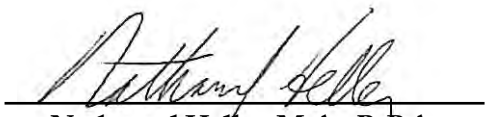
GOODWIN & ASSOCIATES

Draft Report
March 20204

EXHIBIT E

EXHIBIT E

Phase I Cultural Resources Investigations of the Proposed OxyChem Geismar to Convent Pipeline Project in St. James and Ascension Parishes, Louisiana



Nathanael Heller, M.A., R.P.A.
Principal Investigator

Draft Report

By

Nathanael Heller, Peter Cropley, Susan Barret Smith,
Alexandra Cavignac, Emily Meaden Jeansonne, and Abigail Stone

R. Christopher Goodwin & Associates, Inc.
309 Jefferson Highway, Suite A
New Orleans, LA 70121

March 2023

For

Project Consulting Services, Inc.
302 La Rue France, Suite 200
Lafayette, LA 70508

EXHIBIT E

EXHIBIT E

Abstract

This report describes the results of the Phase I cultural resources investigations completed of the proposed OxyChem Geismar to Convent Pipeline Project in St. James and Ascension Parishes, Louisiana. OxyChem is proposing the installation of two pipelines, a 6-in. chlorine, and an 8-in. ethylene dichloride (EDC) pipeline, connecting OxyChem's Convent Plant in St. James Parish to its Geismar Plant in Ascension Parish, Louisiana. Goodwin & Associates completed these investigations on behalf of Project Consulting Services, Inc. and their client, OxyChem between June 4, 2023 and January 19, 2024. The project included the investigations of approximately 29.6 km (18.4 mi) of pipeline right-of-way (ROW) and associated workspaces of varying widths, which were divided into 37 segments during survey. Also investigated was approximately 14.5 km (9 mi) of temporary access roads that will be used during pipeline construction. The combined project area investigated for cultural resources encompassed 164.9 ha (407.4 ac) of area.

The field methods used for the cultural resources investigations consisted of intensive pedestrian survey and systematic shovel testing at 30 m (98.4 ft) or 50 m (164 ft) intervals throughout the project area. Locations that could not be investigated by subsurface testing due to the existence of gravel surfaces, ditches, buried utilities, or other obstructions were investigated by pedestrian survey only. A total of 164.9 ha (407.4 ac) of area was investigated and 1300 shovel tests were excavated as part of the field investigations. As a result of those efforts, two new archaeological sites were recorded (i.e., Sites 16AN168 and 16AN169), and three previously recorded sites were revisited (i.e., Sites 16AN31, 16AN32, 16AN89); furthermore, one previously recorded site within the Project ROW was not investigated because it will be avoided by HDD (Site 16AN60). Site 16AN169 is recommended as not eligible for listing on the NRHP, and no additional work is recommended. Site 16AN168 and the portion of Site 16AN89 identified within the Project ROW have not been evaluated and assessed applying the NRHP Criteria for Evaluation (36 CFR 60.4 [a-d]) and those areas will be avoided during construction. Additionally, although portions of Sites 16AN31 and 16AN32 have been evaluated and assessed applying the NRHP Criteria for Evaluation (36 CFR 60.4 [a-d]) and assessed as eligible for listing, no significant archaeological remains of either site were identified within the proposed project ROW, and no additional work is recommended.

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Chapter I
Introduction

This report describes the results of the Phase I cultural resources investigations completed of the proposed Occidental Chemical Corporation's (OxyChem) Convent to Geismar Pipeline Project (Project) in St. James and Ascension Parishes, Louisiana (Figure 1.1). Goodwin & Associates (G&A) completed these investigations on behalf of Project Consulting Services, Inc. (PCS) and their client, OxyChem between June 4, 2023 and January 19, 2024. The project included the investigations of approximately 29.6 km (18.4 mi) of pipeline right-of-way (ROW) and associated workspaces of varying widths, which were divided into 37 segments during survey. Also investigated was approximately 14.5 km (9 mi) of temporary access roads that will be used during pipeline construction. The combined project area investigated for cultural resources encompassed 164.9 ha (407.4 ac) of area (Figure 1.2).

This cultural resources inventory was designed to identify and to evaluate all cultural resources (archaeological sites, isolated finds, historic above-ground resources, and cemeteries) situated within the proposed Project area that may be impacted adversely by this undertaking, applying the National Register of Historic Places (NRHP) Criteria for Evaluation (36 CFR 60.4 [a-d]). All fieldwork was conducted in accordance with the Secretary of the Interior's "Standards and Guidelines" (48 FR 44716), the Advisory Council on Historic Preservation's handbook entitled *Treatment of Archaeological Properties*, the procedures outlined in the National Historic Preservation Act of 1966, as amended, the Archaeological and Historic Preservation Act of 1974, and Title 36 of the Code of Federal Regulations, Parts 60-66 and 800 as appropriate. Additionally, this survey effort abided by the guidance provided in *Louisiana's Comprehensive Archaeological Plan* (Girard et al. 2022), and the Louisiana Division of Archaeology's online guidelines for cultural resources investigations. Finally, this investigation was guided by a project-specific scope of work (SOW) developed in consultation with the Louisiana SHPO's office, which is reproduced in Appendix I.

Project Background

OxyChem is proposing the installation of two pipelines, a 6-in. chlorine, and an 8-in. ethylene dichloride (EDC) pipeline, connecting OxyChem's Convent Plant in St. James Parish to its Geismar Plant in Ascension Parish, Louisiana. This proposed undertaking falls under the U.S. Army Corps of Engineers Permit MVN-2023-01228-WII, and Coastal Zone Permit P20231021. The Point of Beginning (POB) of the two pipelines is the OxyChem's Convent Plant, while the Point of Ending (POE) is the OxyChem Geismar Plant. The lines will be co-located from the Convent Plant to a point in Ascension Parish just south of the Geismar Plant. From the split, the Chlorine pipeline will traverse northerly to the POE at the southeast corner of the Geismar Plant. The EDC pipeline will parallel the existing power line and railroad corridor and terminate at the northwest corner of the Geismar Plant. As proposed, the total length of the 6-in. chlorine pipeline is 88,942-ft. (16.84 miles) and the total length of the 8-in. EDC pipeline is 91,674-ft. (17.36 miles). The total co-located length of the 6-in. and 8-in. pipelines within the Coastal Zone boundary is 40,377' (±7.65 miles).

The pipelines will be installed to a depth of 1.8 m (6 ft) utilizing a combination of the conventional trenching method, push pull method and horizontal directional drilling (HDD). The permanent easement for the pipeline varies from 15 m (50 ft), 9 m (30ft), 4.6 m (15 ft), and 3 m (10 ft). In all forested wetlands the proposed permanent easement is 9 m (30 ft) to allow for future maintenance activities. A proposed 33.5 m (110

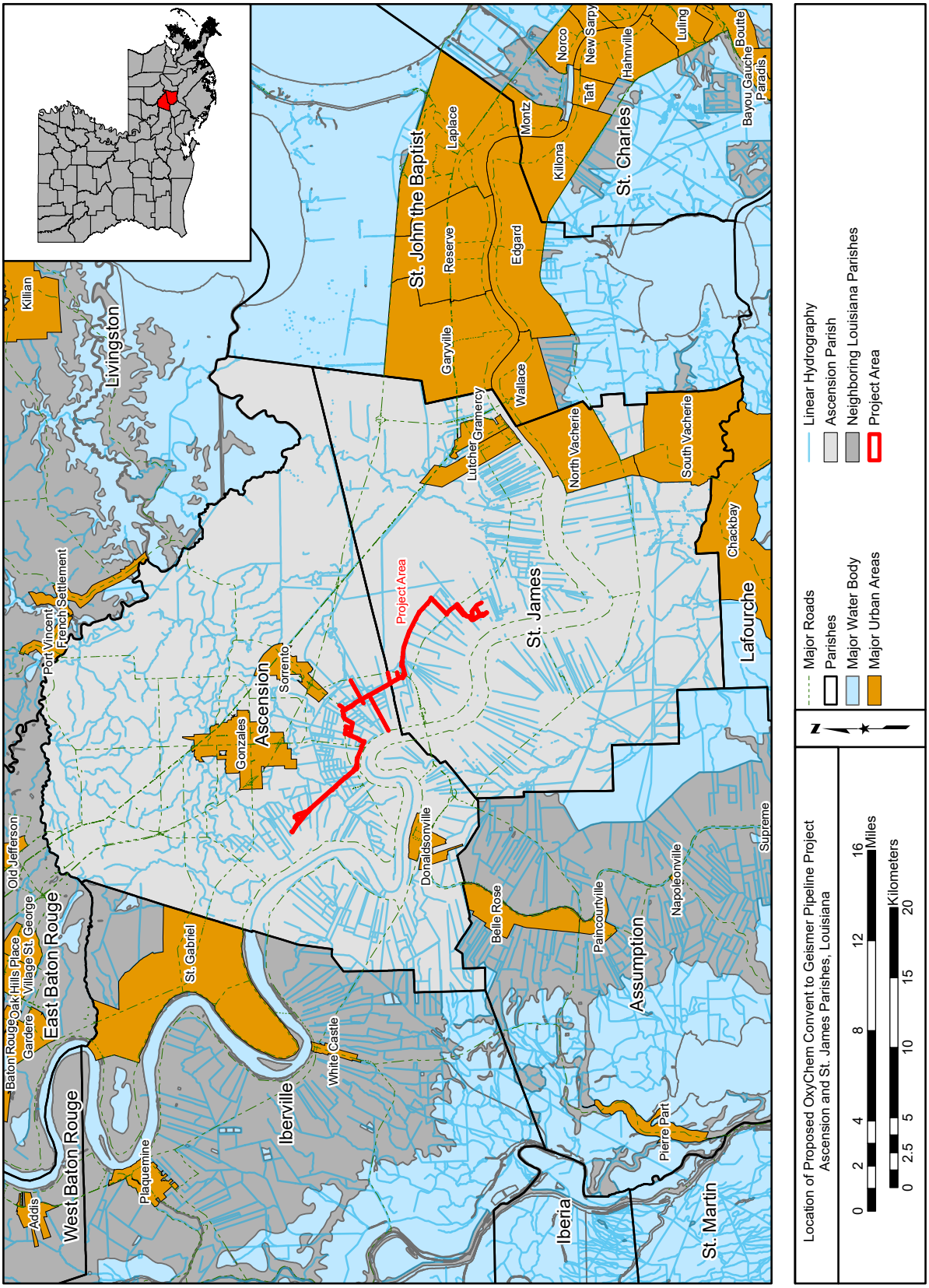

Figure 1.1 Location of the OxyChem Geismar to Convent Pipeline Project in St. James and Ascension Parishes, Louisiana.

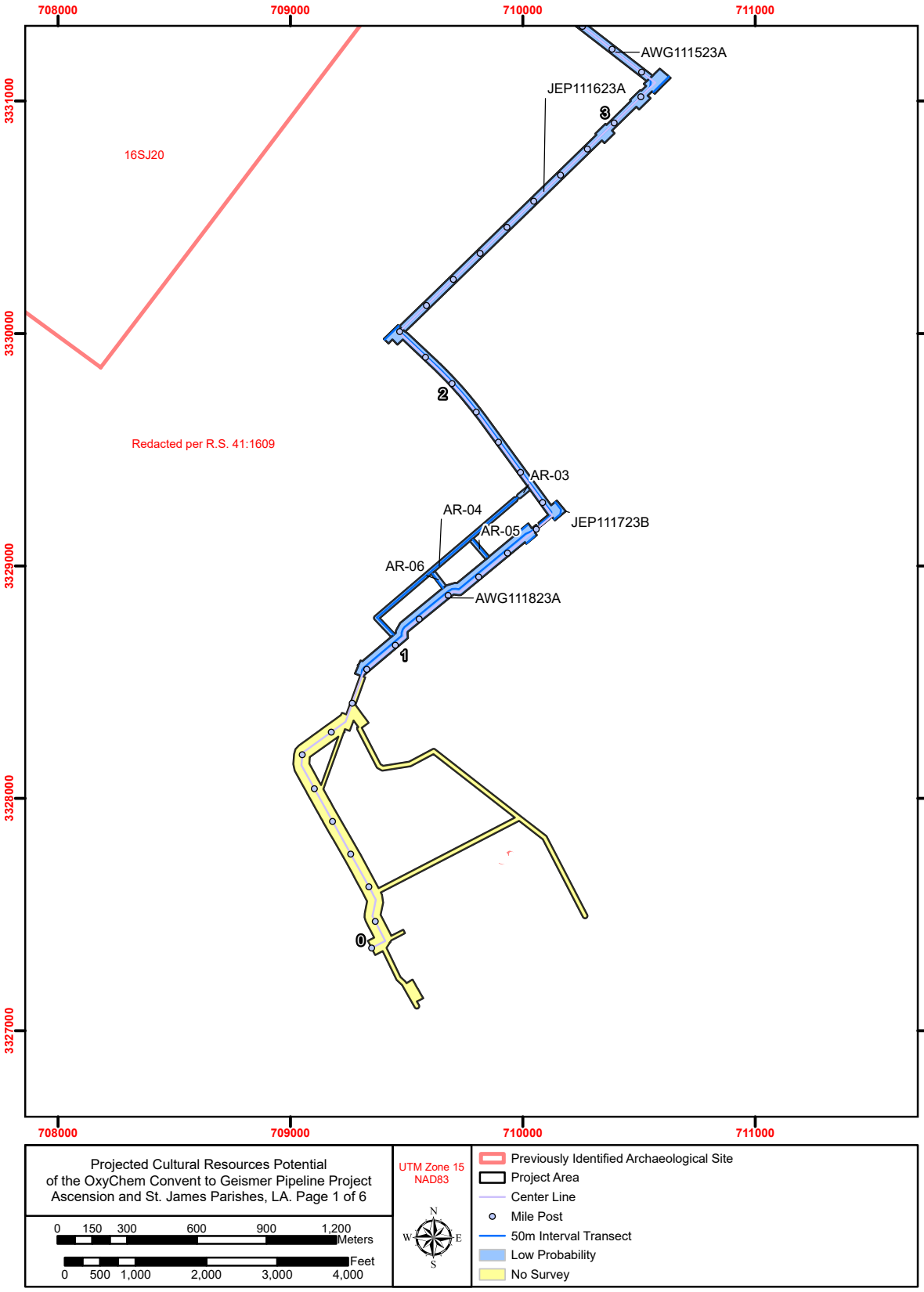

Figure 1.2 Sheet 1 **USGS quadrangle maps overlaid with the OxyChem Geismar to Convent Pipeline Project area in St. James and Ascension Parishes, Louisiana.**

Figure 1.2 Sheet 2 **USGS quadrangle maps overlaid with the OxyChem Geismar to Convent Pipeline Project area in St. James and Ascension Parishes, Louisiana.**

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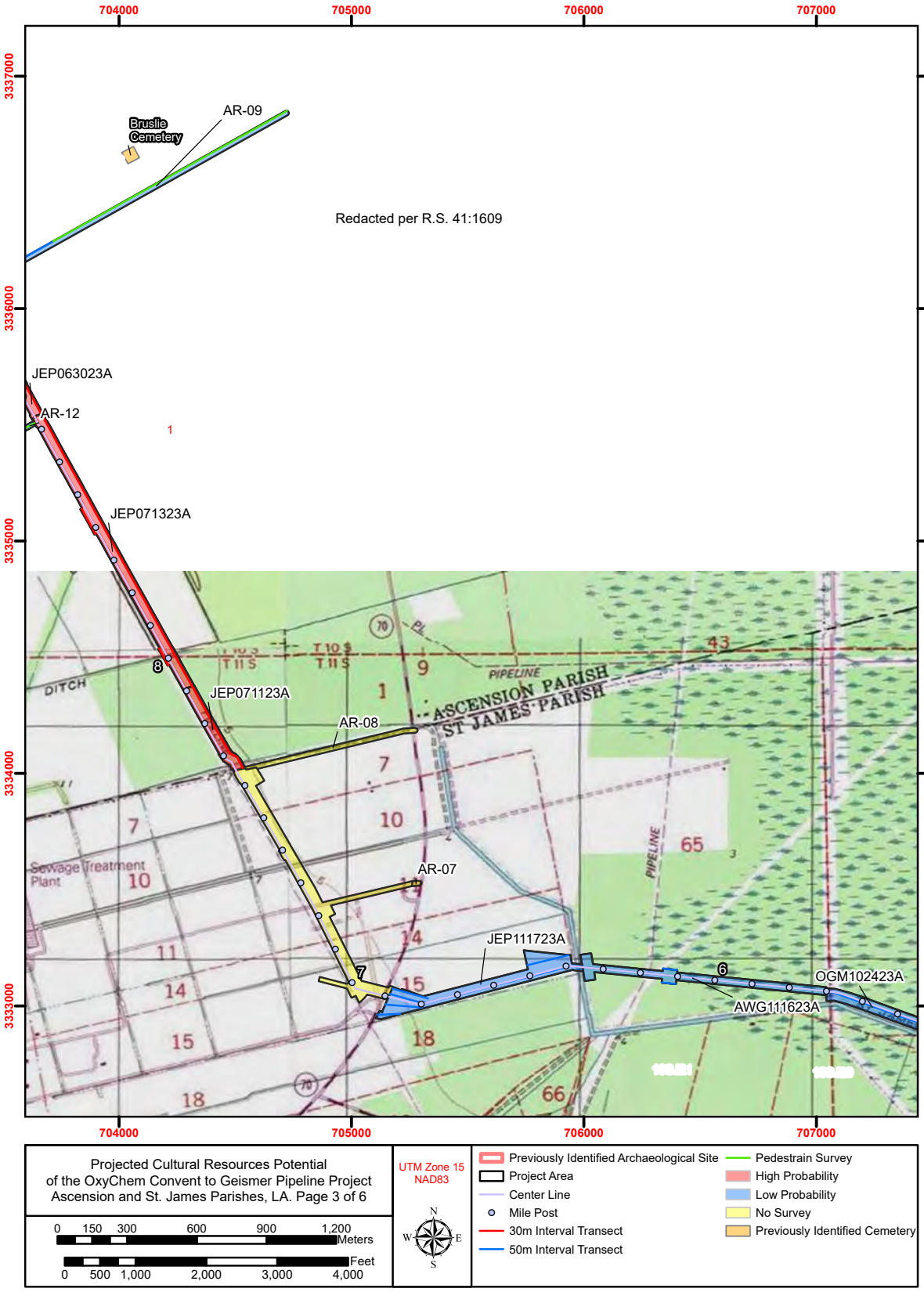

Figure 1.2 Sheet 3 **USGS quadrangle maps overlaid with the OxyChem Geismar to Convent Pipeline Project area in St. James and Ascension Parishes, Louisiana.**

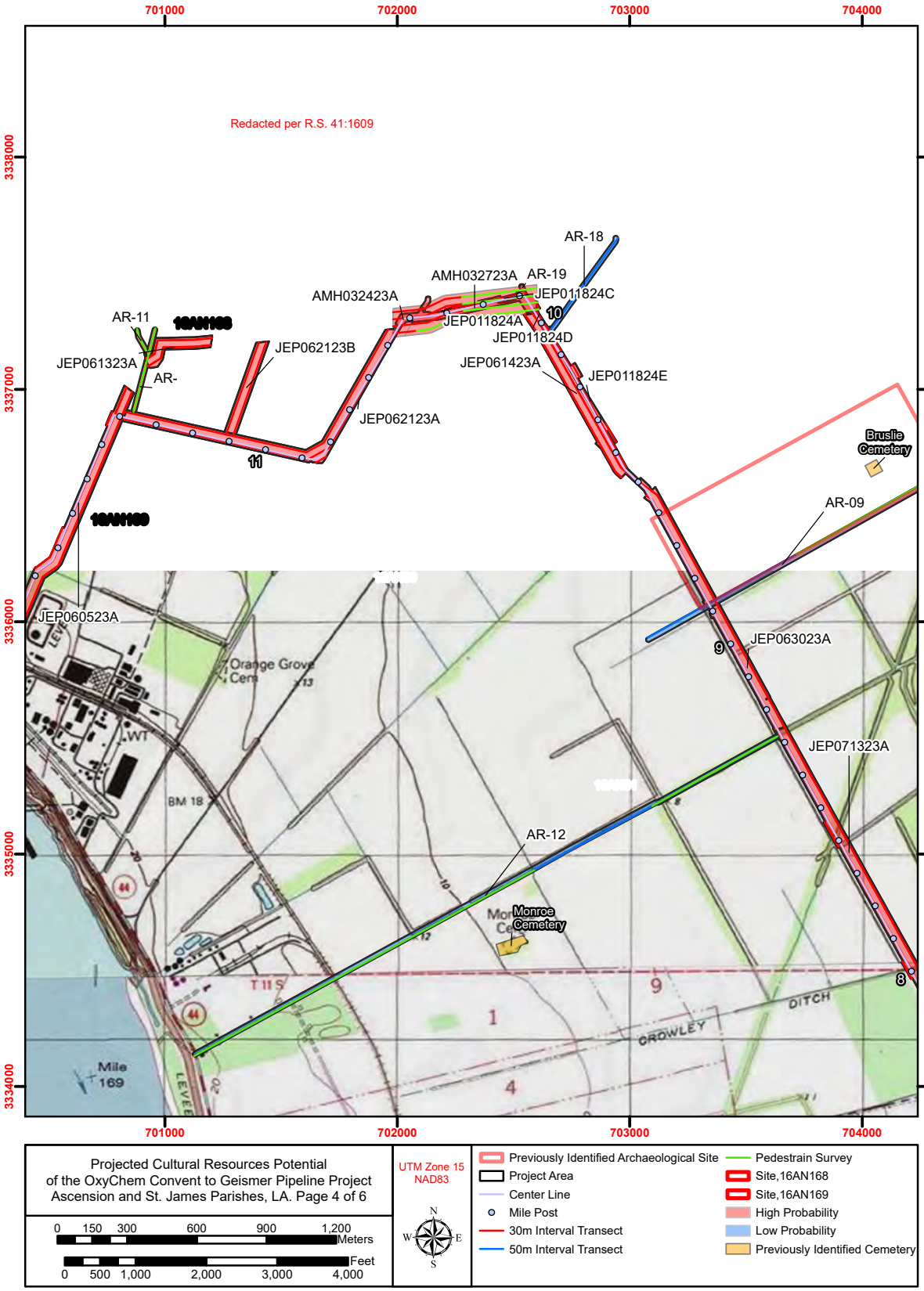

Figure 1.2 Sheet4 **USGS quadrangle maps overlaid with the OxyChem Geismar to Convent Pipeline Project area in St. James and Ascension Parishes, Louisiana.**

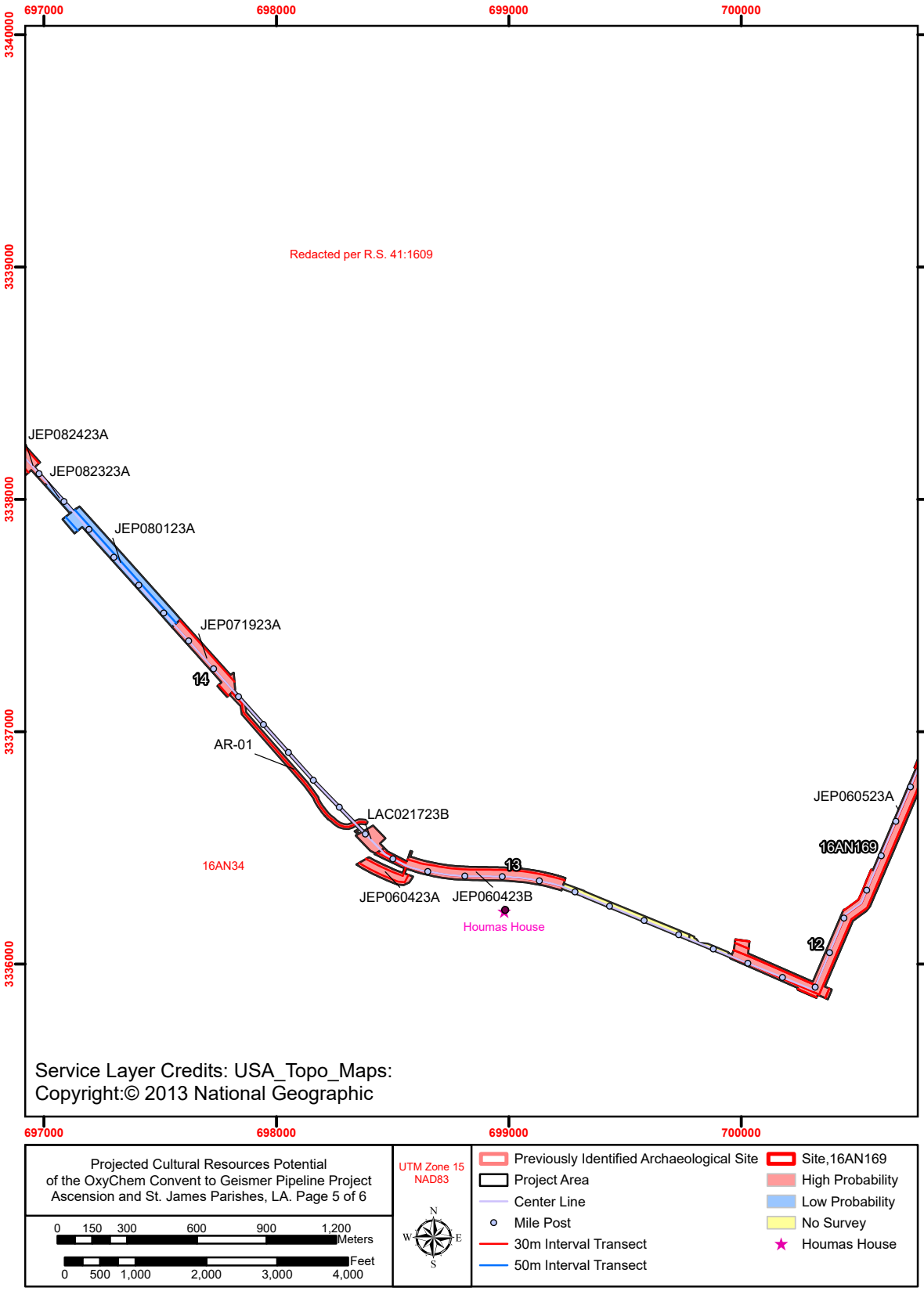

Figure 1.2 Sheet5 **USGS quadrangle maps overlaid with the OxyChem Geismar to Convent Pipeline Project area in St. James and Ascension Parishes, Louisiana.**

Figure 1.2 Sheet 6 **USGS quadrangle maps overlaid with the OxyChem Geismar to Convent Pipeline Project area in St. James and Ascension Parishes, Louisiana.**

ft) construction right-of-way (ROW) will be utilized for the pipeline construction within the pastures, herbaceous wetlands, and agriculture fields. Within forested wetlands the ROW will be reduced to 23 m (75 ft). Excavated material will be temporarily placed adjacent to the trench and used as backfill upon completion. HDD work sites will vary in size based upon the terrain and distance of the drill. HDD will be done at all highways and waterways, and at the entry point to the Geismar Plant.

OxyChem has made every effort to minimize adverse impacts to environmental, cultural and administratively sensitive features. The pipeline will be co-located with existing pipeline and power line corridors to the maximum extent practicable.

Definition of the Area of Potential Effects (APE)

The Area of Potential Effect (APE) is the "geographic area or areas where the proposed undertaking may directly or indirectly cause changes in the character of or use of historic properties, if any such properties exist" (36 C.F.R. § 800.16(d)). The APE for archaeological resources includes all areas where the ground may be disturbed. All construction activities will be within defined workspaces, and maximum depth of disturbance within open trenches will be approximately 2.1 m (7 ft), with greater depths of disturbance within horizontal directional drilling (HDD) entry and exit points. HDD will be used to cross waterbodies, highways, and in other locations where open cut trenching is not feasible. The pipeline ROW will be accessed *via* temporary access roads (TAR), in most cases following existing farm roads. Substandard roads may be improved by addition of gravel or matting. Once in the ROW, heavy equipment will remain in the permitted workspaces during construction activities.

Investigative Methodology and Summary Results

The field methods used for the cultural resources investigations consisted of intensive pedestrian survey and systematic shovel testing at 30 m (98.4 ft) or 50 m (164 ft) intervals throughout the project area. Locations that could not be investigated by subsurface testing due to the existence of gravel surfaces, ditches, buried utilities, or other obstructions were investigated by pedestrian survey only. A total of 164.9 ha (407.4 ac) of area was investigated and 1300 shovel tests were excavated as part of the field investigations. As a result of those efforts, two new archaeological sites were recorded (i.e., Sites 16AN168 and 16AN169), and three previously recorded sites were revisited (i.e., Sites 16AN31, 16AN32, 16AN89); furthermore, one previously recorded site within the Project ROW was not investigated because it will be avoided by HDD (Site 16AN60). Site 16AN169 is recommended as not eligible for listing on the NRHP, and no additional work is recommended. Site 16AN168 and the portion of Site 16AN89 identified within the Project ROW have not been evaluated and assessed applying the NRHP Criteria for Evaluation (36 CFR 60.4 [a-d]) and those areas will be avoided during construction. Additionally, although portions of Sites 16AN31 and 16AN32 have been evaluated and assessed applying the NRHP Criteria for Evaluation (36 CFR 60.4 [a-d]) and assessed as eligible for listing, no significant archaeological remains of either site were identified within the proposed project ROW, and no additional work is recommended.

Curation

Following the completion and acceptance of the final report, all records, photographs, and field notes will be curated with the State of Louisiana, Department of Culture, Recreation & Tourism, Office of Cultural Development, Division of Archaeology. The materials will be housed in the curation facility located at 1835 North River Road, Baton Rouge, Louisiana, 70802.

Project Personnel

Nathanael Heller, M.A., R.P.A., served as Project Manager and Principal Investigator, and supervised all aspects of the project. Jordan Pendel, B.A. led the field investigations and were assisted by Alexandra Cavignac, M.A., Leslie Clements, B.A., William Cronvich, B.A., Wynn Fisher, B.A., Aaron Greene, B.A., Alexis Kaminski, B.A., R.P.A., Macie Michalik, B.A.,

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Olivia Mosley, B.A., Audrey Nixon, M.A., Isabelle Pacquet, B.A., Frank Skewes, B.A., and Abigail Wright, B.A. This report was written by Mr. Heller, Emily Meaden Jeansonne, M.S., R.P.A., Ms. Cavignac, Susan Barrett Smith, B.A., Abigail Stone, M.A., R.P.A., and Peter A. Cropley, M.A., R.P.A. Tyler Leben, B.A., Elliott Clark, B.A., and Carys Caffarel, M.A. prepared the graphics presented herein and Heidi Post, B.A., produced this document.

Organization of the Report

Chapter II discusses the natural setting of the project area. This chapter provides a brief overview of the physiography, geomorphology, soils, and climatic characteristics of the area. Chapter III chronicles the history and development of the project area. Chapter IV reviews previously conducted cultural resources surveys, previously recorded archaeological sites, standing structures, and cemeteries in the vicinity of the proposed project area. Chapter V discusses the research design and the field and laboratory methodologies used to complete the Phase I cultural resources survey. Chapter VI discusses the results of this investigation, while Chapter VII summarizes those results and includes management recommendations. Finally, Appendix I is the Scope of Work (SOW) that guided the field investigations, Appendix II is a table of all cultural materials recovered during survey, while Appendix III lists all of the shovel tests dug within the Project APE.

Chapter II
Natural Setting

The landforms within the region encompassing the proposed OxyChem Geismar to Convent Pipeline Project installation in Ascension and St. James Parishes, Louisiana were created and influenced by a number of factors that can vary widely across short distances (Figures 1.1 and 1.2). The associated natural habitats and ecological features affected both prehistoric and historic settlement across the landscape, the subsistence strategies of the people occupying the area, as well as their adaptation to an ever-changing environment. For example, fewer archeological sites, particularly habitation sites, are found in low-lying swamps or marshes that are inundated for most of the year; archeological sites located in this environment generally are short-term seasonal camps related to food procurement and processing. Prehistoric and/or historic period populations settled in specific geographical niches and researchers have suggested that the local trends of larger cultural traditions often result in an adaptation to a particular ecological area (Jenkins and Krause 1986:18). A systematic understanding of the natural setting, therefore, is a useful aid both for predicting archeological site locations and for understanding settlement patterning. In addition, it may provide insight into the possible functions, chronologies, and cultural affinities of any sites identified during survey.

The physiography of an area is influenced by the geologic units common to the region and it is shaped by a number of interrelated variables. Distinct physiographic areas may exist in close proximity to one another, with each offering a variety of unique, exploitable resources to populations living within the area. Certainly, past populations would have been familiar with the resource variation that existed between regions, and they may have tailored their settlement and subsistence strategies to exploit particular aspects of southeastern Louisiana physiography and geological features. The physiographic features, geomorphologic characteristics, and soils common to the project area are discussed below; in addition, a description of the climate typical to the region is presented.

Project Area

The proposed project APE extends from OxyChem's Convent Plant in St. James Parish to its Geismar Plant in Ascension Parish, Louisiana (Figures 1.1 and 1.2). Historically, this has been an agricultural region, with most of the Project Area situated within active sugarcane fields that formerly were part of antebellum plantations. Factors such as local geomorphology, soils, and climate influenced which locations the prehistoric and historic inhabitants of the region chose to settle, the way they put the land to use, and the preservation of cultural remains they left behind. This chapter will examine these factors as they relate to the proposed project APE.

Natural Setting

Landforms and their corresponding natural habitats and ecological features are created by a number of interrelated factors that can vary greatly across small distances. Even minute differences between landscapes have affected where many past populations – who were certainly familiar with the resource variation that existed between regions – chose to live and what they chose to subside on. As populations become more sedentary and expand, traditions rooted in ancestral practices are often carried into new environments; thus, local trends adapted for a particular ecological area can become emblematic of larger cultural traditions (Jenkins and Krause 1986:18). A systematic understanding of the environment surrounding an archaeological site is therefore a useful aid in understanding how cultural tradi-

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tions developed, predicting site locations, and understanding settlement patterning.

Physiography

The OxyChem Project area is located within Ascension and St. James Parishes, Louisiana (Figures 1.1 and 1.2). This parish is situated within the Gulf Coastal Plain Physiographic Province of North America, which extends from western Florida to northeastern Mexico (Fenneman 1938). The Gulf Coastal Plain is comprised of three topographic provinces: rolling uplands, terrace uplands, and alluvial valley (or alluvial floodplain). The Gulf Coastal Plain was formed through gradual progradation of continental sediments deposited in the Gulf of Mexico Basin by the ancestral Mississippi River (Shepard et al. 1960). Unconsolidated sand, gravel, clay, silt, marl, and limestone of marine and non-marine origin underlie the Gulf Coastal Plain, which slopes southward an average of 0.5 feet per mile (United States Army Corps of Engineers 1981:8). The entire project area falls within the terrace uplands and alluvial valley portions of the Gulf Coastal Plain.

The project is situated within a single ecoregion: the Southern Holocene Meander Belts (Daigle et al. 2006). The Southern Holocene Meander Belts ecoregion, which consists of abandoned or active meander channels of the Mississippi River, extends from New Orleans, Louisiana, to Natchez, Mississippi. The floodplain is characterized by a number of natural levees, point bars, meander scars and oxbow lakes (Daigle et al. 2006). The key factor defining this distinct ecoregion is its location relative to the Mississippi River alluvial valley. Ascension Parish largely is defined as a low-lying riverine environment. For the last five thousand years, deltaic processes have reshaped and reworked the biological and physical environment of this portion of the state. The dynamic nature of the Mississippi River deltaic plain and other related facets of the natural environment have influenced both prehistoric and historic settlement throughout the region and determined whether the archeological deposits associated with these settlements were preserved (buried by sediment) or destroyed (eroded away).

Geomorphology

The physiography of an area is influenced by the geologic units common to the region and it is shaped by a number of interrelated variables. Distinct physiographic areas may exist in close proximity to one another, with each offering a variety of unique, exploitable resources to populations living within the area. The dissimilarities between physiographic regions are sometimes so striking that one intuitively recognizes such transitions, without having to understand the dynamic variables involved with the formation of an area. Certainly, past populations would have been familiar with the resource variation that existed between regions, and they may have tailored their settlement and subsistence strategies to exploit particular aspects of southern Louisiana physiography and the associated flora, fauna, and geological features.

The project area is situated within St. James Parish and Ascension Parish, both of which lie within the Mississippi Alluvial Plain Section of the Coastal Plains Physiographic Province of North America (Saucier 1994). The Mississippi deltaic plain is a composite geomorphic surface that consists of a series of coalesced delta plains. The surface morphology of each deltaic plain is dominated by an extensive network of distributaries that radiates out gulfward either from an abandoned or active Mississippi River course into its corresponding plain. Each of these distributary networks is separated by a series of connecting interdistributary lakes and ponds. The five delta complexes that comprise the modern Mississippi deltaic plain are the (1) Maringouin, (2) Teche, (3) St. Bernard, (4) Lafourche, and (5) Plaquemines delta complexes. Each of these complexes represents a major delta-building event that occurred at a frequency of one every 1,000 to 2,000 years. These delta complexes either lie on the surface of the former glacial coastal plain of prehistoric Louisiana or on older delta complexes constructed when sea level was lower, i.e., during the Pleistocene and Early Holocene (Coleman et al. 1966).

Each of these delta complexes consist of individual delta lobes. Each delta lobe is composed of smaller deltaic plains built by one of a number of major distributaries branching from the single

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Mississippi River course that fed the delta complex. Like the delta complexes, the amount of water and sediment that a delta lobe received from the Mississippi River varied greatly throughout the life of the complex. Thus, within the life of a delta complex, the times at which the different delta lobes comprising it were active varied considerably (Saucier 1994).

The current Project Area is located within the Lafourche delta complex, which formed between 2,500 and 500 years B.P. The Lafourche complex overlies remnants of older complexes and lobes that are buried at shallow depths and have very subtle surface manifestations. In the Project Area vicinity, natural levee ridges flanking abandoned distributaries constitute the only permanently habitable and arable lands. They decrease in total width from the northern part of the Project Area to the southern part and also decrease in elevation (NGVD) from the north to the south (Saucier 1994).

Soils

Within the vicinity of the APE, the fertile soils of the Mississippi River delta are suitable for agricultural purposes; historically, these areas have been used for farming. Today, much of this land is still under cultivation, particularly for growing sugar cane and soy beans. Additionally, there also are many industrial facilities associated with petroleum refinement as well as chemical or petrochemical production and processing adjacent to the Mississippi River.

Soils within the project area are classified on a general soils map by units that have distinctive patterns of drainage, relief, and soil composition. These units are based on the perceived relationships that exist between the soils and identified hydrologic conditions that might affect the land use associated with each particular unit. Several soil associations are found within the project area; the associations for the proposed project area are listed and summarized in Table 2.1 and depicted in Figure 2.1. The Web Soil Survey website maintained by the Natural Resources Conservation Service for Ascension Parish (Web Soil Survey 2024) was consulted. Soils mapped within the Project area include Barbary muck (BA), Carville silt loam, 0 to 2 percent slopes (CvA), Commerce silt loam, 0 to 1 percent slopes (Cm), Commerce silty clay loam (Co), Convent silt loam, 0 to 1 percent slopes (Cs), Essen silt loam, 0 to 1 percent (Es), Gramercy silty clay loam, 0 to 2 percent slopes (GrA), Schriever clay, 0 to 1 percent slopes, rarely flooded (SkA, Sn), Schriever clay, 0 to 1 percent slopes, frequently flooded (Sm, Sj), Schriever silty clay loam, 0 to 1 percent slopes, rarely flooded (Ss), Thibaut clay, 0 to 3 percent slopes (Tu), Urban Land (UL), and Vacherie silt loam, 0 to 3 percent slopes (VhA).

Barbary Series (BA)

Barbary series soils consist of very poorly drained soils that formed in recent, slightly fluid to very fluid clayey sediments that are continuously flooded and saturated (Web Soil Survey 2024). This series is generally situated at low, broad, and ponded backswamps within the Mississippi River Alluvial Plain. Slope is described as less that 1 percent. Barbary soils are continuously saturated and often situated below 30 cm (12 in) of water. Areas containing this soil series are not suitable for agriculture and often utilized woodland and wildlife habitat. Vegetation within areas containing Barbary muck includes baldcypress, water tupelo, and swamp maple.

Carville Series (CvA)

Carville Series soils are somewhat poorly drained, moderately permeable sandy loam situated along nearly level to very gently sloping (0 to 2 percent) natural levees along the Mississippi River and associated distributaries (Web Soil Survey 2024). This series formed in recent loamy alluvial deposits and most areas containing these soils generally are protected from flooding by levee infrastructure. Carville series soils are saturated below depths of 30 to 76 cm (12 to 30 in) during the period from December to June. Most areas where this soil series is mapped has been cleared and used for sugarcane cultivation, along with grains, soybeans, corn, and hay, while some has been utilized for pasture. Vegetation within forested areas that contain these soils consists of oaks, cottonwoods, hickories, and sweetgum. The understory is typically comprised of vines and cane plants.

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Table 2.1 USGS soils recorded within the OxyChem Geismar to Convent Pipeline project area.

Soil Type	Class	Landform	Taxonomic Class	Parent Material	Slope	Drainage	Depth to Water Table
Barbary (BA)	Muck	low, broad, ponded backswamps	very-fine, smectitic, nonacid, hyperthermic Typic Hydraquents	recent, slightly fluid to very fluid clayey sediments	< 1 percent	very poorly drained	0 to 6 in (0 to 15.2 cm)
Carville (CvA)	Silt loam	high and intermediate positions on natural levees and deltaic fans	coarse-silty, mixed, superactive, calcareous, hyperthermic Fluventic Endoaquepts	silty alluvium	0 to 2 percent	somewhat poorly drained	12 to 30 in (30.5 to 76.2 cm)
Commerce (Cm; Co)	Silt loam	alluvial plains	fine-silty, mixed, superactive, nonacid, thermic Fluvaquentic Endoaquepts	loamy alluvial sediments	< 1 to 5 percent	very poorly drained	18 to 48 in (45.7 to 122 cm)
Convent (Cs)	Silt loam	natural levees	coarse-silty, mixed, superactive, nonacid, thermic Fluvaquentic Endoaquepts	loamy alluvium from river deposits	0 to 3 percent	somewhat poorly drained	18 to 48 in (45.7 to 122 cm)
Essen (Es)	Silt loam	low stream terraces	fine-silty, mixed, superactive, thermic Aeric Epiaqualfs	silty sediments of Pleistocene age	0 to 2 percent	somewhat poorly drained	17 to 36 in (43 to 91 cm)
Gramercy (GrA)	Silty Clay Loam	alluvial flats and lower parts of natural levees	fine, smectitic, hyperthermic Chromic Epiaquerts	clayey over fine-silty alluvium	0 to 2 percent	poorly drained	no data
Schriever (Sj, SkA, Sm, Sn, Ss)	Silty Clay Loam, Clay	lower portions of natural levees, backswamps	very-fine, smectitic, hyperthermic Chromic Epiaquerts	clayey alluvium	0 to 3 percent	poorly drained	0 to 24 in (0 to 61.0 cm)
Thibaut (Tu)	Clay	alluvial flats and lower parts of natural levees	clayey over loamy, smectitic over mixed, superactive, nonacid, hyperthermic Vertic Epiaquepts	clayey alluvium over fine-silty alluvium	0 to 3 percent	poorly drained	no data
Vacherie (VhA)	Silt loam	flood plains of the Mississippi River	coarse-silty over clayey, mixed over smectitic, superactive, nonacid, thermic Aeric Fluvaquents	recent silty and clayey alluvium	0 to 3 percent	somewhat poorly drained	no data
Man-made Soils							
Urban Land (85% or more built environment)							

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Figure 2.1 Sheet 1 **Aerial image of the OxyChem Geismar to Convent Pipeline Project area, overlaid with USGS soil series data.**

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Figure 2.1 Sheet 2 **Aerial image of the OxyChem Geismar to Convent Pipeline Project area, overlaid with USGS soil series data.**

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Figure 2.1 Sheet 3 **Aerial image of the OxyChem Geismar to Convent Pipeline Project area, overlaid with USGS soil series data.**

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Figure 2.1 Sheet 4 **Aerial image of the OxyChem Geismar to Convent Pipeline Project area, overlaid with USGS soil series data.**

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Figure 2.1 Sheet 5 **Aerial image of the OxyChem Geismar to Convent Pipeline Project area, overlaid with USGS soil series data.**

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Figure 2.1 Sheet 6 **Aerial image of the OxyChem Geismar to Convent Pipeline Project area, overlaid with USGS soil series data.**

Figure 2.1 Sheet 7 **Aerial image of the OxyChem Geismar to Convent Pipeline Project area, overlaid with USGS soil series data.**

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Figure 2.1 Sheet 8 **Aerial image of the OxyChem Geismar to Convent Pipeline Project area, overlaid with USGS soil series data.**

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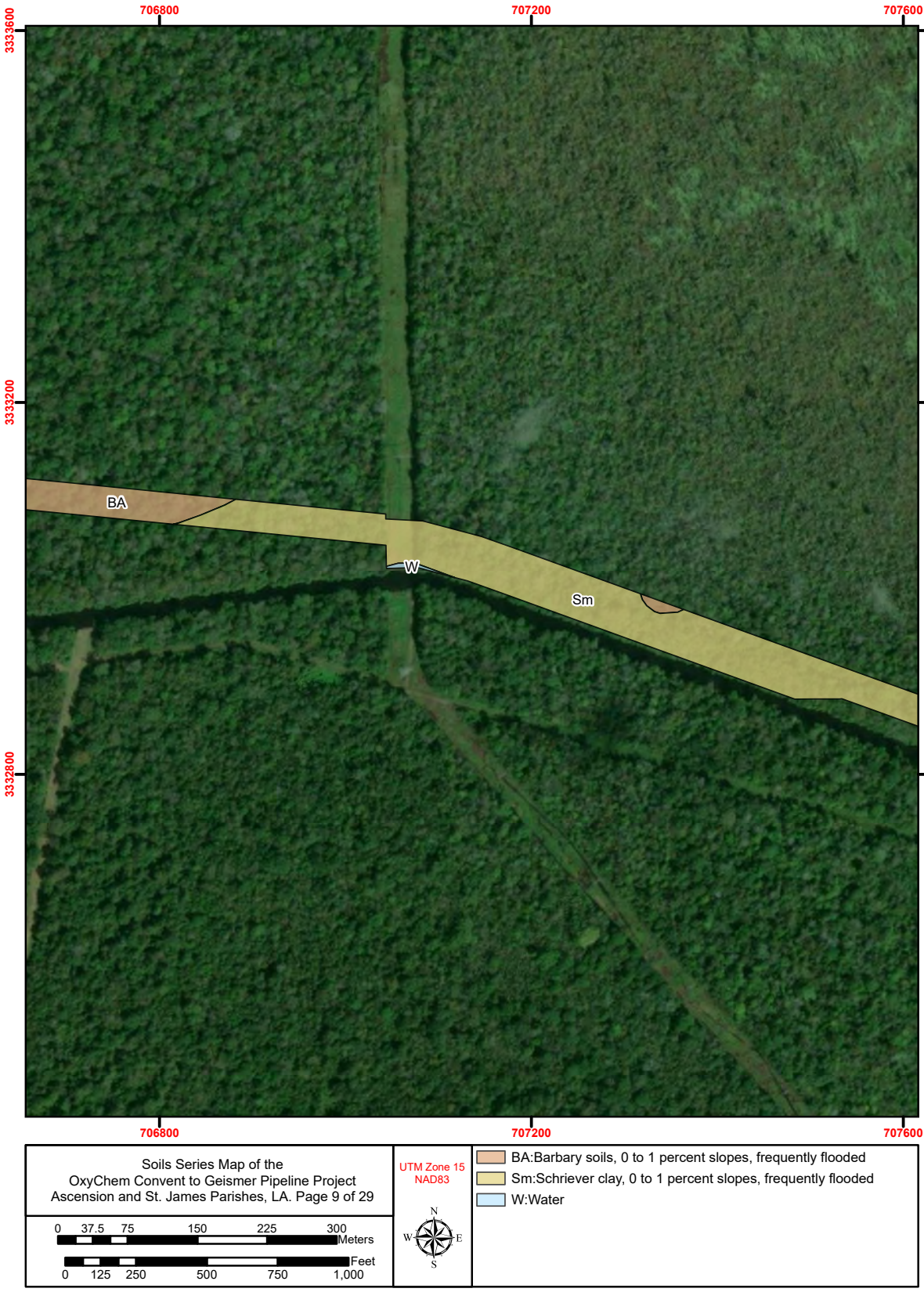

Figure 2.1 Sheet 9 **Aerial image of the OxyChem Geismar to Convent Pipeline Project area, overlaid with USGS soil series data.**

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Figure 2.1 Sheet 10 **Aerial image of the OxyChem Geismar to Convent Pipeline Project area, overlaid with USGS soil series data.**

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Figure 2.1 Sheet 11 **Aerial image of the OxyChem Geismar to Convent Pipeline Project area, overlaid with USGS soil series data.**

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Figure 2.1 Sheet 12 **Aerial image of the OxyChem Geismar to Convent Pipeline Project area, overlaid with USGS soil series data.**

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Figure 2.1 Sheet 13 **Aerial image of the OxyChem Geismar to Convent Pipeline Project area, overlaid with USGS soil series data.**

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Figure 2.1 Sheet 14 **Aerial image of the OxyChem Geismar to Convent Pipeline Project area, overlaid with USGS soil series data.**

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Figure 2.1 Sheet 15 **Aerial image of the OxyChem Geismar to Convent Pipeline Project area, overlaid with USGS soil series data.**

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Figure 2.1 Sheet 16 **Aerial image of the OxyChem Geismar to Convent Pipeline Project area, overlaid with USGS soil series data.**

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Figure 2.1 Sheet 17 **Aerial image of the OxyChem Geismar to Convent Pipeline Project area, overlaid with USGS soil series data.**

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Figure 2.1 Sheet 18 **Aerial image of the OxyChem Geismar to Convent Pipeline Project area, overlaid with USGS soil series data.**

Figure 2.1 Sheet 19 **Aerial image of the OxyChem Geismar to Convent Pipeline Project area, overlaid with USGS soil series data.**

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Figure 2.1 Sheet 20 **Aerial image of the OxyChem Geismar to Convent Pipeline Project area, overlaid with USGS soil series data.**

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Figure 2.1 Sheet 21 **Aerial image of the OxyChem Geismar to Convent Pipeline Project area, overlaid with USGS soil series data.**

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Figure 2.1 Sheet 22 **Aerial image of the OxyChem Geismar to Convent Pipeline Project area, overlaid with USGS soil series data.**

Figure 2.1 Sheet 23 **Aerial image of the OxyChem Geismar to Convent Pipeline Project area, overlaid with USGS soil series data.**

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Figure 2.1 Sheet 24 **Aerial image of the OxyChem Geismar to Convent Pipeline Project area, overlaid with USGS soil series data.**

Figure 2.1 Sheet 25 **Aerial image of the OxyChem Geismar to Convent Pipeline Project area, overlaid with USGS soil series data.**

Figure 2.1 Sheet 26 **Aerial image of the OxyChem Geismar to Convent Pipeline Project area, overlaid with USGS soil series data.**

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Figure 2.1 Sheet 27 **Aerial image of the OxyChem Geismar to Convent Pipeline Project area, overlaid with USGS soil series data.**

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Figure 2.1 Sheet 28 **Aerial image of the OxyChem Geismar to Convent Pipeline Project area, overlaid with USGS soil series data.**

Figure 2.1 Sheet 29 **Aerial image of the OxyChem Geismar to Convent Pipeline Project area, overlaid with USGS soil series data.**

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Commerce Series (Cm, Co)

Commerce series soils are somewhat poorly drained soils that formed in the loamy alluvial plains sediments found along the Mississippi River and its tributaries. They typically are situated on convex surfaces of natural levees where the slope is less than 1%. Given the location of the Commerce series between the Mississippi River and its distributaries' natural levees, the soil series is exposed to frequent flooding. As a result, wetness is the main limitation in terms of utilization and often is mitigated with the installation of surface draining systems. The soil series has excellent cropland potential due to its naturally high fertility and loamy texture. Sugarcane is the primary crop cultivated on this soil series in the project region, although the series also is utilized for cotton, soybean, corn, wheat, and hay cultivation (Web Soil Survey 2024).

Convent Series (Cs)

Convent series soils are somewhat poorly drained soils that formed from recent loamy alluvium. These soils are found on nearly level to gently sloping natural (0 to 3 percent) levee positions on flood plains along the Mississippi River and its distributaries (Web Soil Survey 2024). Most areas that contain Convent soils are situated within the protection of the Mississippi River Levee System. The soils are of moderate permeability and are typically saturated from December to June each year. Flooding is variable and dependent on precipitation levels and ranges from no flooding to common in occurrence. As a result, wetness is the main limitation in terms of utilization and often is mitigated with the installation of surface draining systems. Sugarcane is the primary crop cultivated, although the soil is also used for planting soybeans, cotton, small grains, hay, and corn are also cultivated (Web Soil Survey 2024).

Essen Series (Es)

Essen series soils are a deep, somewhat poorly drained soils that do not frequently flood. These soils formed in silty sediments of Pleistocene age and along nearly level stream terraces at low elevations. The soils are moderately slowly permeable and a water table at depths of 45 to 91 cm (17.7 to 35.8 in) is apparent from December to April each year. Essen soils have many characteristics of loess and are typically used for cropland or pasture. Typical crops grown in this soil series include sugarcane, rice, soybeans, wheat, and grain (Web Soil Survey 2024).

Gramercy Series (GrA)

The Gramercy series soils formed in clayey over fine-silty alluvium soils that are poorly drained and very slowly permeable. Gramercy soils typically are situated along level landforms where slopes range between 0.5 and 3 percent. These soils are distributed on the alluvial flats adjacent to the natural levees on the Mississippi River and its distributaries' alluvial plains (Web Soil Survey 2024).

Schriever Series (Sj, SkA, Sm, Sn, Ss)

Schriever series soils consist of poorly drained, very slowly permeable clayey soils that formed in clayey alluvium. These soils typically are situated along the lower margins of natural levees and in backswamps along the lower Mississippi River alluvial plain. Schriever series soils are located along landforms characterized as nearly level, where the slope ranges from 0 to 3 percent. In some cases, the soils are located along slopes that are short and occur as undulating parallel ridges and swales (Web Soil Survey 2024).

Thibaut Series (Tu)

The Thibaut series is associated with the alluvial flats and lower portions of the natural levees of the Mississippi River's alluvial plains and distributaries. Soils in this series are poorly drained with very slow permeability. Thibaut soils are typically formed within fine-silty alluvium beneath clayey alluvium. These soils are situated along landforms exhibiting slopes of up to 3 percent (Web Soil Survey 2024). The majority of areas where Thibaut series soils are the primary soil constituents are utilized for crop production (e.g., sugarcane, soybeans, cotton, small grains, hay, corn) and pasturage.

Vacherie Series (VhA)

The Vacherie series includes deep, very slowly permeable soils formed in clayey and silty alluvium along the Mississippi River floodplains.

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These somewhat poorly drained, silty loam soils are found in level to gently undulating deposits where slopes range from 0 to 3 percent. Vacherie soils are largely exploited for agriculture, especially the cultivation of cotton, sugarcane, corn, and soybeans (Web Soil Survey 2024).

Climate

The climate of Ascension and St. James Parishes is subtropical and warm with frequent precipitation. Precipitation annually ranges from 56–64 inches (Daigle et al. 2006). The average temperatures in the cold months of winter rarely fall below 40 degrees Fahrenheit, and the warm months of summer average 70 degrees Fahrenheit to the low 90 degrees Fahrenheit. Winter temperatures rarely dip below freezing and 240–300 days typically are frost free.

Summary

Much of the landscape characteristic of St. James and Ascension Parishes has only recently developed in the past 2,500 years. The Mississippi River, flowing just west of the project area, has played a fundamental role in the formation of the environment. The natural levees surrounding the river provided high, fertile points for inhabitants to grow crops upon, and the subtropical environment leads to an extended growing season. As was the case in recent history, agriculture is still the cornerstone of the regional economy, with much of the project area under intensive sugar cane cultivation during the current cultural resource investigations.

Chapter III
Historical Overview through Cartographic Review and Land Tenure History

Cartographic Review

The current project corridor follows a route that extends through numerous sections in Township 10S, Ranges 2E-3E, and Township 11S, Ranges 3E-4E, in east bank Ascension and St. James Parishes. The study path threads through properties that once formed parts of multiple historical plantations. Archeological sites have been identified on or near several of these properties, including Conway and Orange Grove Plantations. Brief historical overviews of those two plantations will be presented following this cartographic review.

Cartographic research was undertaken in order to aid in the identification of high probability areas located along the current project corridor. This map review also has been utilized to draw conjectures regarding the general land use history of the study region. Numerous maps were researched, supplemented by selected documents that referenced habitation and cultivation of the land tracts encompassing the project corridor. Many of the researched maps depicted the project vicinity, but gave no information regarding settlement or land use. For the purpose of this study, then, a summary of only the positive historical map results has been presented.

Early maps indicate that Native Americans might have constituted the only population in the immediate project vicinity until the late eighteenth century. During the mid to late 1760s, Acadians began arriving along the banks of the Mississippi River, settling in present-day Ascension and St. James Parishes – a region that came to be called the Acadian Coast. Within a decade, the study area riverfront was lined with "Acadian Settlements" along both sides of the Mississippi River (Figure 3.1) (Bellin 1764; Brasseaux 1987; D'Anville 1752; Lafon 1806; Le Page du Pratz ca. 1735; Ross 1772).

The Great "Houmas" village, which included members of the indigenous Bayou Goula group who had melded into the Houmas/Houma identity during the early eighteenth century, was located only a short distance from the current project corridor (Figure 3.2). In October 1774, the chief of the Houma and Bayou Goula sold an enormous land tract opposite Point Houmas in present-day Ascension Parish to Maurice Conway and Alexander Latil for goods valued at $150.00. Referenced as the Houmas Land Claim or the Houmas Grant, this vast tract measured 96 arpents along the east bank of the Mississippi River by a depth of 40 arpents. By early September 1776, Latil had conveyed his interest in the property to Conway, who then petitioned the Spanish colonial governor for the backlands adjoining the original land tract. Maurice Conway stated "that he was about to settle on the lands … and that as the grant extended only forty arpents [in depth], he could not have access to [the distant cypress trees] to obtain timber for his fences, and other uses of his plantation" (Williams 1886:323). On June 21, 1777, Governor Bernardo de Galvez granted Conway "all the vacant land lying behind and in the rear of the first forty arpents" of the original Conway and Latil acquisition (Williams 1886:323). As described in the confirmed claim records, the Conway property extended away from the river far beyond both the usual 40-arpent depth and the 80-arpent depth allowed with a second concession, reaching Lake Maurepas, per various accounts. This vague and seemingly endless back depth was the basis for

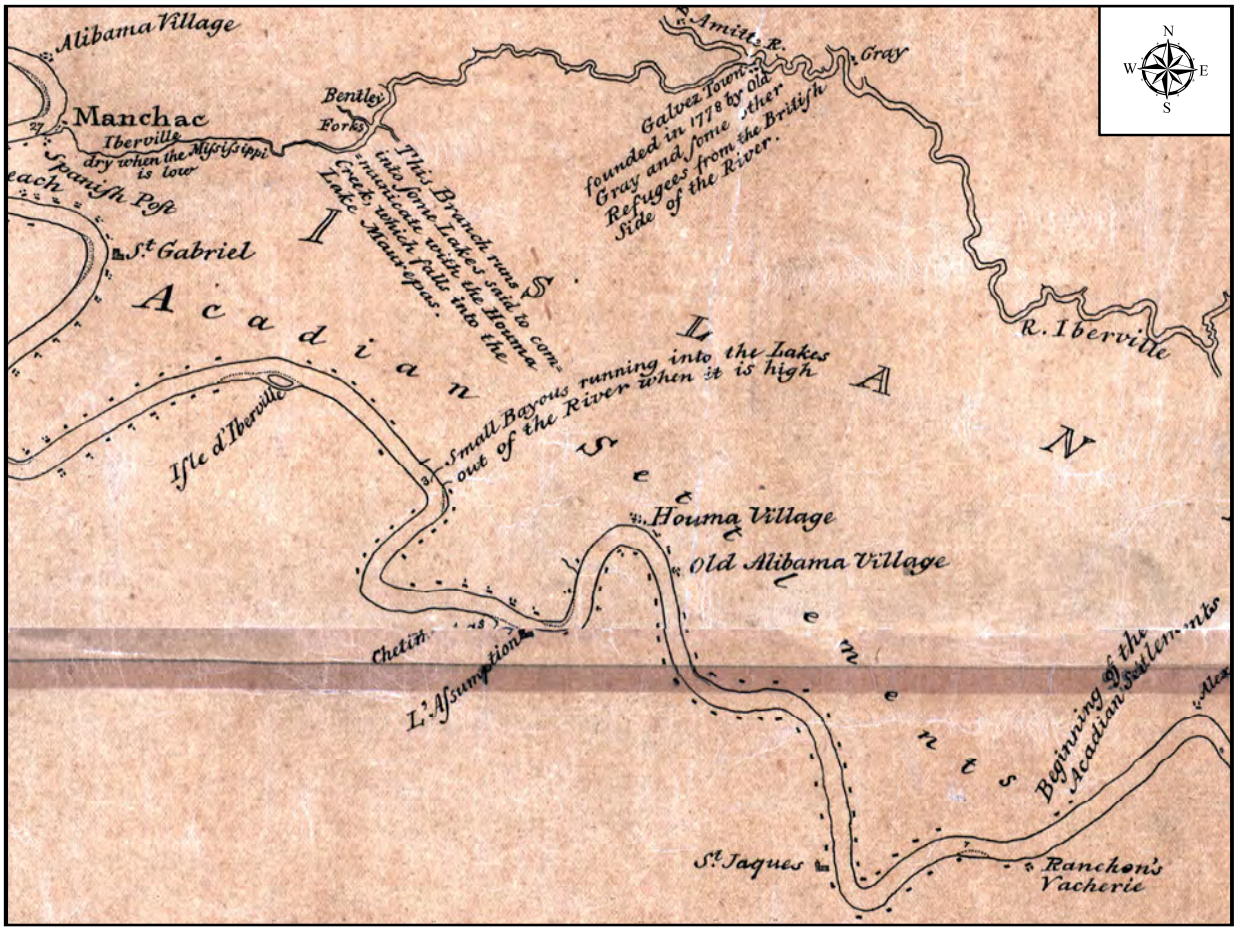

Figure 3.1 **[1778] Excerpt from Gauld's *A Plan of the Coast of Part of West Florida & Louisiana; including the River Mississippi from its entrances as high up as the River Yazous*, in reference to the project region. Map excerpt depicts "Acadian Settlements" and Native American villages in the district.**

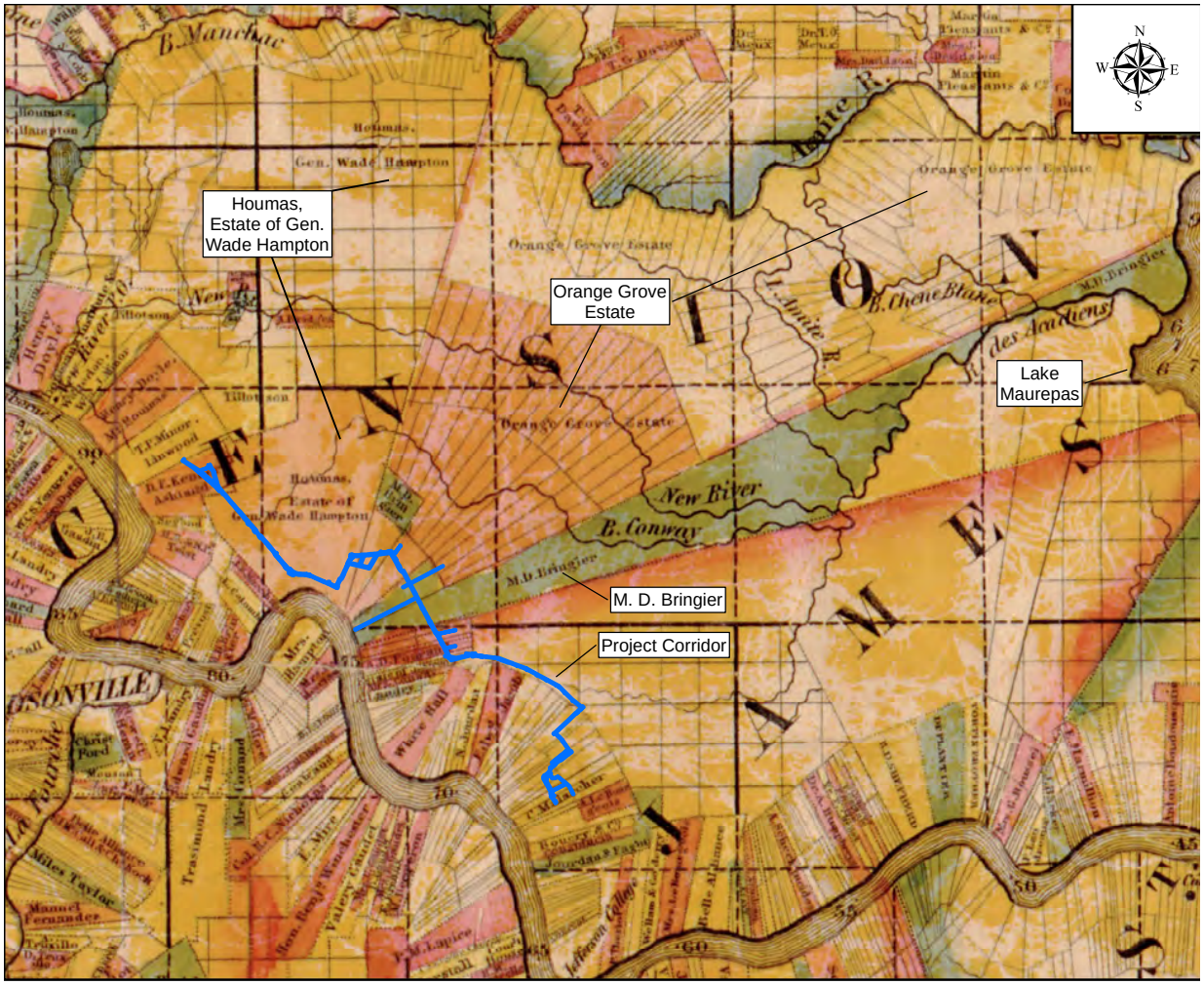

Figure 3.2 **[1853] Excerpt from *La Tourrette's Reference Map of the State of Louisiana*, in reference to the current project corridor. Map excerpt depicts the expanse of the Houmas Land Claim, which reportedly extended from the Mississippi River to Bayou Manchac, the Amite River, and Lake Maurepas – a vast land tract that comprised multiple plantations, including the Estate of Gen. Wade Hampton, the Orange Grove Estate, and the M. D. Bringier property, which once encompassed portions of the current project corridor. Note: the same area information appears on the 1848 edition of this map.**

the ongoing conflict and litigation over the legality of the Houmas Land Claim, which included large land tracts conveyed to William Conway (Maurice Conway's nephew), Daniel Clark, and partners William Donaldson and John W. Scott – Claim Nos. 125, 127, and 133, respectively (Figure 3.2) (Howell et al. 2023:12-14; Lowrie 1834:2:287; Waddill 1937).

When mapped by U.S. surveyors ca. 1829-1834, all three claims – Donaldson & Scott, Clark, and Conway – encompassed portions of the current project corridor. After the litigation was settled during the late nineteenth century, the project townships were resurveyed during 1881-1891, and only the following project sections – Section 82, Township 10S, Range 2E; Sections 6, 7, and 9, Township 10S, Range 3E; and Section 1, Township 11S, Range 3E – fell within the vastly reduced Houmas Land Claim. According to the township plat notations, in combination with the U.S. Tract Books and the *American State Papers*, several other project sections were acquired as private claims during the Spanish colonial period, although some weren't confirmed until the early to mid-twentieth century. A number of other project sections were purchased and patented during the 1820s-1850s as backland extensions to riverfront plantations (Bureau of

Land Management 2023; Louisiana State Land Office 1830-1904, n.d.:51:36-41, 69-73, 81-87, 51A:111-117; Lowrie 1834:2:233, 251-252, 254, 287; 3:520; Waddill 1937).

Maps published during the antebellum period depicted riverfront plantations and a few scattered settlements in the study region. Ascension and St. James were among the original Louisiana parishes, and both government centers were established along the west bank of the Mississippi River (the St. James Parish seat later moved to Convent on the east bank). Although located across the river from the properties situated along the current project corridor, Donaldsonville, the Ascension Parish seat, was accessible by ferry, and would have been the population center positioned closest to the plantations in the study reach (Figure 3.3) (Bayley 1853; Burr 1839; Greenleaf 1848; La Tourrette 1848, 1853; Lucas 1817; MAPofUS.org 2023; Melish 1820; Tanner 1851).

During the early to mid-nineteenth century, navigable waterways constituted the primary means of transportation throughout the project region, with waterfront landings and ferries established to accommodate travelers and deliveries; however, a few primary roads were constructed to connect major areas of settlement. Among those thoroughfares were roads built alongside the banks of the Mississippi River, linking the riverfront plantations and settlements. During the antebellum era, only a few ferries connected the east and west sides of the Mississippi River, including landings located upriver near the Iberville/Ascension Parish line, at Donaldsonville, and downriver in St. James Parish, a short distance below Dr. B. Tureaud's Bagatelle Plantation (Figure 3.3) (Burr 1839; Greenleaf 1848; Lucas 1817; Melish 1820; Persac 1858; Tanner 1851).

During the antebellum era, sugar cane cultivation dominated the plantations of the region, with a few small cotton plantations interspersed here and there along the Mississippi River. Corn and other subsistence crops were grown, as well. The acreage encompassing the current project corridor fell within the bounds of or traversed the backlands behind a number of important sugar plantations of the period: St. Michael, Nita, Wilton, Helvetia, Rapidan, St. Mary, Bagatelle, Union, Tezcuco, Ashland, Linwood, and the plantations carved from the enormous Houmas Grant – Houmas, Orange Grove, Conway, Clark, Donaldson, and Riverton. On the eve of the Civil War, several of the project property owners were among the largest holders of enslaved people in St. James and Ascension Parishes, including Jules Druilhet & Sons of St. Michael; Morson, Seddon & Wilkins of Wilton; Webre & Jourdan of Helvetia; Widow A. D. Tureaud of Union; Widow M. D. Bringier of Houmas (later named Monroe); John Burnside of Orange Grove, Conway, Clark, and Donaldson; Col. John L. Manning of Riverton; Duncan F. Kenner of Ashland; and John S. Minor of Linwood (Figures 3.2 and 3.3) (Follett 2022; Henry and Gerodias 1857:15-25; Howell et al. 2023:16; Kirk et al. 2023:17-29; La Tourrette 1848; Menn 1964:120-124, 351-358; Mississippi River Commission [MRC] ca. 1851:15-19).

Several maps were examined that charted southeastern Louisiana during the Civil War. These surveys depicted settlements, major roads, ferries, and other features of the region. No major Civil War hostilities were fought in the immediate vicinity of the current project corridor; however, the study area was located in a region situated between principal battle sites along the Mississippi River. The thousands of troops involved in those hostilities would have passed through the project vicinity, by land or river, utilizing the roads, ferries, and landings while traveling to and from those military actions (Figure 3.4) (Abbott 1863; Colton 1863; Cushing 1871; Holtz ca. 1864; Lloyd 1862; National Park Service n.d.; U.S. War Department 1999).

During 1862-1863, there were some events of note that would have affected those residing in the vicinity of the current project corridor. After New Orleans and Baton Rouge fell under Union occupation during the spring of 1862, Donaldsonville citizens began firing on U.S. Rear Admiral David Farragut's gunboats as they passed between the two occupied cities. On August 9, 1862, Farragut retaliated, bombarding the town and burning several buildings. Furthermore, it has been documented that Federal troops occupied Ashland Plantation for four days during that summer, a period during which supplies were confiscated and some property destruction occurred in the district. A few months later, ca.

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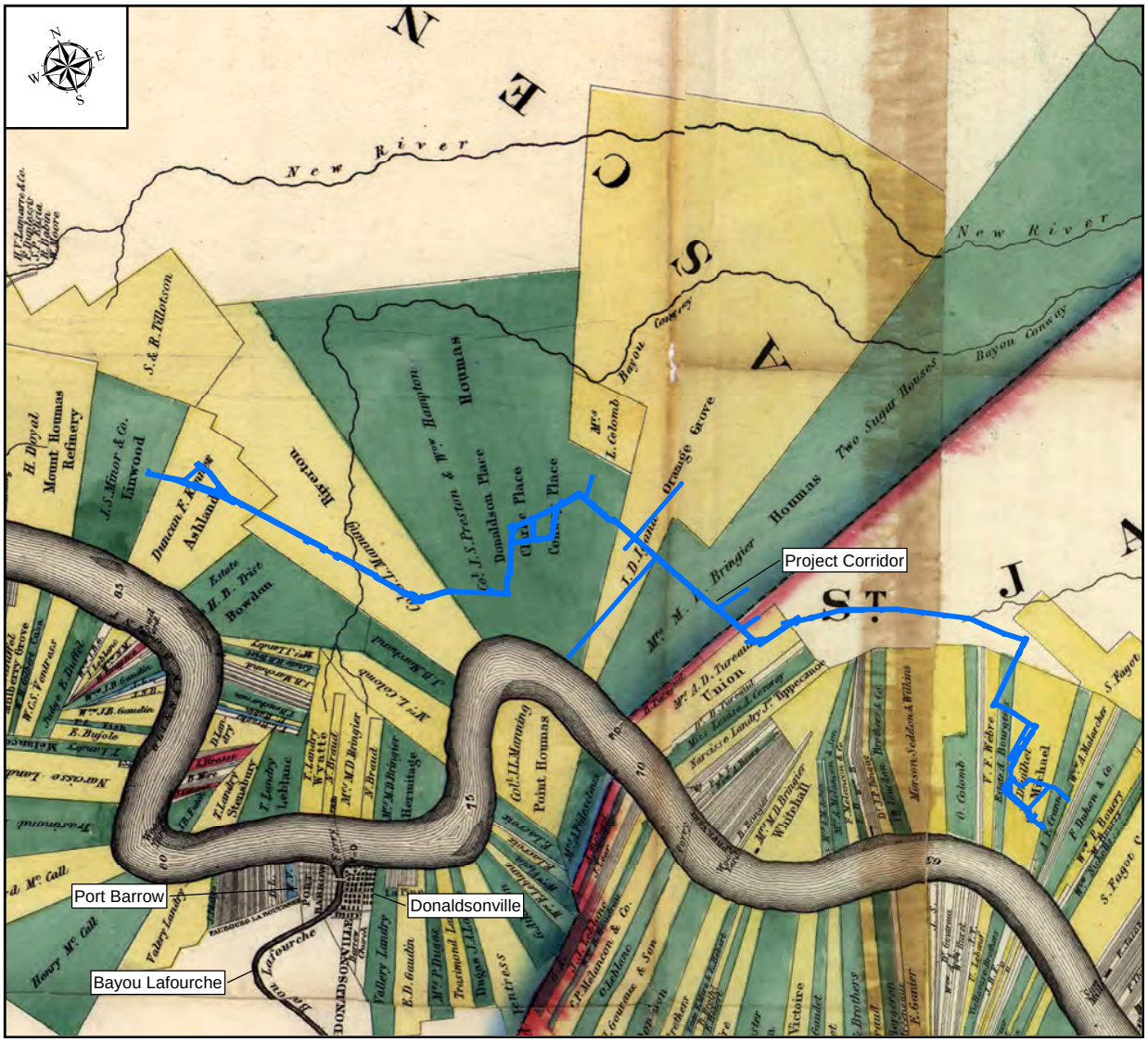

Figure 3.3 **[1858] Excerpt from Persac's *Plantations on the Mississippi River from Natchez to New Orleans* [Norman's Chart], in reference to the current project corridor. Map excerpt depicts antebellum plantations located in the project vicinity.**

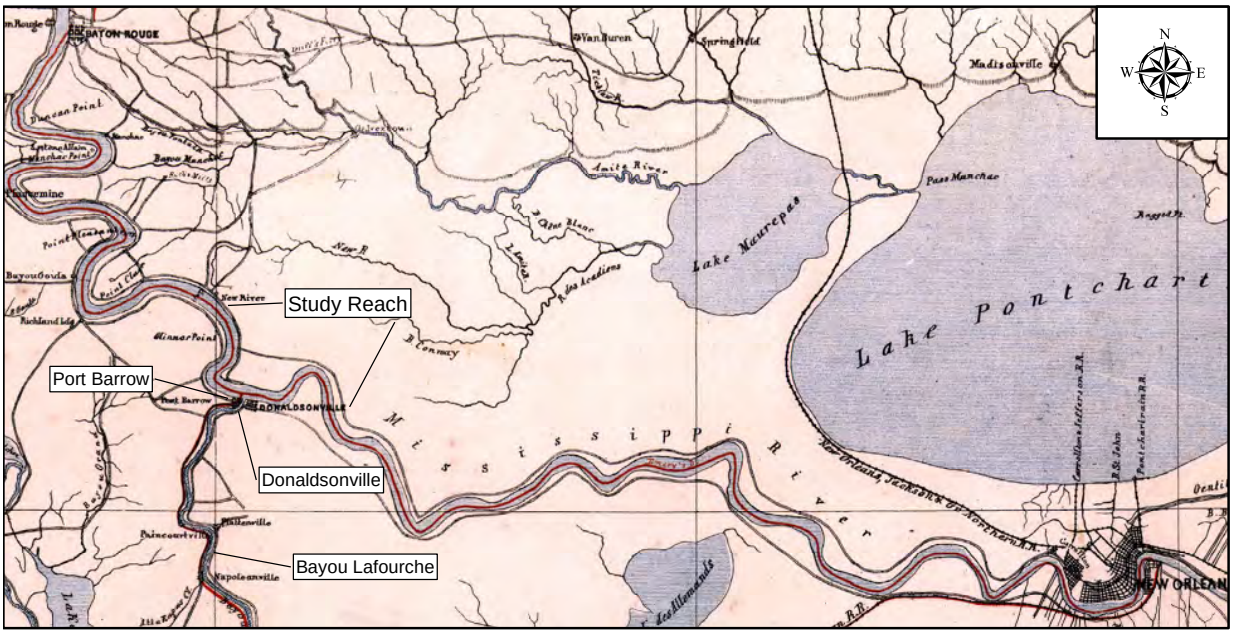

Figure 3.4 **[1863] Excerpt from Lindenkohl's *Map of a Part of Louisiana and Mississippi, Illustrating the Operations of the U.S. Forces, in the Department of the Gulf*, in reference to the study reach. Map excerpt depicts towns, roads, and waterways along the "Line of [March] of Gen. Banks Corps d'Armée April & [May] 1863."**

November 1862, Union troops began construction of Fort Butler, located in Port Barrow, directly across Bayou Lafourche from Donaldsonville. Confederate forces mounted an unsuccessful and casualty-costly assault on the fortification in late June 1863. Shortly thereafter, the Battle of Kock's (or Koch's) Plantation was fought in mid-July 1863 on Bayou Lafourche plantations St. Emma and Palo Alto, located across the Mississippi River from and less than 20 km (12.4 mi) south of the current project corridor. To reiterate, the troops engaged in those actions and associated skirmishes very likely traversed the study reach while scouting, foraging, or marching to and from camps and battle sites (Figures 3.3 and 3.4) (Abbot 1863; Cushing 1871; Goodwin et al. 1985:112-117; Hinks, Heinrich et al. 1994:34-35; National Park Service n.d.; Sternberg 2013:181-184, 258-259, 263).

Cartographic study suggests that railroads were projected to be constructed across Ascension and St. James Parishes prior to the Civil War; however, hostilities brought a temporary end to railway construction in the region. By the mid-1870s, rail lines had been built or were projected across the project parishes on both sides of the Mississippi River. Along the east bank, the Yazoo & Mississippi Valley Railroad (later part of the Illinois Central network) crossed the riverfront acreage of the project plantations, while across the Mississippi River, the Texas & Pacific Railroad (later part of the Union Pacific system) traversed the west bank. By 1915, the Louisiana Railway & Navigation line (later part of the Louisiana & Arkansas system) traversed eastern Ascension and St. James Parishes, well east of the current project corridor. With the expansion of the railway network through the region, a number of small towns were established along the track routes, e.g., Central, Union, Burnside, Belle Helene, Humphries, and Mt. Houmas (Figure 3.5) (Bayley 1853; Colton & Co. 1882; Dickinson 1883; Goins and Caldwell 1995:37, 68-70; Mississippi River Commission 1899; Rand, McNally & Co. 1878-1879; Roeser 1876).

The late nineteenth century surveys issued by the Mississippi River Commission [MRC] and the U.S. Coast & Geodetic Survey depicted riverfront plantations and farms, towns, landings, and other features along and near the banks of the Mississippi River. At the time of these surveys, most of the subject plantation acreage was planted in sugar cane; however, smaller fields were under rice and mixed field crop cultivation. Some of the

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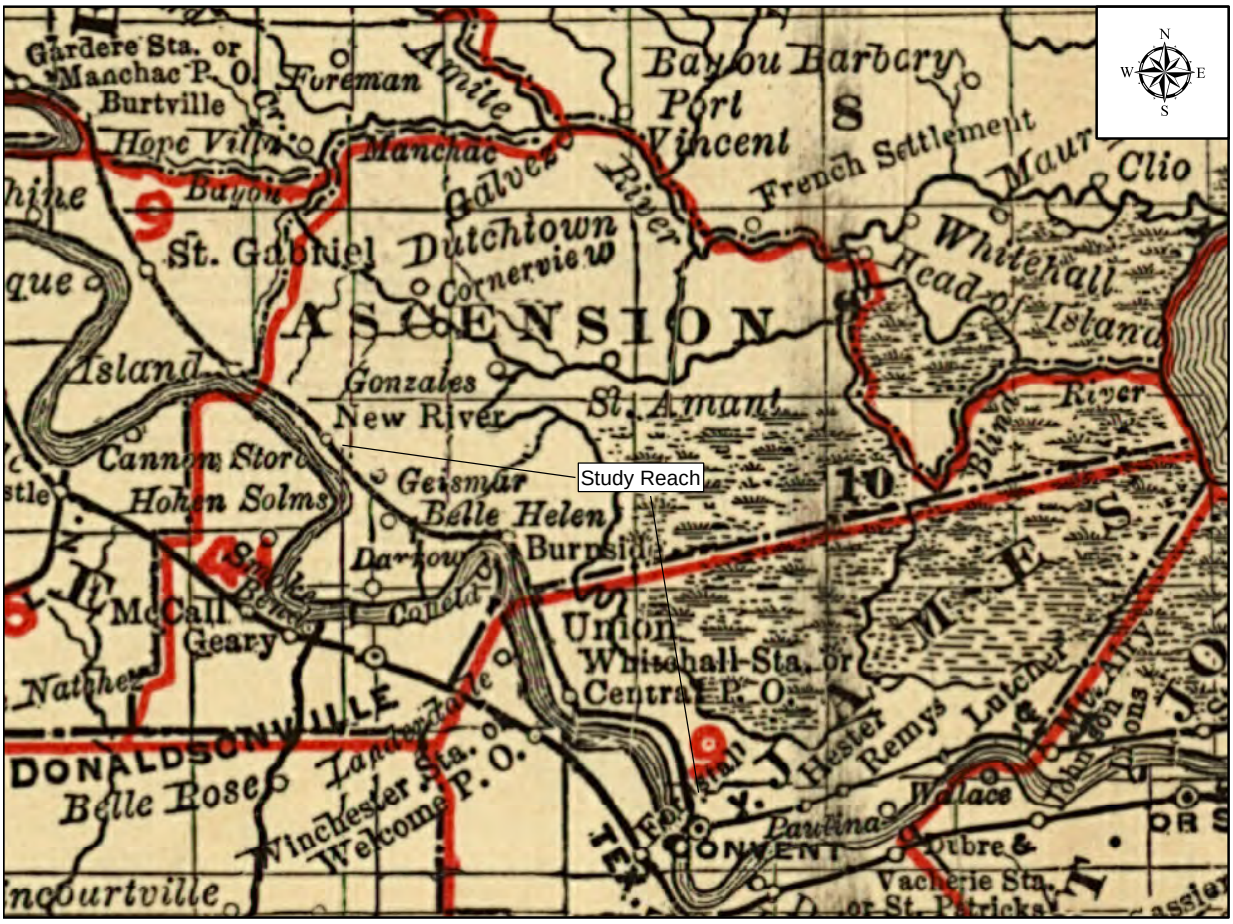

Figure 3.5 **[1896] Excerpt from "Rand, McNally & Co.'s Louisiana," in reference to the study reach. Map excerpt depicts towns and the railway network throughout the region.**

depicted plantation structures appear to have been located away from the Mississippi River, possibly due to riverbank erosion or, perhaps, for proximity to the newly constructed railroads (MRC ca. 1874:28-29, 1883 [1884]:69, 1883 [1894]:70-71; U.S. Office of Coast Survey 1878-1884).

Surveyors of the 1894 MRC Chart No. 71 also depicted the local aftermath of the Nita Crevasse, which occurred on March 13, 1890. This east bank levee break was caused by a leaking rice flume, ultimately resulting in a very wide crevasse that ruined the riverside fields of several planters. The levee could not be repaired until the river subsided, leaving plantations inundated for many months, including properties (project plantations, among them) located along the east bank from the Romeville vicinity downriver to Uncle Sam Plantation. Traces of the Nita Crevasse can be seen on area surveys even today (Figure 3.6) (Heller et al. 2021:14-15; MRC 1883 [1894]:71, 1913 [1922]:71; U.S. Geological Survey [USGS]: Convent 7.5' 1946-2020 and Donaldsonville 15' 1892-1965).

The 1921-1922 MRC series depicted similar coverage to the earlier surveys of the study reach. Sugar cane remained the principal crop on several of the project plantations, while others diversified with fields cultivated in mixed field crops and rice. A number of structures were depicted near the river; however, the 1921 charts illustrated only the acreage immediately bordering the riverfront, thereby missing a number of buildings that would have been part of those main plantation complexes situated farther back from the riverfront (MRC 1913 [1921]:69-70, 1913 [1922]:71).

The researched topographic quadrangles published by the U.S. Geological Survey during the late nineteenth and early twentieth centu-

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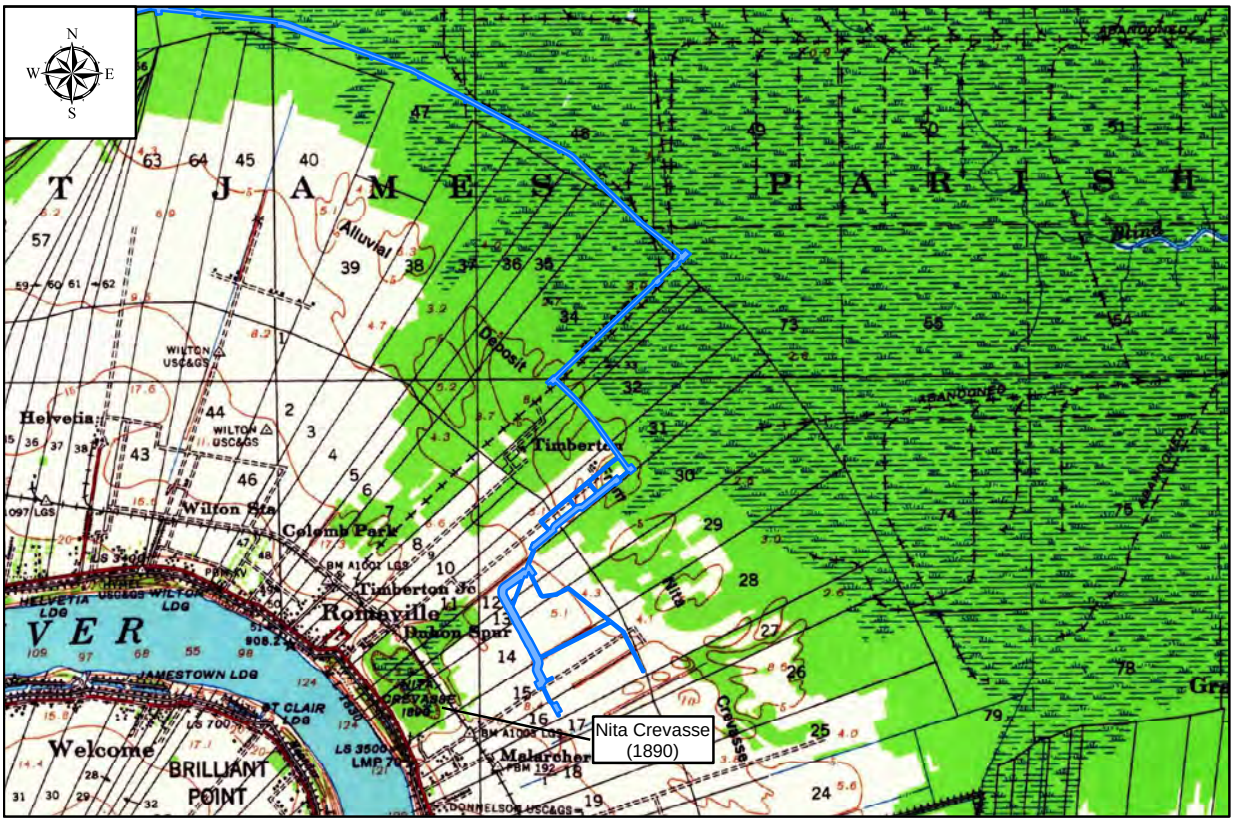

Figure 3.6 **[1939] Excerpt from U.S. Geological Survey's *Donaldsonville, Louisiana*, 15' series topographic quadrangle, in reference to the current project corridor. Map excerpt depicts remnants of the "Nita Crevasse 1890," a portion of the "Alluvial Deposit from Nita Crevasse," the former lumber company town of Timberton, and abandoned logging railroad spurs.**

ries indicated that regional development at that time was concentrated along the Mississippi River and other waterway frontages, such as New River. Buildings were clustered near river landings, while others extended along roads leading into the interior. Plantations remained evident, and settlements were scattered at intervals along the railroads (USGS 1892-1939).

By the mid-twentieth century, residential and industrial development had increased within the project region, due in part to the expanded highway and railway networks, as well as continued Mississippi River transport. Furthermore, communities had evolved around many of the plantation complexes. Although industry was advancing in the district, agriculture remained prominent, as shown on the surveys by the many drainage and agricultural canals depicted throughout the project vicinity (Goins and Caldwell 1995:69-71; USGS 1939-1965).

In addition to agricultural notations, the USGS surveys of 1939 and 1956 also detailed evidence of previous logging activities in the region, depicting several "abandoned" logging spurs and "Dismantled railroads" extending through the backlands and cypress swamps beyond the riverfront plantation acreage of the district. The presence of a thriving local timber industry is borne out by the establishment of a lumber company town called Timberton, located a short distance west of the current project corridor. The town's cypress mill closed in 1923, and the town eventually reverted to its original marshy terrain. By 1946, Timberton no longer appeared on the examined surveys, and the logging rail features vanished from the maps shortly thereafter (Figure 3.6) (Heller et al. 2021:16; USGS: Baton Rouge 1:250,000 1956-1962, Convent 7.5' 1946-1962, and Donaldsonville 15' 1892-1962).

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The examined maps published from the mid-twentieth century forward depict numerous pipelines traversing the project region. Together with represented oil fields (noted as early as 1939), oil wells, and "salt wells," these lines provide evidence of the petroleum industry activities that have burgeoned in Ascension and St. James Parishes during the modern era. The Darrow Salt Dome, which extends through the western part of the study reach, has been a particularly active area of petroleum operations. Petroleum exploration began in the immediate project vicinity as early as the late 1920s; however, exploitation began to burgeon in the project townships during the 1950s. The studied surveys also reflect the expansion of the petrochemical industry along the Mississippi River through the project region (DTC 1992:3, 47; Louisiana Department of Natural Resources 2023; Stephenson Disaster Management Institute 2015; USGS 1939-2020).

In summary, the researched maps and related documents indicate that land usage and permanent settlement in the project vicinity probably began during the Spanish colonial period. Historically, this was sugar cane country, with plantations lining the Mississippi River through the district. Some crop diversification came to the study reach during the late nineteenth and early twentieth centuries. No evident plantation structural remains exist today on the acreage encompassing the current project corridor – a route that once traversed a number of historical plantations. No major battles were fought in the immediate vicinity of the project corridor during the Civil War; however, there were actions in the surrounding locale during 1862-1863, as well as occupation by Federal troops, who might have left evidence of their transitory presence. Until the mid-twentieth century, this district remained a largely agricultural region. Since then, the modern landscape of the project region has been shaped by the placement of pipelines, petroleum production facilities, and petrochemical plants. Considering the terrain, the forces of nature, and the impacts of modern agriculture and industry, it is doubtful that any historical structures would have survived the years along the path of the current project corridor.

General Land Tenure History: Conway and Orange Grove Plantations

Artifacts/features have been recovered that warrant further study of two historic sugar plantations that fall along the current project corridor – Conway and Orange Grove. Both properties are located in Section 9, Township 10S, Range 3E, i.e., the upriver portion of William Conway's Claim No. 125. As noted previously in this chapter, Conway's claim formed the lower part of the Houmas Land Claim, or Houmas Grant (Howell et al. 2023:12). An overview of the Conway claim land tenure follows, particularly as it relates to Conway and Orange Grove Plantations (Figure 3.7).

On October 5, 1774, Chief Calazare (or Calapane, per Waddill 1937) of the Houma and Bayou Goula, in his name and that of his people, sold an enormous land tract opposite Point Houmas in present-day Ascension Parish to Maurice Conway and Alexander Latil for goods valued at $150.00 (Robblee and Davis 1997:20). According to his statement before the New Orleans notary public executing that conveyance, Calazare described "himself as Chief of the Tribes, appointed such by the Governor of the Province." He further declared "that the [Houmas] tract had once belonged to a Frenchman, that he had sold it to another Frenchman, who had abandoned it, and that afterwards, being vacant, the two Indian Tribes fixed their residence upon it by permission of the Governor" [sic throughout] (Williams 1886:322). Referenced as the Houmas Land Claim or the Houmas Grant, this vast tract measured 96 arpents along the east bank of the Mississippi River by a depth of 40 arpents. Spanish Governor Luis de Unzaga y Amezaga executed a formal grant to Conway and Latil on November 1, 1774 (Williams 1886:323).

By early September 1776, Alexander Latil had conveyed his interest in the property to Conway, who then petitioned Governor Unzaga for the backlands adjoining the original land tract. Maurice Conway stated "that he was about to settle on the lands … and that as the grant extended only forty arpents [in depth], he could not have access to [the distant cypress trees] to obtain timber for his fences, and other uses of his plantation (Williams 1886:323). On June 21, 1777,

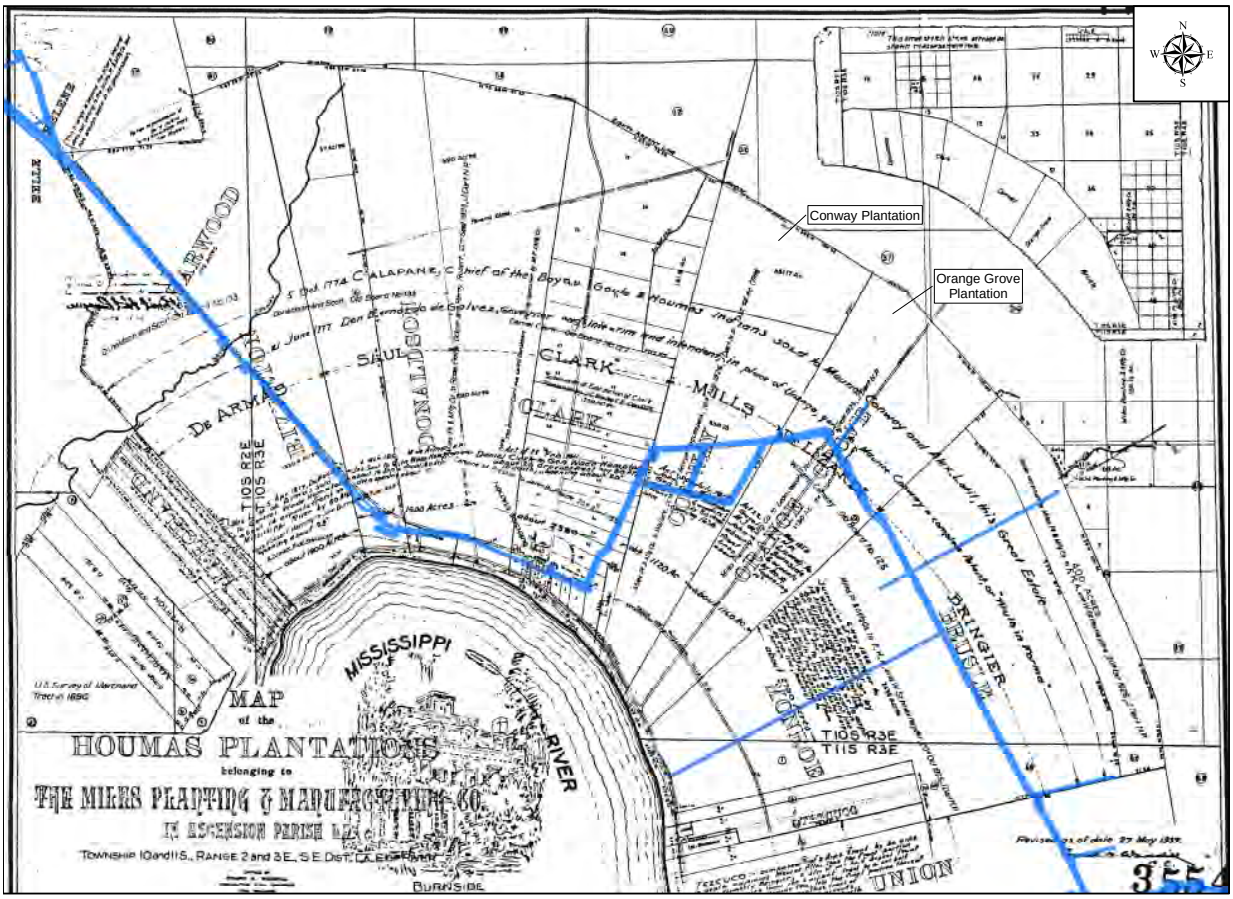

Figure 3.7 **[1937] Excerpt from Waddill's *"Map of the Houmas Plantations Belonging to the Miles Planting & Manufacturing Co. in Ascension Parish, LA,"* in reference to the current project corridor.**

Governor Bernardo de Galvez (Unzaga's successor) granted Conway "all the vacant land lying behind and in the rear of the first forty arpents" of the original Conway and Latil acquisition (Williams 1886:323). Due to the vague back boundary description, the Houmas Land Claim was debated and litigated for over a century (Hart and Tillotson 1859; *The Register* 1860; Williams 1886).

On October 27, 1786, Maurice Conway conveyed the lower portion of the Houmas Land Claim to his nephew and heir, William Conway, who later sold the upriver arpentage to entrepreneur and land speculator Daniel Clark in 1805. William Conway also purchased adjoining downriver property on March 27, 1791, from Peter [Pierre] Part that, together with the land acquired from his uncle in 1786, formed Claim No. 125 (Hart and Tillotson 1859:9-11; *The Register* 1860). Surveyed following the 1803 Louisiana Purchase by Bartholomew [Barthélémy] Lafon ca. 1805-1806, Claim No. 125 was recorded in the American State Papers, as follows:

> William Conway claims a tract of land … at the place called the Houmas, on the left [descending] bank of the Mississippi, containing twenty-two and a half arpents in front, with an opening towards the rear of sixty degrees forty-five minutes; the upper line running north, nine degrees fifteen minutes east, three hundred and fifty-one arpents; and on the lower line directed north, seventy degrees east, and measuring four hundred and fifty-five arpents; bounded on the upper side by Daniel Clark's land, and on the lower by land of Simon Laveau.
>
> It appearing to the Board, from a patent or complete title exhibited, that seventeen arpents of front were, together with a greater

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> quantity, granted by the Spanish Government to Maurice Conway, 21st June, 1777; and it appearing that the five and a half arpents of front remaining of the land aforesaid were purchased by Pierre Part, at the public sale of the estate of the late Joachin Mire, alias Belony, on the 7th day of December, 1788; and it further appearing to the Board, from the several testaments of conveyance offered in testimony, that the two tracts of land aforesaid have been conveyed to the present claimant, the Board do hereby confirm his claim aforesaid [sic throughout] (Lowrie 1834:2:287).

As described in the above claim record, the Conway property extended away from the river far beyond both the usual 40-arpent depth and the 80-arpent depth allowed with a second concession, reaching Lake Maurepas, per various accounts. This seemingly endless back depth for Conway, as well as for the owners of the other two portions of the Houmas Land Claim – Daniel Clark (Claim No. 127) and Donaldsonville & Scott (Claim No. 133), whose properties reportedly extended to Bayou Manchac and the Amite River – was the basis for the ongoing conflict and litigation over the legality of the Houmas Land Claim (Figure 3.2) (Goodwin et al. 1986:29-31; Hart and Tillotson 1859; *The Register* 1860; Williams 1886).

When mapped by U.S. surveyors during 1829-1834, William Conway's Claim No. 125 included designated Section 9, Township 10S, Range 3E, and adjoining Section 1, Township 11S, Range 3E. The U.S. Tract Books held by the Louisiana State Land Office noted continued confusion over whether or not other sections belonged in the Conway claim. Ultimately, a federal land patent was granted to William Conway – specifically for Sections 9 and 1 in their respective townships – on October 4, 1956, just shy of 170 years after he acquired the claim from his uncle (Bureau of Land Management 2023; Louisiana State Land Office 1834, 1883, 1891a, 1891b, n.d.:51:69, 81).

Ireland-born Maurice Conway was known primarily as a land speculator, rather than a planter. The current research disclosed no solid evidence regarding whether or not he cleared, cultivated, or improved any part of his Houmas land tract during his tenure; however, his nephew, William Conway, did develop the land encompassed by Claim No. 125. On April 14, 1807, William Conway executed his last will and testament. At that time, he and his family lived on his Houmas property, which he cultivated using enslaved labor. Conway's will named 24 enslaved persons, and generally listed cattle, horses, tools, and agricultural implements, as well as other real estate holdings. His will did not specify what agriculture was being conducted on any of his properties, nor did he designate what movables (including the enslaved) were attached to which of his plantations. Conway's Houmas acreage (Claim No. 125), though, was noted as his home plantation (Table 3.1) (AncestryLibray.com 2023; Robblee et al. 1997:39).

Although Louisiana was not yet a state, federal authorities recorded a census in Ascension Parish in August 1810. William Conway was enumerated on his Houmas property between Daniel Clark's plantation and the property of Simon Lavoir (presumably, Laveau). According to that report, Conway's household comprised his family of six – Conway and wife, one adult son, one minor son, and two minor daughters – and 27 enslaved persons. Conway died ca. April 17, 1812, at the age of 57 years, and his will was probated in March of that year. Among his bequests, he left his Houmas plantation in designated divisions to his four children – John, James, Mary, and Elizabeth "Betsy" Conway. His widow, Elizabeth Gubbins Conway, received other property, but was to retain occupancy and usage of his lands and enslaved labor until their children came of age. The Conway enslaved were divided among William's widow and children. Incidentally, Conway also left monetary legacies to his mother, brother, uncle, and cousins, most, if not all of whom still lived in his native Limerick County, Ireland (Table 3.1) (AncestryLibrary.com 2023).

The current research suggests that the Conway heirs sold their property shares upon reaching adulthood. By mid-1817, General Wade Hampton had acquired much of the former Conway Houmas Claim acreage, including the land tract that came to be known as Conway

Table 3.1 **Enslaved persons held by William Conway at the time of the signing of his will, April 14, 1807 (AncestryLibrary.com 2023: Louisiana, U.S., Wills and Probate Records, 1756-1984).**

Name	Ethnicity	Age	Bequeathed to Whom
Maryanne Pollock	African	about 55 yrs	Elizabeth Conway, wife
Hector	African	about 55 yrs	
Louis	African	about 55 yrs	
William	Creole	15 yrs	
Nancy	Creole	25 yrs	
François or Françoise	Creole	80 yrs	
Bombara	African	about 40 yrs	John Conway, son
Maurice	African	about 15 yrs	
Sally	African	16 yrs	
Amelia (of Maryland)	Creole	about 12 yrs	
Baptiste	Creole	about 30 yrs	
Bob	African	35 yrs	James Conway, son
Louisa	Creole	15 yrs	
Catharine	Creole	about 11 yrs	
John Baptiste	Creole	about 10 yrs	
Joe	Not stated	about 2 yrs	
Françoise	Creole	18 yrs	Mary Conway, daughter
Celeste	Creole	4 yrs	
Bernard	Creole	about 2 yrs	
John Lewis	Not stated	35 yrs	
Charlotte	Creole	4 yrs	Elizabeth "Betsy" Conway, daughter
Philip	Creole	11 yrs	
Lotty (of Maryland)	Creole	1 yr	
Patrick	Not stated	some mos	

Plantation, which he purchased from John Mills in July 1817. During the next decade, Hampton began cultivating sugar cane on his Houmas acreage, producing yields of 1,640 hogsheads of sugar in 1828 and 600 hogsheads in 1829 (Figure 3.2) (Degelos 1892:65; Southern Historical Collection 2021; Waddill 1937).

General Wade Hampton was a veteran of the Revolutionary War and the War of 1812, a legislator who represented South Carolina in the U.S. Congress (1795-1797 and 1803-1805), and a highly successful planter with properties in South Carolina and Louisiana. He remained an absentee landholder, directing operations on his Louisiana plantations from his Columbia, South Carolina, home. General Hampton died on February 4, 1835, at his Columbia residence. At that time, he was said to be "one of the wealthiest men, if not *the* wealthiest, in the whole southern country. No planter owned as many slaves as he – two or three thousand" (*Eastern Argus* 1835). He left his South Carolina property to his son, Colonel Wade Hampton, II, and his Louisiana holdings to his widow, Mary Cantey Hampton, and his two daughters, Caroline Martha and Susan Frances, married, respectively, to John Smith Preston and John Laurence Manning (Find a Grave var.; Goodwin et al. 1986:38; Historic Columbia 2024; U.S. Congress n.d.a).

Initially, Widow Hampton and her daughters (and their husbands) jointly operated the Hampton estate in Ascension Parish, but in January 1848, they partitioned the Houmas acreage. The Mannings received the upriver tract, Mrs. Hampton the middle tract, and the Prestons the downriver tract. One month later, Mrs. Hampton sold

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her parcel to the Prestons, giving them control of Donaldson, Clark, and Conway Places, as they became known during the late antebellum period. Like General Hampton, they ran their Louisiana plantations on an absentee basis, while retaining residence in South Carolina, where John Smith Preston was beginning to make his mark in state politics (Figure 3.3) (Table 3.2) (Goodwin et al. 1986:38; Historic Columbia 2024; Southern Historical Collection 2021).

Orange Grove Plantation adjoined Conway Place on its lower boundary, and, like Conway, that property originated from William Conway's Houmas Claim. The land title trail to this tract is not clear following Conway's death in 1812; however, sugar reports and other sources suggest that, by the late 1820s, the acreage might have been owned by Jean François Saville, whose plantation was located between the Houmas properties belonging to General Wade Hampton and M. D. Bringier, i.e., the general position of future Orange Grove Plantation. Saville produced 110 hogsheads of sugar on that property in 1828 and 95 hogsheads in 1829 (Degelos 1892:65; Louisiana Historical Association 2024; Southern Historical Collection 2021).

During the early nineteenth century, Orange Grove Plantation apparently passed through the hands of various parties, most of whom probably were absentee landholders making sugar property investments. In 1842, New Orleans commission broker Joachim Kohn sold Orange Grove to Laurent Millaudon, a Kohn family business associate. Millaudon was a Jefferson Parish planter, as well as a New Orleans-based commission merchant. Later that year, he apparently sold an interest in Orange Grove to his son-in-law, Charles Casimir Gardanne. In 1846, Gardanne executed a deed of sale conveying the plantation and its enslaved people to Manuel J. de Lizardi, whose family firm held the mortgage on the property (Table 3.2) (Eichhorn 2015; Hémard 2013; Orleans Parish Clerk of Civil District Court 1999; Southern Historical Collection 2021; USGenWeb Archives 2002).

Manuel Julián de Lizardi y Migoni and his brothers, Miguel and Francisco, were among the Spanish families who were expelled from Mexico following its independence from Spain. Like many of their fellow exiles, they migrated to New Orleans. The Lizardis arrived in New Orleans during the 1820s, and established themselves as commission merchants, conducting similar operations to those handled by their family's former commercial mercantile firm in Veracruz. Collectively, they were known as the Lizardi Brothers, but operated multiple establishments under various company names. In addition to their international financial dealings, they also invested in and rented real estate, as well as dealt in mortgage lending (Salvucci and Salvucci 2016:762-766, 772-778; USGenWeb Archives 2002).

Of note, in 1844, Citizens Bank of Louisiana recorded 85 enslaved persons who were pledged as mortgaged collateral on Orange Grove Plantation, Ascension Parish. The owner was reported as Manuel Julien De Lizardi [sic]. The listing was recorded, as follows:

> Orange Grove sugar plantation and the following individuals: Isaac; Anthony; Cajah; John Sildard; Louis; John Hayes; Sam; Archy; William; George Lee; Nelson; William Bonaparte; Charles Bath; Henry Johnson; Frank; Bolla; Henry Page; Stephen; Pidmalea Denis; Pierre Louis Morris; Wilson; James; Jack; Dublin; Charles Martin; David; George Benton; Ned; Alfred; David; Peggs; Rod; Tammy; Sally; Nelly; Hilty; Elisa; Letty; Violette; Mary; Rolina; Marguerite; Finny; Elada; Marguerite; Sophie; Sophia Mary; Esther; Edouard; Colla; Caroline; Flora; Mathilda; Aaron; Pauline; Robert; Lucinda; Sally; Nancy; Henry; Isaac; David; Noel; Jolyaie; Isaac; John; Horace; Lindon; Henry; Boyer; Bruce; Sam; John; Henry; Kitty; Isabelle; Henriette; Charlotte; Nat; Louisa; Suzanne; Rachel; Moses; Sally; Charlotte [sic throughout] (JPMorgan Chase Bank 2023).

Although preceding cited sources indicate that Manuel J. de Lizardi didn't acquire Orange Grove until 1846, the inventory of the Houmas Plantations records held by the University of North Carolina at Chapel Hill suggests that he was involved in Houmas Claim real estate transactions among Laurent Millaudon and other parties

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Table 3.2 **Sugar production at Conway and Orange Grove Plantations, selected seasons 1845-1917 (Follett 2022).**

Season	Conway/Place Plantation				Orange Grove Plantation			
	Apparatus in Sugar House	Description of Sugar House	Sugar (HHDS)	Planter / Operator	Planter / Operator	Apparatus in Sugar House	Description of Sugar House	Sugar (HHDS)
1844-1845	---	---	1,966	Col. Preston	Laurent Millaudon	---	---	585
1845-1846			660	Preston & Hampton & Mrs. Manning	Gardanne & Lizardi			595
1849-1850			560	Col. J. S. Preston	F. De Lizardi			610
1850-1851	Steam		---			Steam		437
1851-1852			---			Vacuum		675
1852-1853			---					926
1854-1855	---		---					1,005
1855-1856			---					575
1856-1857	Steam		460					380
1857-1858			705	Col. J. S. Preston, Now John Burnside				950
1858-1859			1,087	John Burnside				1,067
1859-1860			Cc					Cc
1860-1861			Cc					Cc
1861-1862			Cc					Cc
1868-1869	Steam, Kettles, Open Pan	Brick & Shingle Roof	262			Skv&C	Brick & Slate Roof	230
1869-1870			275			Steam Train, Vacuum & Centrifugal		500
1870-1871			370					560
1871-1872			150					278
1872-1873			199					317
1874-1875			525					494
1875-1876			530					380
1876-1877			403					745
1877-1878			199					315
1878-1879			520					808
1879-1880			375					690
1880-1881			460				Brick & Shingle Roof	690
1881-1882			100	Oliver Beirne				290
1882-1883			600				Brick & Slate Roof	900
1883-1884			571					750
1884-1885			487					379
1885-1886			597					746
1886-1887			556	Mrs. Von Ahlefeldt				624
1887-1888			777					836
1888-1889			909	W. P. [William Porcher] Miles, Agent & Tutor				1,066
1889-1890			630					754
1891-1892			Cc					---
1892-1893			Cc	Miles Planting & Manufacturing Company, Ltd.				---
1893-1894			---				Brick, Shingle & Slate	---
1894-1895			---					---
1895-1896	From The 1895-1896 Season Forward, The Conway Crop Was Combined With The Five Other Houmas Grant Plantations -- All Processed At The Houmas Central Factory, Located Upriver At Burnside.				From The 1895-1896 Season Forward, The Orange Grove Crop Was Combined With The Five Other Houmas Grant Plantations -- All Processed At The Houmas Central Factory, Located Upriver At Burnside.			
1898-1899								
1901-1902								
1904-1905								
1907-1908								
1911-1912								
1916-1917								

--- Data Not Listed Or Not Available

Cc - Combined Crop With Neighboring Plantations

Skv&C - Steam Kettles, Vacuum & Centrifugal

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during 1840-1841. Lizardi certainly might have been the owner of record when Citizens Bank of Louisiana held the Orange Grove enslaved individuals as mortgaged collateral (Southern Historical Collection 2021).

From 1849-1850 through the 1857-1858 season, the annual sugar reports listed F. de Lizardi as owner/operator of Orange Grove Plantation. This entity probably was one of the Lizardi Brothers' firms, F. de Lizardi & Co. Francisco de Lizardi was the chief partner, together with partners Alexander Gordon (also involved in Houmas Claim deeds) and Pedro de la Quintana; however, Francisco died in 1843. Furthermore, Manuel J. de Lizardi took the lead in the management of the Lizardi Brothers' New Orleans-based ventures, and he was the chief real estate speculator of the family, particularly during the 1840s, when he invested in plantations along the Mississippi River (Table 3.2) (Salvucci and Salvucci 2016:772-778; Southern Historical Collection 2021; USGenWeb Archives 2002).

Despite the sugar report listings, *Norman's Chart of the Lower Mississippi River*, published in 1858, labeled Orange Grove Plantation as property belonging to J. D. Igaña [sic]. This man was Juan Y. [Ygnacio] de Egaña, a business associate of Manuel J. de Lizardi. Ca. 1856-1857, Lizardi granted a power of attorney to Egaña – a document apparently relevant to Orange Grove Plantation (and perhaps other properties). This record probably would explain the discrepancies between the annual sugar reports and *Norman's Chart*, as well as the 1857 *Louisiana Coast Directory*, which also listed Juan Y. de Egaña as the proprietor of the Orange Grove sugar plantation in lower Ascension Parish (Figure 3.3; Table 3.2) (Henry and Gerodias 1957:23; JPMorgan Chase Bank 2023; Louisiana State Museum 2018; Southern Historical Collection 2021).

Conway and Orange Grove Plantations came together under unified property ownership toward the end of the antebellum era. In April 1858, Caroline M. Hampton Preston and her husband, Colonel John Smith Preston, sold Donaldson, Clark, and Conway Places to John Burnside for $750,000.00. A month later, Burnside purchased Orange Grove Plantation from Manuel J. de Lizardi for $300,000.00. Following the Civil War, he also bought upriver Riverton Plantation from the heirs of Susan F. Hampton Manning, giving Burnside most of the Houma Claim acreage by early 1868 (*Daily Advocate* 1858; Goodwin et al. 1986:42; Southern Historical Collection 2021; Waddill 1937).

John Burnside emigrated from his native Ireland to the United States as a young teenager ca. the early 1820s. He worked his way up through the mercantile business in various locations, eventually making his way to Monroe County, Virginia (now West Virginia), where he became a salesman for merchant, planter, and legislator Andrew Beirne, a fellow Irish immigrant. Burnside became friends with Beirne's son, Oliver, while both were working in the elder Beirne's Virginia mercantile business. In 1837, the two young men moved to New Orleans, and established a wholesale dry goods store on Chartres Street (later moved to Canal Street) – Beirne & Burnside. Following his father's death in 1845, Oliver Beirne returned to Virginia to manage his family's affairs, but Burnside remained in Louisiana, where he continued his successful mercantile enterprise into the 1850s before entering into sugar cane agriculture (*Daily Picayune* 1881a; Houmas House n.d.; Louisiana Historical Association 2024; Southern Historical Collection 2021; U.S. Congress 2024b; USGenWeb Archives 2002).

On the eve of the Civil War, John Burnside held the largest number of enslaved persons in Ascension Parish, and apparently was the wealthiest planter in the parish, both in real estate and in personal property (the latter value including the enslaved) – $1,386,000.00 and $800,000.00, respectively. The 1860 agricultural census consolidated the figures for Burnside's "Houmas" plantations, which totaled 23,600 acres – 5,600 improved and 18,000 unimproved. This acreage was worked by an enslaved labor force of 753, who were housed in 192 "slave dwellings" located across the four plantations. Crops and products listed in 1860 comprised 45,000 bushels of Indian corn, 5,000 bushels of Irish potatoes, 10,000 bushels of sweet potatoes, 2,560 (1,000-lb) hogsheads of sugar, and 160,000 gallons of molasses. The livestock tally counted 18 horses, 275 mules, 23 dairy cattle, 55 working oxen, 56 other cattle, 64 sheep

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(producing 120 pounds of wool), and 51 swine (Menn 1964:120-124).

Burnside sold his dry goods business ca. 1857-1858, but retained a magnificent residence in New Orleans. Throughout his tenure, he divided his time between his town and country estates. Burnside actually was less affected by the Civil War than many of his Ascension Parish neighbors. When General Benjamin F. Butler threatened to take over the Houmas Mansion (now known as Houmas House) on Donaldson Place for Union use, Burnside defied him by claiming status as a British citizen, thereby saving his plantations, as well as his country house (Goodwin et al. 1986:47; Houmas House n.d.; Louisiana Historical Association 2024; Southern Historical Collection 2021).

During the postbellum period, Burnside continued to purchase properties, accumulating at least ten Louisiana plantations by 1881. He reportedly was among the first area planters to cultivate sugar cane by employing paid day laborers, a practice fundamental to reviving the regional sugar industry. In addition to formerly enslaved workers, he also "imported" Chinese laborers to work certain of his properties. Both Conway and Orange Grove Plantations continued to yield successful sugar cane harvests throughout his tenure; however, Burnside remained an absentee planter, maintaining his primary residence in New Orleans. During the late 1870s – early 1880s, his plantation managers included C. W. Ray at Conway and E. W. Lawless at Orange Grove, with other agents handling sugar operations at his neighboring properties (Figure 3.8; Table 3.2) (*Daily Picayune* 1881a; *Donaldsonville Chief* 1880; Goodwin et al. 1986:52; Louisiana Historical Association 2024; Southern Historical Collection 2021; U.S. Bureau of the Census 2023-2024 [1870-1880]).

John Burnside died on June 29, 1881, while visiting the Greenbrier resort in White Sulphur Springs, West Virginia. Burnside never married, and left the bulk of his estate to his longtime friend and business colleague, Oliver Beirne. Upon his inheritance from Burnside, Beirne divided his time between managing his inherited Louisiana properties and his home estate, Old Sweet Springs, in Monroe County, West Virginia. In order to help oversee his vast holdings, Beirne hired William Porcher Miles in 1882 to manage his Louisiana plantations. Miles was a native of South Carolina, and had served as mayor of Charleston (1855-1857), as a U.S. Representative (1857-1860), as a Confederate official and advisor, and as president of South Carolina College (1880-1882). In addition, Miles was a planter in postbellum Virginia, and, furthermore, he was Beirne's son-in-law, widower of Elizabeth "Betty" Beirne. With the new responsibility of managing Beirne's Louisiana properties, Miles moved his young family to Ascension Parish ca. 1882 (*Daily Picayune* 1881a, 1881b, 1899; Houmas House n.d.; Southern Historical Collection 2008, 2021).

On January 21, 1886, Oliver Beirne sold his Louisiana plantations to his daughter, Mrs. Nancy "Nannie" Beirne Von Ahlefeldt, for $1,000,000.00; however, she apparently retained her brother-in-law, William Porcher Miles, as manager of the properties. Oliver Beirne died in New Orleans on April 21, 1888, at the age of 77 years, and his plantations reverted to his estate, ending his daughter's land tenure (Goodwin et al. 1986:54; Historic-Structures 2015; *Opelousas Journal* 1886; *Wheeling Register* 1888). When Beirne's will was probated in Monroe County, West Virginia, it was disclosed that, after various bequests to his widow and others, his grandchildren – the children of Betty Beirne and William Porcher Miles – were the "residuary legatees of the estate, share and share alike, to be divided when the youngest shall have attained the age of 21 years" (*Daily Picayune* 1888). Their father was named one of the three executors of the estate, and he was tasked with continuing to manage Beirne's Louisiana operations (Table 3.2).

Miles continued to operate Conway and Orange Grove Plantations as agent for and tutor to his minor children. Although many of his fellow Ascension Parish planters diversified their crops, and began to grow rice, Miles maintained sugar cane as the primary crop throughout his management of those two plantations. Each property held its own sugar house, although crop reports indicate that yield records were combined with adjoining plantations, beginning during

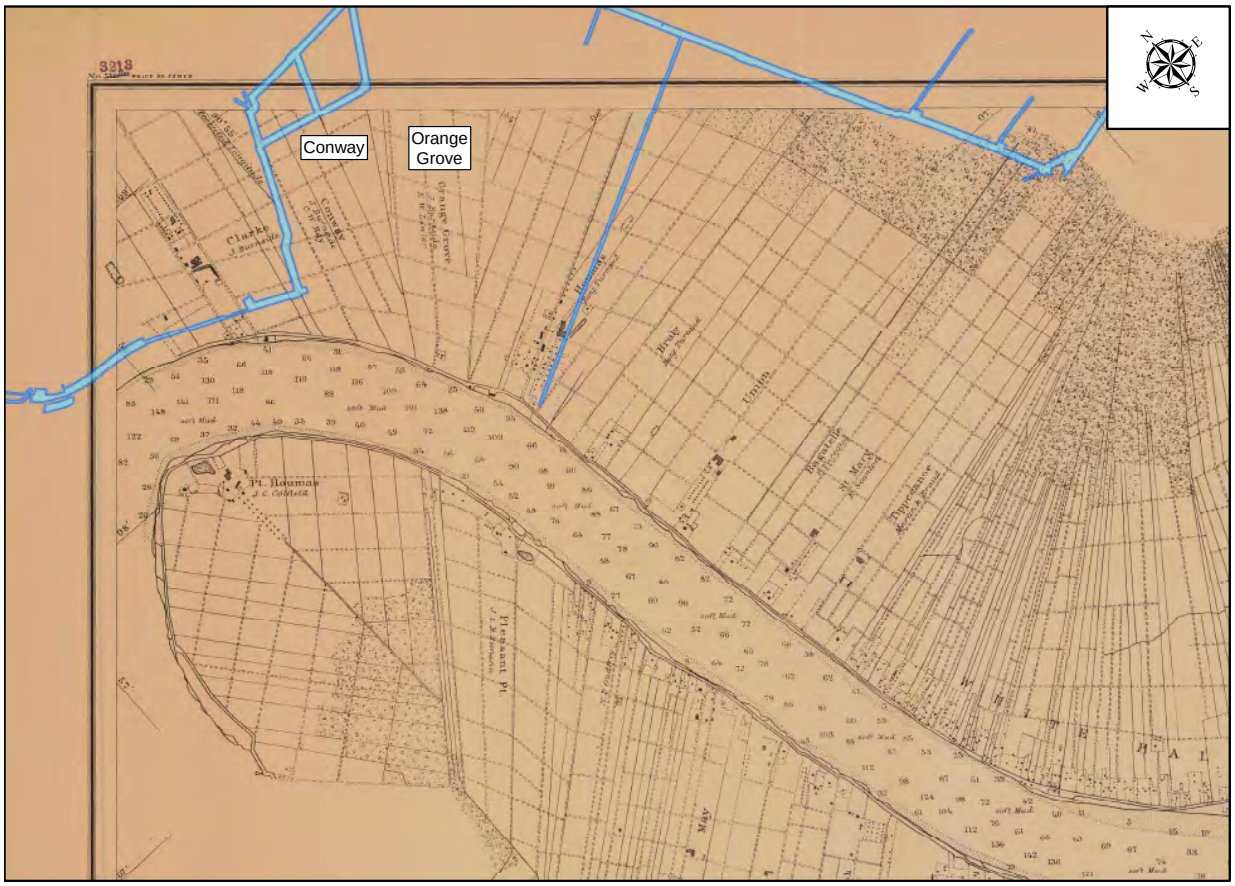

Figure 3.8 **[1878-1884] Excerpt from the U.S. Office of Coast Survey's *Mississippi River, Louisiana (Sheet No. 13), from St. James Estate to Point Houmas*, in reference to the current project corridor. Map excerpt depicts portions of John Burnside's Conway and Orange Grove Plantations and associated features.**

the early 1890s (Figure 3.9; Table 3.2) (Follett 2022; Houmas House n.d.; Southern Historical Collection 2008).

In 1892, the Miles children (the youngest of whom would have reached the age of majority by then) transferred their entire interests in the "Houmas Plantations," as the Houmas Land Claim properties often were referenced, to the Miles Planting & Manufacturing Company, Ltd., a firm established by their father and associates to manage those properties (Figure 3.7). William P. Miles served as president of the company, and, ca. the mid-1890s, he established the Houmas Central Factory, located centrally (as its name implied) among the Houmas Plantations, at Burnside, in order to consolidate the firm's sugar processing operations. In addition to his personal agricultural responsibilities, Miles also held office in the Louisiana Sugar Planters' Association as president of its Ascension Parish branch. Furthermore, he co-founded both the Louisiana Sugar Experiment Station and *The Louisiana Planter and Sugar Manufacturer*, a weekly agricultural industry newspaper (Figure 3.10; Table 3.2) (Houmas House n.d.; Louisiana Planter and Sugar Manufacturer Co. 1899a; Southern Historical Collection 2008).

William Porcher Miles, Sr., died at his plantation home (present-day Houmas House) near the town of Burnside on May 11, 1899, at the age of 76 years. Dr. W. P. Miles, Jr., and his five sisters inherited the Houmas Plantations and the Miles Planting & Manufacturing Company, but Miles, Jr., had been overseeing management of the family's Louisiana properties since around 1896. He and his sister, Sallie Miles, lived at the Houmas mansion during the early twentieth century, but, as the president of the Miles Planting & Manu-

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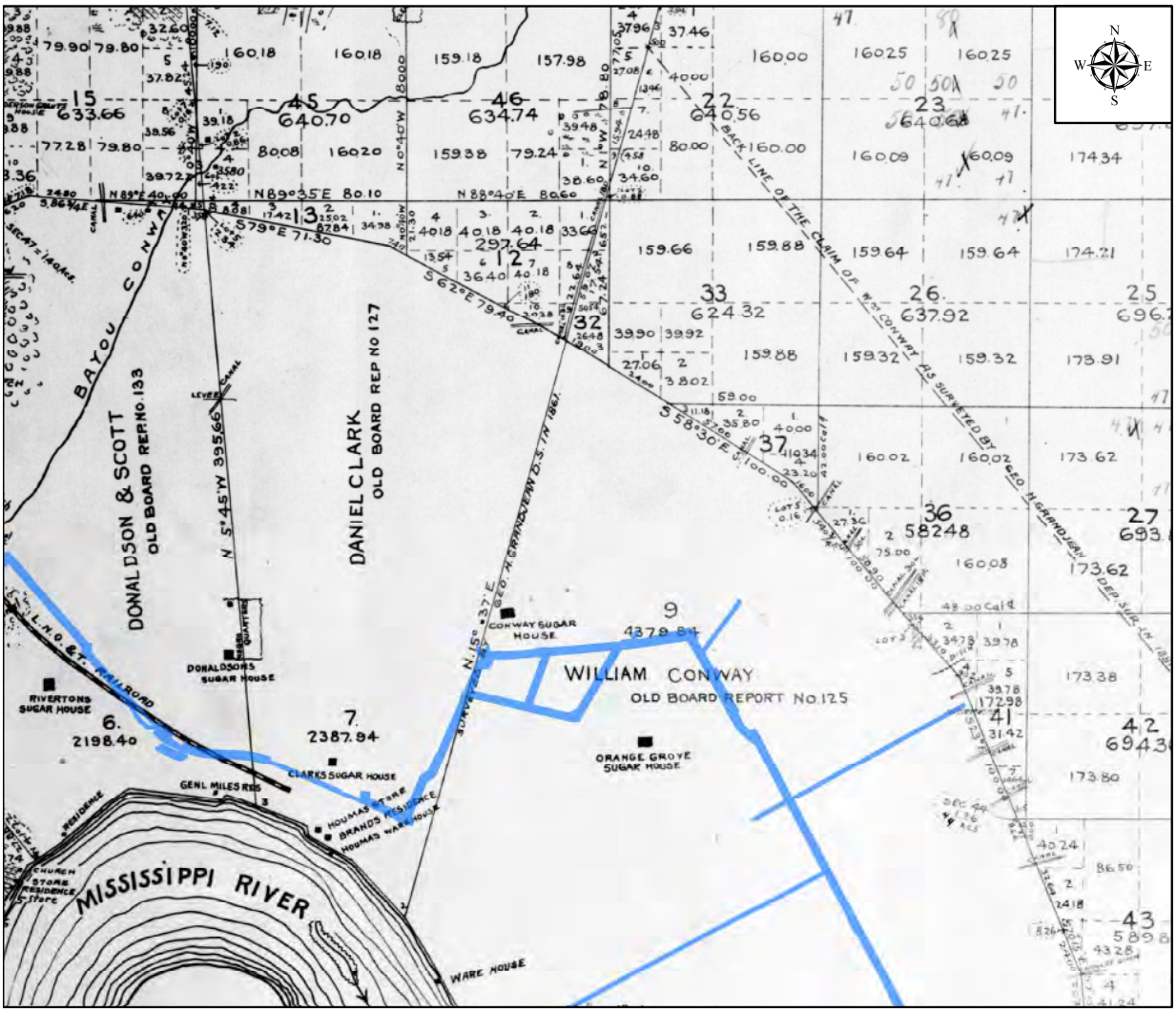

Figure 3.9 **[1891] Excerpt from the Louisiana State Land Office's Official Plat Map: Township 10S, Range 3E, South Eastern District, Louisiana, East of the Mississippi River, in reference to the current project corridor. Plat excerpt depicts the Conway Plantation and Orange Grove Plantation sugar houses in Section 9, as well as a riverfront warehouse that probably would have been part of the Orange Grove property.**

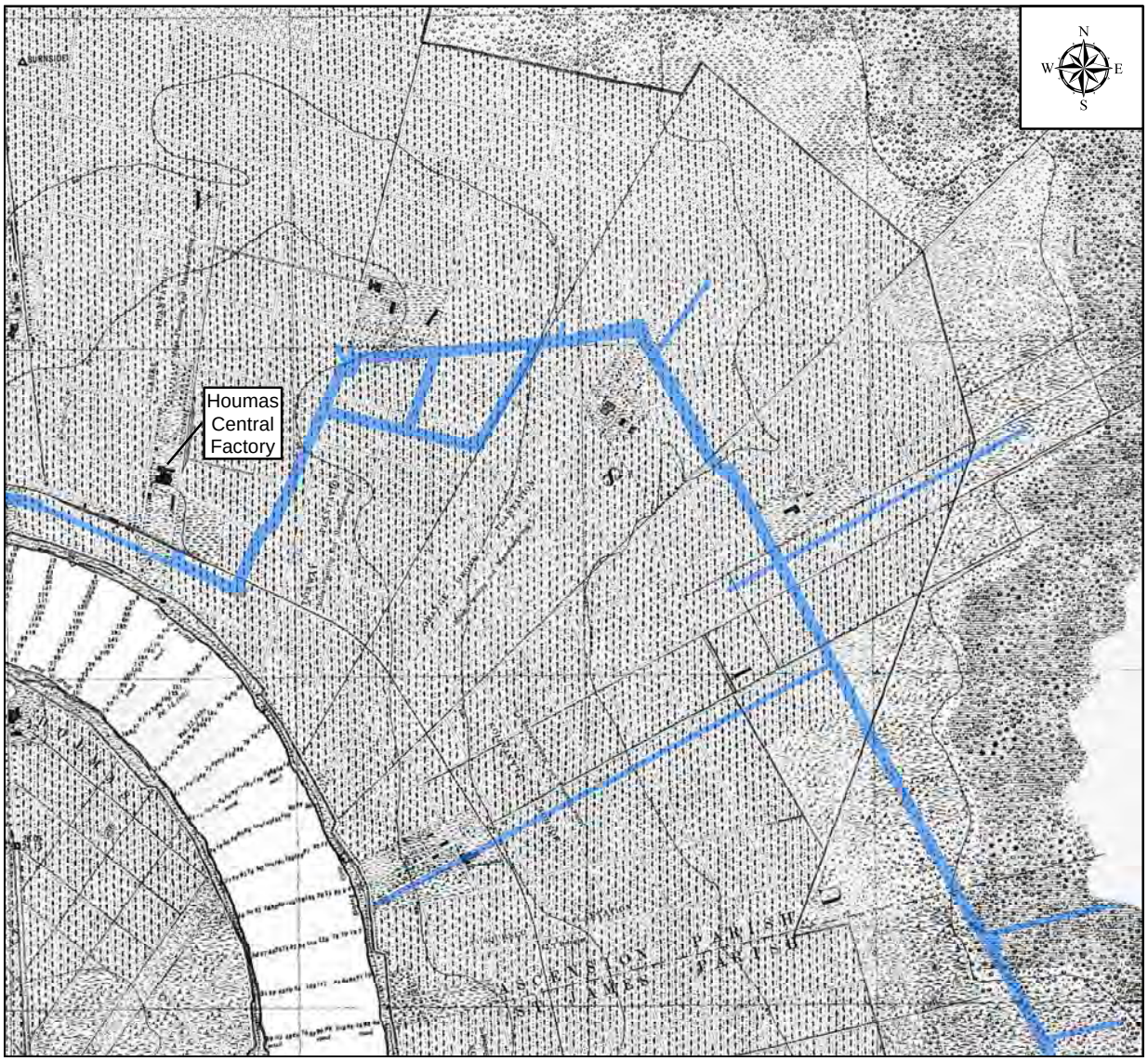

Figure 3.10 **[1883 (1894)] Excerpt from the Mississippi River Commission's *Survey of the Mississippi River*, Chart No. 70 (surveyed 1877-1894), in reference to the current project corridor. Map excerpt depicts Miles Planting and Manufacturing Co.'s Conway and Orange Grove Plantations and associated features.**

facturing Company, succeeding his father, Miles, Jr., also maintained an office near the riverfront docks in New Orleans. He met his future wife, Harriette Waters, in that city, and they married in 1911. By 1920, Miles had purchased a house in New Orleans on the upriver edge of the Lower Garden District, and that became his young family's permanent home. The Houmas mansion was maintained as a country retreat until 1940, when the Miles family sold it to Dr. George Crozat of New Orleans (Figure 3.11) (*Charleston News and Courier* 1899; *Daily Picayune* 1899; Houmas House n.d.; Louisiana Planter and Sugar Manufacturer Co. 1899a, 1899b; Soards' Directory Co. 1900-1901; U.S. Bureau of the Census 2023-2024 [1900-1930]).

Due to a series of financial setbacks, ranging from a collapse in sugar prices to crop failures, ca. 1914 into the 1920s, the Miles Planting & Manufacturing Company began phasing out sugar operations at its Houmas Central Factory. By 1917, only the firm's New Hope Factory near McCall in west bank Ascension Parish and its Armant Factory in St. James Parish were in oper-

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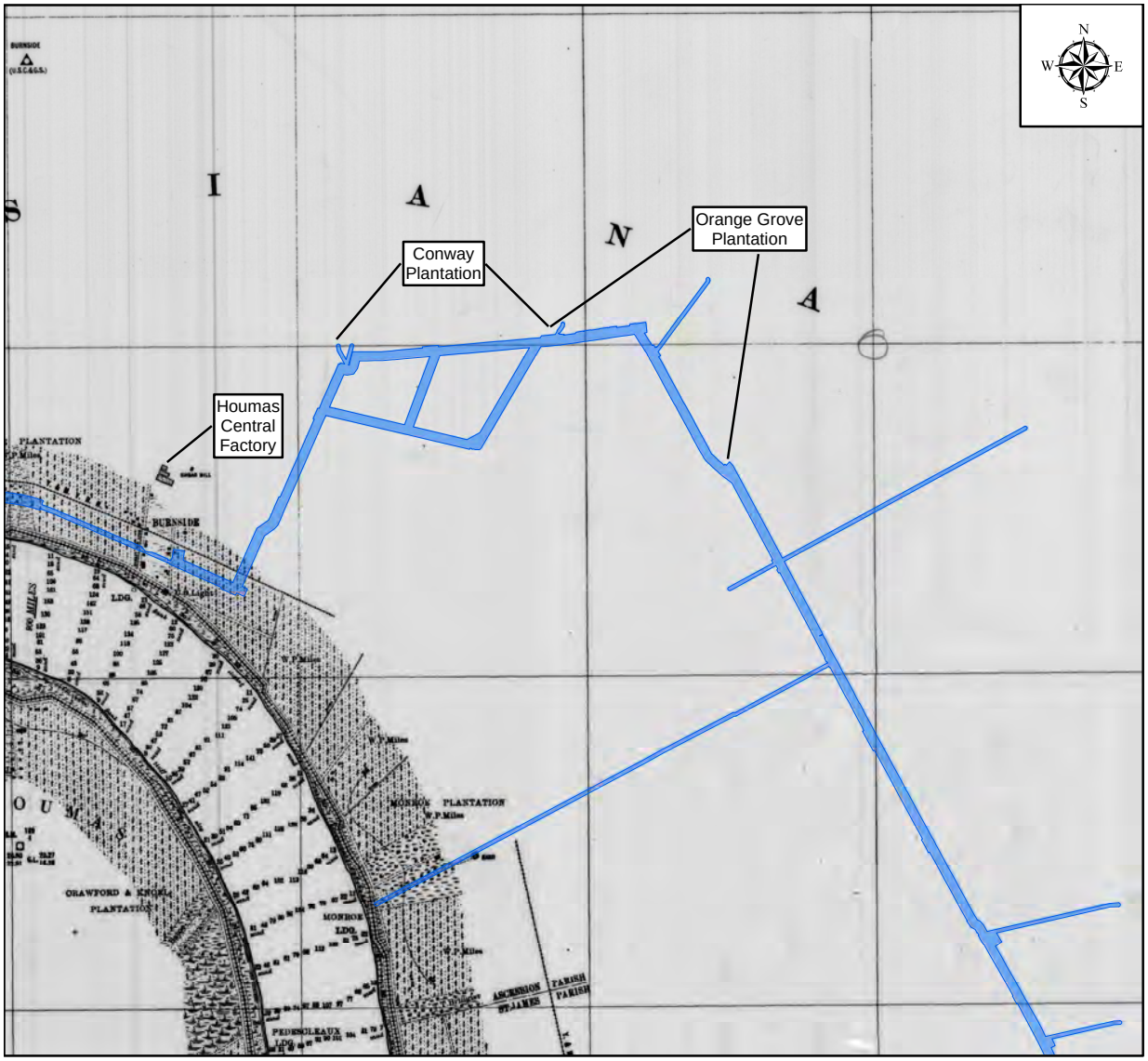

Figure 3.11 **[1913 (1921)] Excerpt from the Mississippi River Commission's *Survey of the Mississippi River*, Chart No. 70 (surveyed 1921), in reference to the current project corridor. Map excerpt depicts the Houmas Central Factory at Burnside and riverfront portions of some of the Miles plantations, including Conway and Orange Grove and associated features.**

ation. The family began selling off its plantations, and the company was dissolved in 1935 (Table 3.2) (*Donaldsonville Chief* 1917; Gilmore 1917:1, 30; Houmas House n.d.; Louisiana Department of State 2023; Louisiana Planter and Sugar Manufacturer Co. 1899c; U.S. Bureau of the Census 2023-2024 [1900-1910]).

Since the mid-twentieth century, the Burnside region has become part of the petrochemical corridor extending along the east bank of the Mississippi River. Despite the industrial complexes established nearby, the immediate study area encompassing the current project corridor apparently has remained agricultural acreage throughout the twentieth century and into the twenty-first century. In recent years, private agricultural concerns have retained ownership of the land tract encompassing the project corridor, and, today, that acreage remains planted in sugar cane, its historical cultigen (Figure 3.12) (DTC 1992; Sternberg 1996:158-159; U.S. Geological Survey [USGS] 1935-2020).

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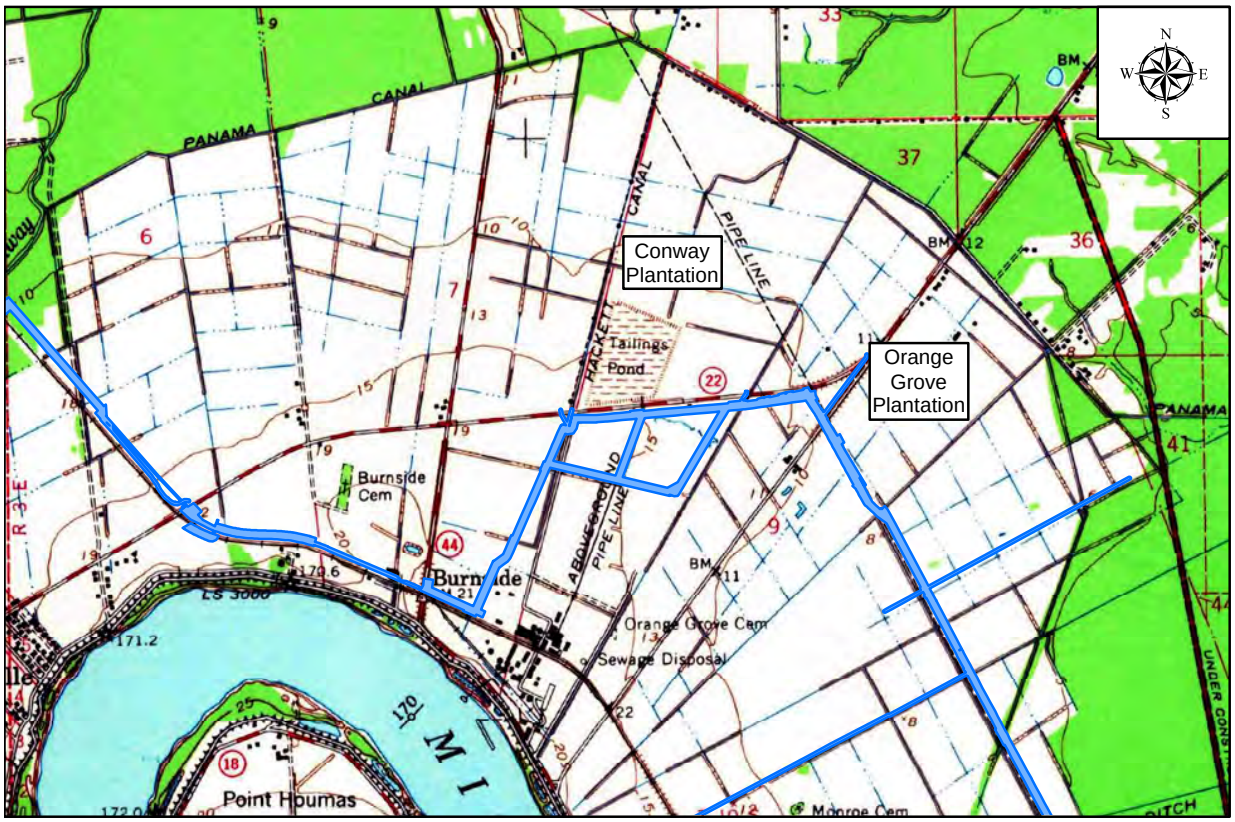

Figure 3.12 **[1962] Excerpt from U.S. Geological Survey's *Donaldsonville, Louisiana*, 15' series topographic quadrangle, in reference to the current project corridor. Map excerpt depicts roads, buildings, agricultural ditches, pipelines, and other features across historical Conway and Orange Grove Plantations, as mapped during the mid-twentieth century.**

Summary

The current project corridor covers land that has been in agricultural use from the late eighteenth century through the present. The acreage is located across several historic plantations, where sugar cane has been cultivated since at least the late 1820s. In addition to the cartographic review of the overall project vicinity, the preceding land tenure history includes a general summary of the property ownership and land usage of Conway and Orange Grove Plantations over a limited period of time, with information gleaned through cartographic research, sugar crop reports, census records, newspaper articles, and other publicly available records. No evident plantation structural remains exist today on the project acreage. Although the modest homes and outbuildings of the laborers who worked the fields probably would not have survived the years, associated features and artifacts might have become part of the archeological record.

Chapter IV
Previous Investigations

Introduction

To ensure that all potential impacts to known historic or prehistoric properties were addressed prior to the initiation of fieldwork, a review was completed of those previously conducted cultural resources surveys, previously recorded archaeological sites, historic built resources, cemeteries, and properties listed on the National Register of Historic Places (NRHP) situated within 0.5 mi (0.8 km) of the proposed project APE. This research involved an examination of available archaeological site forms, cultural resources survey reports, and historic maps currently on file with the Louisiana Division of Archaeology. In addition, a search of the online NRHP database was completed for those properties listed in Ascension Parish and St. James Parish, Louisiana. Cemeteries situated within 0.5 mi (0.8 km) of the project APE were identified by reviewing USGS quadrangle maps for marked cemeteries, as well as by utilizing online sources such as Find-a-grave.com and LA-Cemeteries.com. The results of this research are summarized below.

Previously Completed Cultural Resource Investigations within 0.5 mi (0.8 km) of the Project Area

Thirty-five previous cultural resources investigations have been completed within 0.5 mi (0.8 km) of the Project Jupiter project area (Figure 4.1; Table 4.1). Of these, four previous studies significantly intersected the current project area (Poche et al. 2016; Port et al. 2015; Shuman and Taylor 2012a; Stanyard et al. 2022) and these investigations are described in greater detail below, while the 31 remaining investigations did not significantly intersect the Project Jupiter project area.

Two of the investigations were completed on behalf of the USACE, New Orleans District for a Mississippi River levee improvement project (Goodwin et al. 1986) or an environmental mitigation project (Kirk et al. 2023), 1 was for the Louisiana Department of Culture, Recreation, and Tourism (Babson 1989), and 32 were Section 106 compliance efforts for private-sector industrial/commercial development projects (Cloy et al. 2019; Davies et al. 1998; Hale et al. 2011; Handly, Perrault, et al. 2011; Handly, Poche, and Perrault 2011; Handly, Poche, Perrault, et al. 2015; Handly, Poche, and Silverman 2015; Heller et al. 2020, 2021; Jenkins 2020; Jones et al. 1998; Kelley 2011; Lee et al. 2016; Montana et al. 2007; Morsink 2022; Pepperman and Shane 2021; Poche et al. 2016; Port et al. 2015; Rains and Brown 2016; Robblee and Davis 1997; Robblee et al. 1997; Rothrock and Moreno 2015; Shuman and Taylor 2012a, 2012b; Shuman, Taylor, and Gabour 2014; Shuman, Gabor, et al. 2014; Smith et al. 2001; Stanyard et al. 2022; Wells et al. 2011; Williams and Athens 1996; Yakubik et al. 1994; Young and Smith 2014).

Furthermore, 25 studies were described as Phase I cultural resources investigations that included subsurface testing efforts (Cloy et al. 2019; Davies et al. 1998; Goodwin et al. 1986; Hale et al. 2011; Handly, Poche, and Silverman 2015; Heller et al. 2020, 2021; Jenkins 2020; Kelley 2011; Kirk et al 2023; Montana et al 2007; Morsink 2022; Pepperman and Shane 2021; Poche et al. 2016; Rains and Brown 2016; Robblee et al. 1997; Rothrock and Moreno 2015; Shuman, Gabor, et al. 2014; Shuman and Taylor 2012a, 2012b; Shuman, Taylor, and Gabour 2014; Smith et al. 2001; Stanyard et al. 2022; Williams and Athens 1996; Young and Smith 2014) and 3 included both Phase I survey and Phase II NRHP testing efforts (Jones et al. 1998; Port et al. 2015; Wells et al. 2011). Two studies were Phase II NRHP testing ef-

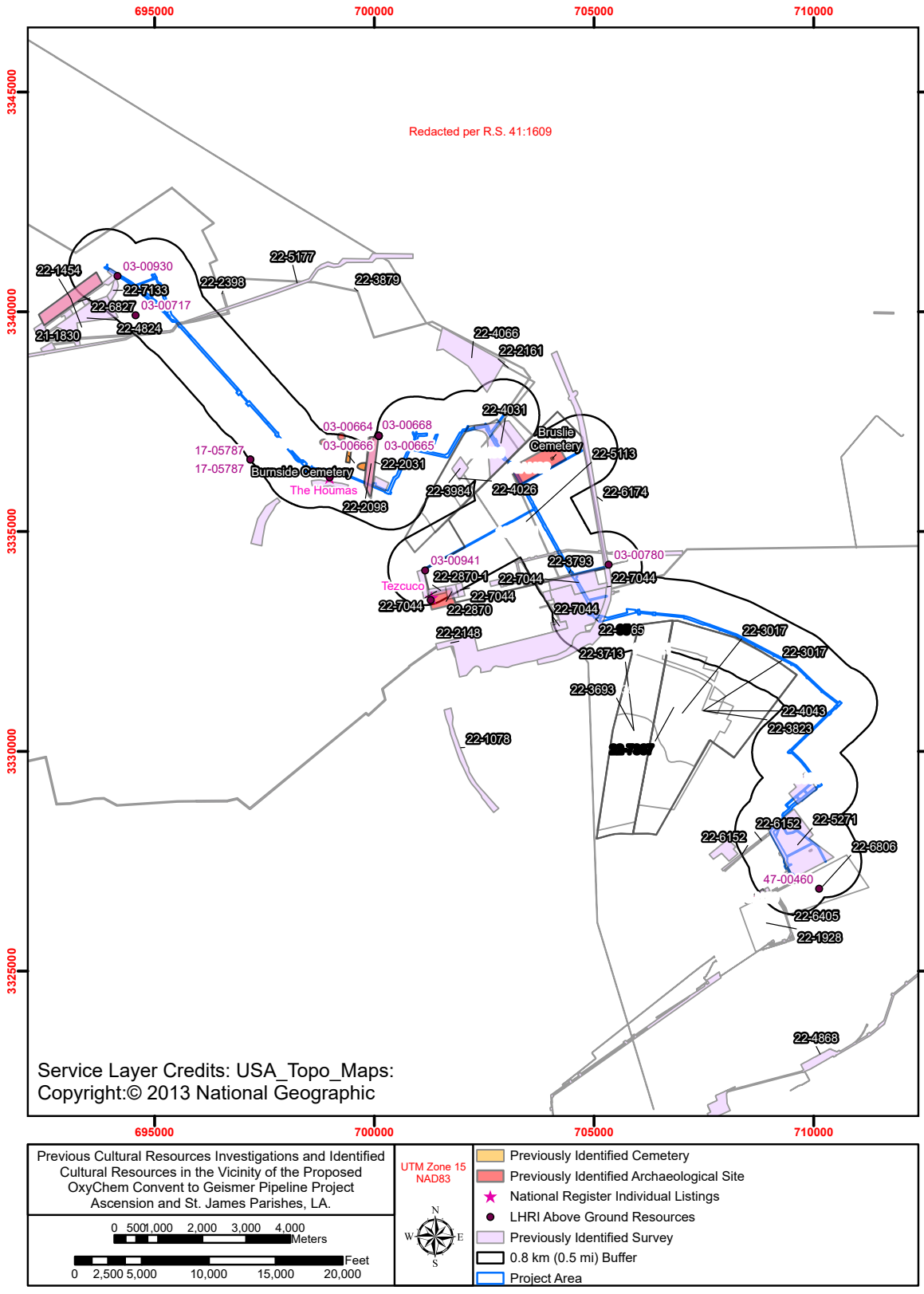

Figure 4.1 **USGS quadrangle map overlaid with the OxyChem Geismar to Convent Pipeline Project area and the locations of known archaeological sites, historic built resources, cemeteries, and previously completed cultural resources investigations within 0.8 km (0.5 mi) of the project area.**

Table 4.1 Previously Completed Cultural Resources Investigations within 0.8 km (0.5 mi) of the OxyChem Geismar to Convent Pipeline project area.

Report #	Title (Author/Date)	Sponsoring Agency	Study Type	Methods	Site(s) / Loci / Structures Identified	Recommendations	Notes
22-1078	*Cultural Resources Survey of the Burnside Revetment Item, Ascension and St. James Parishes, Louisiana* (Goodwin et al. 1986)	U.S. Army Corps of Engineers, New Orleans District	Phase I	Pedestrian survey, shovel testing	None	No further work recommended.	
22-1454	*Pillars on the Levee: Archaeological Investigations at Ashland-Belle Helene Plantation, Geismar, Ascension Parish, Louisiana* (Babson 1989)	Louisiana Department of Culture, Recreation, and Tourism	Phase II	Unit excavation	16AN26 revisited	Investigated portions of site recommended eligible; nominated to the NRHP.	
22-1830	*Archaeological Data Recovery at Ashland - Belle Helene Plantation (16AN26), Ascension Parish, Louisiana* (Yakubik et al. 1994)	Shell Chemical Company, Geismar, LA	Phase III, Monitoring	Shovel testing, mechanical excavation, unit excavation, archaeological monitoring	16AN26 revisited	Results of data recovery at Quarters Area, Sugar House Area, and archaeological monitoring presented.	
22-1928	*A Cultural Resources Survey of the Proposed Acadian Bulk Terminal, St. James Parish, Louisiana* (Williams and Athens 1996)	Burk-Kleinpeter, Inc., New Orleans, LA	Phase I	Pedestrian survey, shovel testing	6 sites (16SJ7, 16SJ9, 16SJ15, 16SJ16, 16SJ18, 16SJ57) and 2 structures recorded	Visual impact considerations for structures recommended; no further work recommended at archaeological sites.	
22-2031	*Phase I Cultural Resources Survey and Inventory of the Proposed City of Gonzales Wastewater Facilities Improvement 24" Effluent Force Main Line, Ascension Parish, Louisiana* (Robblee et al. 1997)	Glenn Shaheen & Associates, Inc., Gonzales, LA	Phase I	Pedestrian survey, shovel testing	Site 16AN60 revisited	Avoidance or additional work at portions of Site 16AN60 recommended.	
22-2098	*Phase II Archaeological Assessment of Site 16AN60, Ascension Parish, Louisiana* (Robblee and Davis 1997)	Glenn Shaheen & Associates, Inc., Gonzales, LA	Phase II	Mechanical trenching, unit excavation	Site 16AN60 revisited	Phase II testing exhausted the research potential for the investigated area of the site.	
22-2148	*Phase I Cultural Resources Survey and Inventory of the Proposed Bridgeline Gas Distribution Acadian Extension 6.625 In O.D. Pipeline Project, Ascension and St. James Parishes, Louisiana* (Davies et al. 1998)	Bridgeline Gas Distribution, St. Rose, LA	Phase I	Pedestrian survey, shovel testing	Site 16AN67 recorded; Site 16AN25 revisited	No further work recommended.	

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Table 4.1, continued

Report #	Title (Author/Date)	Sponsoring Agency	Study Type	Methods	Site(s) / Loci / Structures Identified	Recommendations	Notes
22-2161	*Cultural Resources Survey of the Proposed Route of a Pipeline in Ascension, East Baton Rouge, Iberville, St. James, and West Baton Rouge Parishes, Louisiana* (Jones et al. 1998)	Exxon Pipeline Co., Houston, TX	Phase I and II	Pedestrian survey, shovel testing, auger testing, unit excavation	Site 16IV28 recorded; 3 sites (16EBR41, 16AN1, 16SJ49)	Directional drilling at Site 16AN1 planned; no further work recommended for investigated portions of remaining sites.	
22-2398	*Intensive Cultural Resources Survey of the Proposed Enterprise Products Company Pipeline, Ascension, Assumption, and Iberville Parishes, Louisiana* (Smith et al. 2001)	Mustang Engineering, Inc., Houston, TX	Phase I	Pedestrian survey, shovel testing	3 sites (16AS104-106) recorded; Site 16AN59 revisited	Avoidance or additional work at Site 16AN59 Locus 1 recommended.	
22-2870	*Phase I Cultural Resources Investigations, Motiva Facility Expansion, Ascension Parish, Louisiana* (Montana et al. 2007)	C-K Associates, Inc., Baton Rouge, LA	Phase I, Monitoring	Pedestrian survey, shovel testing, monitoring, mechanical stripping, architectural survey	1 structure recorded; Site 16AN30 revisited	No further work recommended in investigated portion of site.	
22-2870-1	*Phase I Archaeological Survey of Approximately 3.2 Acres at the Convent Motiva Refinery, Ascension Parish, Louisiana* (Young and Smith 2014)	Greenup Industries, LLC, Gonzales, LA	Phase I	Pedestrian survey, shovel testing	Site 16AN30 revisited	No further work recommended in investigated portion of site.	
22-3017	*2007 Phase I and II Cultural Resources Investigations at the Proposed Nucor Steel Mill Facility, St. James Parish, Louisiana* (Wells et al. 2011)	Nucor Corporation, Charlotte, NC	Phase I and II	Pedestrian survey, shovel testing, architectural survey, mechanical stripping	4 sites (16SJ20-21, 16SJ30, and 16SJ34) revisited	Avoidance or reburial of remains at Site 16SJ30 recommended; no further work recommended at remaining investigated locations.	
22-3693	*Phase II National Register Evaluative Testing and Phase III Data Recovery Efforts at Sites 16SJ20 (Locality 46), 16SJ21 (Localities 40 and 41), and 16SJ34 (Locality SR14), Nucor Steel Louisiana, LLC, St. James Parish, Louisiana* (Handly, Poche, Perrault, et al. 2015)	Nucor Steel Louisiana LLC, Charlotte, NC	Phase II and III	Pedestrian survey, shovel testing, unit excavation, mechanical excavation	3 sites (16SJ20-21, 16SJ34) revisited	Mitigation of Sites 16SJ20 Locality 46 and 16SJ21 Locality 41 completed; no further work at Site 16SJ34 Locality SR14 recommended.	Localities not within project area
22-3713	*Management Summary - Phase III Mitigation, Locality 41, Site 16SJ21 (Helvetia Plantation), St. James Parish, Louisiana* (Handly, Poche, and Perrault 2011)	Nucor Steel Louisiana LLC, Charlotte, NC	Phase II and III	Pedestrian survey, shovel testing, unit excavation, mechanical excavation	Site 16SJ21 revisited	Preliminary data on Site 16SJ21 presented.	Management summary preceding Report # 22-3693; Localities not within project item

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Table 4.1, continued

Report #	Title (Author/Date)	Sponsoring Agency	Study Type	Methods	Site(s) / Loci / Structures Identified	Recommendations	Notes
22-3793	*Phase I Cultural Resources Survey of the 23.16 km (14.4 mi) Proposed Convent Dry Gas Pipeline Project, Ascension, St. James, St. John the Baptist, and St. Charles Parishes, Louisiana* (Hale et al. 2011)	T. Baker Smith, Inc., Houma, LA	Phase I	Pedestrian survey, shovel testing	None	No further work recommended.	
22-3823	*Management Summary – Phase III Mitigation, Locality 46, Site 16SJ20 (Wilton Plantation), St. James Parish, Louisiana* (Handly, Perrault, et al. 2011)	Nucor Steel Louisiana LLC, Charlotte, NC	Phase III	Unit excavation, mechanical excavation	Site 16SJ20 revisited	Preliminary data on Site 16SJ20 presented.	Management summary preceding Report # 22-3693; Localities not within project item
22-3879	*Phase I Cultural Resources Survey of the Proposed Praxair South Louisiana Hydrogen Pipeline Expansion Project, Ascension, St. James, St. John the Baptist, and St. Charles Parishes, Louisiana* (Kelley 2011)	Ecology and Environments, Inc., Baton Rouge, LA	Phase I	Pedestrian survey, shovel testing, probe testing	2 sites (16AN86 and 16AN87) recorded; 4 sites (16AN31, 16AN32, 16SJ73, 16SC65) revisited	Avoidance or additional work at 16AN87 recommended; no further work recommended at remaining sites.	
22-3984	*Phase I Cultural Resources Survey of 30.8 Acres (12.5 Hectares) Proposed for Industrial Use, Burnside, Ascension Parish, Louisiana* (Shuman, Taylor, and Gabour 2014)	Impala Warehousing (US), LLC, Darrow, LA	Phase I	Shovel testing	None	No further work recommended.	
22-4026	*Phase I Cultural Resources Survey of 437.7 Acres (177.1 Hectares) Proposed for Industrial Use, Burnside, Ascension Parish, Louisiana* (Shuman, Gabour, et al. 2014)	Impala Warehousing (US), LLC, Darrow, LA	Phase I	Shovel testing	Site 16AN89 recorded	Avoidance of Locations 1-3 planned; 100 ft buffer around Orange Grove Cemetery recommended.	
22-4031	*Phase I Cultural Resources Survey of 178.2 Acres (72.1 Hectares) Proposed for Industrial Use, Burnside, Ascension Parish, Louisiana* (Shuman and Taylor 2012a)	Impala Warehousing (US), LLC, Darrow, LA	Phase I	Shovel testing	Site 16AN89 revisited	Avoidance of tenant house area recommended; no furthre work recommended for remaining project area.	Intersected significant portions of current project area.

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Table 4.1, continued

Report #	Title (Author/Date)	Sponsoring Agency	Study Type	Methods	Site(s) / Loci / Structures Identified	Recommendations	Notes
22-4043	*Archaeological Investigation and Data Recovery at Wilton Plantation Site (16SJ20), St. James Parish, Louisiana* (Lee et al. 2016)	URS Corporation, Metairie, LA	Phase II and III	Pedestrian survey, shovel testing, unit excavation, mechanical excavation	Site 16SJ20 revisited	Research potential in investigated localities exhausted; no further work recommended.	Localities not within project item
22-4066	*Phase One Cultural Resources Survey of 120 Acres (48.6 Hectares) Proposed for Industrial Use, Burnside, Ascension Parish, Louisiana* (Shuman and Taylor 2012b)	Ormet Primary Aluminum Corporation, Burnside, LA	Phase I	Pedestrian survey, shovel testing	None	No further work recommended.	
22-4824	*Phase I Cultural Resources Investigation- Proposed Leaching and Separation Plants, Avalon Rare Metals, Inc., Near Geismar Ascension Parish, Louisiana* (Handly, Poche, and Silverman 2015)	Avalon Rare Metals Processing, LLC, Toronto, Canada	Phase I	Pedestrian survey, shovel testing	3 sites (16AN93-95) and 1 historic standing structure (SS-SA 1.1-01) recorded	No further work recommended.	
22-4868	*Phase I Cultural Resources Survey of the Proposed Maurepas Pipelines Project, Ascension, St. James, St, John the Baptist, and St. Charles Parishes, Louisiana* (Rothrock and Moreno 2015)	QPS Engineering, LLC (QPS)	Phase I	Pedestrian survey, shovel testing	3 sites (16SC89, 16SI85-86) and 1 historic standing structure (45-00582) recorded	No further work recommended.	
22-5113	*Monroe/Houmas (Site 16AN31) and Bruslie/Brule (Site 16AN32) Plantations Phase I/II Cultural Resources Investigations Ascension and St. James Parishes, Louisiana* (Port et al. 2015)	Motiva Enterprises, LLC, Convent, LA	Phase I and II	Pedestrian survey, shovel testing, remote sensing survey, mechanical stripping and excavation, unit excavation, cemetery recordation	3 sites (16AN30, 16AN31, 16AN32) revisited	Tracts A1, A2, B, D1, D3-1, and G recommended eligible; Tract C and D2 not fully investigated.	Intersected significant portions of current project area; Project cancelled before evaluations were completed.
22-5177	*A Terrestrial Phase I Cultural Resources Survey of the Proposed 65-Mile Enterprise Products 10-inch RGP Pipeline Project, Ascension, Iberville, and St. Martin Parishes, Louisiana* (Rains and Brown 2016)	Enterprise Products Operating LLC, Houston, TX	Phase I	Pedestrian survey, shovel testing	3 sites (16AN112-114) recorded; Site 16AN107 revisited	Avoidance or additional work at Site 16AN107 recommended. No further work recommended at remaining sites.	One parcel not accessible for survey.

Table 4.1, continued

Report #	Title (Author/Date)	Sponsoring Agency	Study Type	Methods	Site(s) / Loci / Structures Identified	Recommendations	Notes
22-5271	*Phase I Cultural Resource Survey - Proposed Shady Grove Property, for Wanhua Chemical US Holding Inc., St. James Parish, Louisiana* (Poche et al. 2016)	Wanhua Chemical US Holding, Inc., Houston, TX	Phase I	Pedestrian survey, shovel testing	4 sites (16SJ94-16SJ97) and 2 historic structures recorded	No further work recommended.	Intersected significant portions of current project area.
22-6152	*Phase I Cultural Resources Investigation of the Proposed Wanhua Heavy Haul Road Project Near Romeville in St. James Parish, Louisiana* (Cloy et al. 2019)	Wanhua Chemical US Operations, LLC, Houston, TX	Phase I	Pedestrian survey, shovel testing	None	No further work recommended.	
22-6405	*Phase I Cultural Resources Survey of the Proposed Boardwalk Louisiana Midstream Oxy Convent Brine Pipeline in St. James Parish, Louisiana* (Heller et al. 2020)	Fenstermaker, Houston, TX	Phase I	Pedestrian survey, shovel testing, architectural survey	Site 16SJ120 and 4 structures recorded; 2 sites (16SJ18 and 16SJ55) revisited	Avoidance of Sites 16SJ55 Locus 9A, 16SJ120, and Malarcher House planned; Site 16SJ18 recommended not eligible.	
22-6510	*A Phase I Cultural Resources Survey for the Gulf South Pipeline Company, LLC - Shell Convent Facility Project, St. James Parish, Louisiana* (Jenkins 2020)	Providence Engineering and Environmental Group, LLC, Baton Rouge, LA	Phase I	Pedestrian survey, shovel testing	None	No further work recommended.	
22-6806	*Phase I Cultural Resources Survey of the Proposed 136.4 ha (337 ac) Uncle Sam Stack 5 Expansion Project in St. James Parish, Louisiana* (Heller et al. 2021)	Geosyntec Consultants, Inc., Baton Rouge, LA	Phase I	Pedestrian survey, shovel testing, architectural survey, mechanical excavation	2 sites (16SJ124 and 16SJ125) and 1 structure recorded	No further work at Sites 16SJ124 and 16SJ125 recommended; structure recommended eligible, but no impact anticipated	
22-6827	*A Phase I Cultural Resources Survey for the Occidental Chemical Corporation-Geismar Facility Proposed 16" Effluent Pipeline in Ascension Parish, Louisiana* (Pepperman and Shane 2021)	Providence Engineering and Environmental Group, LLC, Baton Rouge, LA	Phase I	Pedestrian survey, shovel testing, architectural survey	3 sites (16AN136, 16AN137, 16AN138) and 1 railroad spur recorded	No further work recommended.	

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Table 4.1, continued

Report #	Title (Author/Date)	Sponsoring Agency	Study Type	Methods	Site(s) / Loci / Structures Identified	Recommendations	Notes
22-7044	*Phase I Cultural Resources Survey, Shell Cathedral Project, St. James and Ascension Parishes, Louisiana* (Stanyard et al. 2022)	Shell Global Solutions (US), Inc.	Phase I	Pedestrian survey, shovel testing, architectural survey	3 sites (16SJ128, 16SJ129, 16SJ130) and 9 structures recorded; 2 sites (16AN30 and 16AN31) and 4 structures revisited	Additional work at Sites 16SJ128, 16SJ129, and 16SJ130 recommended; one structure (Sunshine Bridge) previously recommended eligible; no further work at investigated portions of remaining sites recommended and no impact to remaining structures anticipated.	Intersected significant portions of current project area.
22-7133	*Phase I Cultural Resources Survey Report, OM2 Project, Ascension Parish, Louisiana* (Morsink 2022)	ECS Southeast, LLP, Baton Rouge, LA	Phase I	Pedestrian survey, shovel testing, auger testing	Site 16AN138 and 2 structures revisited	Architectural survey recommended after contstruction plans are finalized; no further work recommended at Site 16AN138.	
22-7367	*Phase I Cultural Resource Investigations of the St. James BLH-Wet CZ Project Area in St. James Parish, Louisiana* (Kirk et al. 2023)	U.S. Army Corps of Engineers, New Orleans District	Phase I	Pedestrian survey, shovel testing	2 sites (16SJ20 and 16SJ21) revisited	No further work recommended.	

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forts (Babson 1989; Robblee and Davis 1997), 3 were Phase II NRHP testing and Phase III data recovery (Handly, Poche, and Perrault 2011; Handly, Poche, Perrault, et al. 2015; Lee et al. 2016), and 2 were Phase III data recoveries (Handly, Perrault, et al. 2011; Yakubik et al. 1994). Of these, two reports were management summaries only (Handly, Perrault, et al. 2011; Handly, Poche, and Perrault 2011), which were associated with a subsequent full report (Handly, Poche, Perrault, et al. 2015).

Intersecting Surveys

Four previous studies significantly intersected the current project area (Poche et al. 2016; Port et al. 2015; Shuman and Taylor 2012a; Stanyard et al. 2022) and these investigations are described in greater detail below. Regardless of the mapped polygon, only those surveys with testing or excavations near the currently proposed project area were selected for additional discussion, which was determined by inspecting the maps provided within the respective reports. All four investigations were Section 106 compliance efforts for private-sector industrial/commercial development projects. Three of these studies were described as Phase I cultural resources investigations that included subsurface testing efforts (Poche et al. 2016; Shuman and Taylor 2012a; Stanyard et al. 2022) and one included both Phase I survey and Phase II NRHP testing efforts (Port et al. 2015).

Shuman and Taylor 2012a (Report no. 22-4031)

In 2012, SURA completed a Phase I survey of 72.1 ha (178.2 ac) of land on behalf of Impala Warehousing (Shuman and Taylor 2012). This survey, combined with Shuman et al. 2014 (Report no. 22-4026), covered a majority of Site 16AN89. However, the latter survey covered the more southerly portions of the site and will not be discussed further. Systematic shovel testing revealed an area containing cultural resources, designated Locations 2 and 3 (Shuman and Taylor 2012:13). This was in the vicinity of previous tenant cabins, and contained foundation features as well as an associated artifact deposit. Avoidance or additional testing of that location was recommended, and no further work was recommended for the remaining portions covered by the cultural resources investigation.

Port et al. 2015 (Report no. 22-5113)

A Phase I cultural resources survey of an approximately 985.4 ha (2,435 ac) area and Phase II testing of selected locations within that area was performed by ERM in 2012-2013 on behalf of Motiva Enterprises (Port et al. 2015). However, the proposed project was cancelled before the Phase II testing was completed, and Port et al. summarized the findings up to that point (2015). Phase I field methods consisted of pedestrian survey and shovel testing; remote sensing survey, mechanical stripping and excavation, unit excavation, and cemetery recordation were utilized at selected locations for Phase II testing. No shovel testing or unit excavation was performed within the known cemetery (Monroe), and limited shovel testing and no unit excavation was conducted in the then-suspected vicinity of Bruslie Cemetery.

Three archeological sites, 16AN30 (Tezcuco Plantation), 16AN31 (Monroe Plantation), and 16AN32 (Bruslie Plantation, nested within Site 16AN31), were revisited during this study. The survey area was divided into 16 tracts, and Tracts A1, A2, B (including Bruslie Cemetery), D1, D3-1, and G (including Monroe Cemetery) were recommended eligible for the NRHP. Tracts C and D2 were not fully investigated prior to the cancellation of the project; additional work in these tracts is recommended. No further work was recommended in the investigated portions of the remaining tracts.

Four tracts were located within or in close proximity to the currently proposed project area: Tracts B (coincides with Site 16AN32), D1, E3, and F1. Tract F1 was subjected to Phase I survey only, which failed to identify any cultural resources. The remaining tracts were identified during Phase I survey and further investigated with Phase II testing. Certain areas within Tract B (Site 16AN32) were subjected to additional shovel testing, unit excavation, and mechanical excavation to investigate the depositional integrity and reveal the location of structures such as those found in the sugarhouse areas, possible location of the mill manager's house, and worker's quarters (Port et al. 2015:10-49 – 10-

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112). Shovel testing also revealed the location of Bruslie Cemetery, which was further investigated by mechanical stripping to record the areal extent of burials; 99 burial shafts were documented, and no human remains were exhumed or uncovered during these excavations (Port et al. 2015:11-87). Additional shovel testing and mechanical stripping/trenching was conducted as part of Phase II testing in Tract D1. A majority of Tract D1 was recommended not eligible for the NRHP, but a 1.1 ha (2.7 ac) Area of Interest was identified and later merged with Tract B, as it was found to be more closely related to Bruslie Plantation (Port et al. 2015:10-141). Mechanical trenching also was conducted in Tract E (consisting of Tracts E1, 2, and 3), which failed to produce any evidence of intact archeological deposits, and no further work in that tract was recommended (Port et al. 2015:10-183).

Poche et al. 2016 (Report no. 22-5271)

In 2016, AECOM completed a Phase I cultural resources survey for the proposed Shady Grove Property for Wanhua Chemical US Holding, Inc. (Poche et al. 2016). That investigation included pedestrian survey and systematic shovel testing of a 148 ha (366 ac) project area. Four historic archeological sites (16SJ94, 16SJ95, 16SJ96, and 16SJ97), 2 isolated finds, and 2 historic built resources (47-01787, 47-01788) were identified. Areas A-D are of particular interest to the currently proposed project area, and Site 16SJ97 is located within Area D. All artifacts within Site 16SJ97 were recovered from the surface of the site, and none from any of the subsurface shovel tests (Poche et al. 2016:46-49). All cultural resources identified during this 2016 survey were assessed as not eligible for listing in the NRHP and no additional work was recommended.

Stanyard et al. 2022 (Report no. 22-7044)

A Phase I cultural resources survey of a proposed Shell facility was begun in March of 2020 and continued in 2022 by archeologists from ERM (Stanyard et al. 2022). Field methods consisted of pedestrian survey and systematic shovel testing, as well as architectural recordation. Three new archeological sites (16SJ128-130) were recorded, and portions of Sites 16AN30 and 16AN31 were revisited. Furthermore, 13 built resources were recorded or revisited during the architectural portion of the survey. However, only Sites 16AN30 and 16AN31 are within or in close proximity to the currently proposed project area, and the remaining cultural resources are located well outside of it.

Additional work at all three newly recorded sites (16SJ128-130) was recommended (Stanyard et al. 2022:1, 5). No evidence of cultural resources was found in the investigated portions of previously recorded Sites 16AN30 and 16AN31, so no further work is recommended in those areas. Of the 13 structures, only the Sunshine Bridge (LHRI# 47-01766) was recommended as eligible, but no effect is anticipated as part of that proposed project (Stanyard et al. 2022:5).

Previously Recorded Archaeological Sites Located within 0.5 mi (0.8 km) of the Project Area

Sixteen archeological sites have been recorded previously within 0.5 mi (0.8 km) of the Project Jupiter project area (Figure 4.1; Table 4.2). The project area intersects three sites, which will be discussed in further detail below. Thirteen sites were historic in age and generally dated from the nineteenth and twentieth centuries; one (Site 16SJ20) dated as early as the eighteenth century. Additionally, one site (16AN27) was prehistoric in age, one (16AN31) contained both prehistoric and historic components, and one site (16AN35) had a historic aboriginal component. Four sites were described as historic deposits or artifact scatters, 1 as a prehistoric artifact scatter, 2 as historic structures and structural remnants (Sites 16AN26 and 16SJ21), 3 as structural remnants with associated artifact scatters or middens, 1 as a historic cemetery (Site 16AN28), 3 as historic cemeteries with artifact scatters or artifact scatters and structural remnants (Sites 16AN31, 32, and 89), 1 as a possible human burial near structure remnants and an associated deposit (Site 16AN29), and 1 as a historic aboriginal burial ground with a historic artifact scatter (Site 16AN35); these cemeteries will be discussed in further detail below.

Of the 16 sites, 15 occurred on natural levees and one on a floodplain. Three of the sites have been evaluated and recommended as not eligible for listing on the NRHP, 6 sites have not been

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Table 4.2 Previously Recorded Archeological Sites Located within 0.8 km (0.5 mi) of the OxyChem Geismar to Convent Pipeline project area.

Site #	Site Name	Site Type	Affiliation	Topography	NRHP Assessment	Notes
16AN026	Ashland-Belle Helene	Historic structures, structure remnants, historic deposit	Historic (19th - Early 20th Century	Natural Levee	Listed	House listed, archaeology eligible, some portions of the site not eligible
16AN027	NLU-27	Prehistoric scatter	Prehistoric (Unknown)	Natural Levee	Not Assessed	Shovel tested, but surface artifacts only; presumed destroyed
16AN028	Burnside Cemetery	Historic cemetery	Historic (20th Century)	Natural Levee	Not Assessed	Burials from 1907-1943; damaged crypts
16AN029	Conways Sugar Mill	Possible historic burial, structure remnants, historic deposit	Historic (19th - 20th Century)	Natural Levee	Eligible	Sugar Mill, overseer's house, and slave quarters associated with Houmas Plantation
16AN30	Tezcuco Plantation	Historic ruins, historic artifact scatter	Industrial & Modern, Post-WWII	Natural Levee	Not Eligible	Tezcuco Plantation burned down. Loci A, B, C, and D are more modern artifact scatters within the Tezcuco Plantation site
16AN031	Monroe Plantation	Historic cemetery, historic deposit, prehistoric deposit	Prehistoric (Coles Creek), Historic (19th - Mid 20th Century)	Natural Levee	Eligible	Tracts A1, A2, and G Eligible; Tracts C, D1, D2, D3, E1, E3, F1, F2 Not Eligible; Partially assessed
16AN032	Bruslie Plantation	Historic cemetery, historic deposit	Historic (Late 19th - Early 20th Century	Natural Levee	Eligible	Partially assessed; lies within boundaries of 16AN31
16AN034	Riverton Plantation	Historic scatter	Historic (19th Century)	Natural Levee	Not Assessed	
16AN035	Grand Houmas Village	Historic aborigical burials, historic scatter	Historic Aborigical, Historic (19th Century)	Floodplain	Not Assessed	
16AN060	Houmas Central Sugar Factory	Structure remnants, historic deposit	Historic (19th - Early 20th Century)	Natural Levee	Eligible	Avoided by HDD
16AN089	Orange Grove Plantation	Historic cemetery, structure remnants, historic deposit	Historic (19th Century)	Natural Levee	Not Assessed	Cemetery outside of current 0.5mi radius
16SJ020	Wilton Plantation	Structure remnants, historic deposit	Historic (18th Century - present)	Natural Levee	Eligible	Main House and Sugar House areas eligible but partially assessed, Sugar mill and Locality 46 not eligible
16SJ021	Helvetia Plantation	Historic structures, structure remnants	Historic (19th - 20th Century)	Natural Levee	Eligible	Helvetia Plantation Front area eligible but partially assessed, Localities 40 and 41 not eligible
16SJ096	SAGAH100815A-02	Historic deposit	Historic (Late 19th - Early 20th Century	Natural Levee	Not Eligible	Site form not available; associated with Report 22-5271
16SJ097	Area D-01	Historic scatter	Historic (19th - 20th Century)	Natural Levee	Not Eligible	
16SJ120	Malarcher/ St Michael Plantation	Historic deposit	Historic (19th - 20th Century)	Natural Levee	Not Assessed	

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assessed applying the NRHP Criteria for Evaluation (36 CFR 60.4 [a-d]), 6 sites (16AN29, 16AN31, 16AN32, 16AN60, 16SJ20, and 16SJ21) have been assessed as eligible, and a portion of 1 site, 16AN26, is Listed on the NRHP. Sites 16AN26, 16AN31, 16AN32, 16SJ20, and 16SJ21 have not been assessed in their entirety, but portions of these sites have been determined to be eligible for listing on the NRHP. One site (16AN30) was previously a historic plantation site listed on the NRHP, Tezcuco Plantation. However, the structure burned down in 2002 and the site was subsequently delisted in 2019 and is currently assessed as not eligible. There are several loci within this site, some related to the plantation and some are more recent historic scatters consisting mostly of glass and ceramic.

Intersecting Sites

Three archeological sites were located within or in close proximity to the currently proposed project area, and these will be discussed in further detail below. Of these, two were assessed as eligible for listing on the NRHP, in whole or in part: 16AN31 and 16AN32. The remaining site, 16AN89, has not been assessed applying the NRHP Criteria for Evaluation (36 CFR 60.4 [a-d]). Furthermore, all three of the sites had associated cemeteries, although the cemetery at Site 16AN89 was located outside of the 0.8 km (0.5 mi) radius of the current project area.

Site 16AN31, Monroe Plantation

Monroe Plantation, Site 16AN31, was originally recorded in 1981 by CEI as a mid-nineteenth to mid-twentieth century sugar plantation complex. A number of features were identified, including the quarters area, sugarhouse, machine shop, cemetery, and main plantation house. The site was recommended as potentially eligible at that time. A small portion of the site, located near the southern border, was revisited in 2011 during an RCG&A survey, which failed to reveal any evidence of cultural resources. As a result of survey and archival research, the boundary of Site 16AN31 was shifted in 2012 to reflect historic parish boundary changes. Another portion of the site was surveyed by CEI in 2011. That Phase I survey traversed the mid-rear width of the site, and also did not result in the recovery of any artifacts of identification of features. The most recent site visit occurred in 2013, as part of Port et al.'s (2015) Phase I and II survey and testing of a large portion of the site. During that visit, they clarified that a majority of the site was under sugar cane cultivation, excepting the cemetery and quarters areas, which were located in the northwestern corner of the site and near the Mississippi River. Structural remains were relocated in the quarters, mill manger's residence, and sugarhouse areas, and intact cultural deposits, including artifact scatters, were located below the plowzone in those areas as well as in Tracts C and D. Furthermore, mechanical stripping was conducted at the Monroe Cemetery in order to define the border of the area; 163 burial features were documented. Although the project was cancelled before Phase II testing was completed, CEI recommended that Tracts A1, A2, D1, D3, and G be considered eligible for listing on the NRHP as a discontinuous contributing elements of Monroe Plantation.

Site 16AN32, Bruslie Plantation

Also recorded in 1981 by CEI, Site 16AN32 (Bruslie Planation) is nested within the boundaries of Monroe Plantation (16AN31). This site was recorded as a late nineteenth to mid-twentieth century sugar plantation, with residential and sugarhouse features, and was recommended as potentially significant. The site was revisited in 2000 by archeologists from CEI. Although the investigated area did not contain significant cultural resources, it was noted that artifact density increased towards the south of the survey area and additional testing may be necessary if the proposed project corridor moved. Another portion of the site was surveyed by CEI in 2011. That Phase I survey traversed the southwestern edge of the site, and recovered artifacts confirmed the late nineteenth to early twentieth century occupation, but noted that the presence of pearlware might indicate an earlier occupation of the site. The most recent site visit occurred in 2013, as part of Port et al.'s (2015) Phase I and II survey and testing of the site. In addition to mechanical stripping and unit excavation at selected building lo-

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cations, remote sensing and mechanical stripping were utilized to identify and define the boundaries of Bruslie Cemetery.

Site 16AN89, Orange Grove Plantation

Orange Grove Plantation was recorded as an archeological site in 2012 by SURA as a nineteenth century sugar plantation site with an associated cemetery. Recovered artifacts included creamware and pearlware, indicating an early occupation, and foundational evidence of 2 sugar mill sites, the main plantation house, and tenant quarters were identified. The cemetery area was clearly marked, and not shovel tested. Additional testing at three locations was recommended, and no impact to the cemetery was expected. The currently proposed project area passes close to, but not through, Localities 2 and 3, which included the main house and farm buildings.

Review of Historic Built Resources Recorded within 0.5 mi (0.8 km) of the Project Area

According to the Louisiana Cultural Resources Database Map, 16 previously reported historic built resources occur within 0.5 mi (0.8 km) of the Project Jupiter project area (Figure 4.1; Table 4.3). Of these, seven were historic structures that originally dated from circa 1850 to 1900 and were moved to their current location near the intersection of Routes 44 and 22, at the northeastern corner of Site 16AN60 and outside of the currently proposed project area. These consisted of 4 slave quarters from nearby plantations, 1 school that was said to have been the first Black Catholic school in the area, 1 post office, and 1 post office and store (LHRI# 03-00664 – 03-00670).

In addition to these, one recorded building was NRHP-listed Houmas House (LHRI# 03-00726), which was originally build in circa 1790 and expanded in 1840; this structure will be discussed in further detail below. Previously NRHP-listed Tezcuco Plantation house (LHRI# 03-00725) was originally built in circa 1855 but destroyed in a 2002 fire. It was a large central hall residence in Greek Revival style. LHRI# 03-00941 is the Jeremiah Baptist Church, built circa 1960 and altered in 1983. It is a vernacular church with no specific architectural style. One single shotgun residence and a double shotgun that was used as a commercial space were both built in the early twentieth century and exhibited no specific architectural style. One structure was a circa 1961 railroad spur (LHRI# 03-00930), and little information was available on another residence, LHRI# 03-00717; neither of these are considered eligible for listing on the NRHP. Finally, LHRI# 17-05787 appeared on the map, but was misplotted and the structure form was not available (the 17- prefix does not indicate Ascension Parish).

Previously Recorded Cemeteries Located within 0.5 mi (0.8 km) of the Project Area

Four known cemeteries occur within 0.5 mi (0.8 km) of the Project Jupiter project area (Figure 4.1; Table 4.4). They do not occur within or immediately adjacent to the project area, and no information on any of the cemeteries was available on Find-a-Grave. According to the Louisiana site form, Burnside Cemetery, Site 16AN28, was documented in 1980 as having 20 interments than dated from 1907 to 1943. The Monroe Cemetery, part of Site 16AN31, was the likely location of the Conway/ Houmas Plantation slave cemetery, and was first depicted on maps in 1877; research indicated that it likely was established in the mid-1820s (Port et al. 2015:11-2 – 11-3). Field investigations in 2013 revealed a high number of densely spaced, unmarked interments. The cemetery was recommended as individually eligible for listing on the NRHP, as well as a contributing element to a proposed NRHP archaeological district (Port et al. 2015:11-58). The burial grounds and artifacts at Great Houmas Village, Site 16AN35, are associated with historic Houmas Tribe Native Americans. This location was recommended to be potentially significant after a site visit in 2002, when it was recommended that immediate measures be put into place to protect the area from nearby growing subdivisions. Finally, the Bruslie Cemetery is located within Site 16AN32; remote sensing survey and mechanical stripping revealed the likely extent of the unmarked cemetery and 99 burials or likely burials were recorded (Port et al. 2015:11-66 – 11-75).

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Table 4.3 Previously Recorded Historic Built Resources Located within 0.8 km (0.5 mi) of the OxyChem Geismar to Convent Pipeline project area.

LHRI #	USGS 7.5' Quadrangle	Address	Type (Name)	Style	Construction Date	NRHP Eligibility	Recorder (Date)	Notes
03-00664	Gonzales	Corner of Routes 44 and 22, Burnside	Anglo Folk Vernacular	No Style	c.1850	Not Assessed	PBM (1985)	Slave quarters from Monroe Plantation
03-00665	Gonzales	Corner of Routes 44 and 22, Burnside	Creole Cottage	No Style	c.1850	Not Assessed	PBM (1985)	Slave quarters from Helvetia Plantation
03-00666	Gonzales	Corner of Routes 44 and 22, Burnside	no data	Greek Revival	c.1840	Not Assessed	PBM (1985)	School behind St Michael's Church, said to be the first Black Catholic school in area
03-00667	Gonzales	Corner of Routes 44 and 22, Burnside	no data	No Style	c.1900	Not Assessed	PBM (1985)	Post office from Union, LA
03-00668	Gonzales	Corner of Routes 44 and 22, Burnside	Creole Cottage	No Style	c.1850	Not Assessed	PBM (1985)	Slave quarters from Helvetia Plantation
03-00669	Gonzales	Corner of Routes 44 and 22, Burnside	Commercial	Queen Anne	c.1900	Not Assessed	PBM (1985)	Post office and store from Darrow, LA
03-00670	Gonzales	Corner of Routes 44 and 22, Burnside	Creole Cottage	No Style	c.1850	Not Assessed	PBM (1985)	Slave quarters from Helvetia Plantation
03-00717	Gonzales	Approx. 70m North of Bowden road and sugarmill, Gonzales	no data	No Style	no data	Not Eligible	no data	
03-00725	Burnside	LA-44	Plantation	Greek Revival	c.1855	Delisted	ERM (2020)	Tezcuco Plantation: Originally Listed in 1983. House burned down in 2002 and delisted in January 2019.
03-00726	Gonzales	Houmas House, River Road, Burnside	Central hall	Greek Revival	c. 1790, expanded 1840	Listed	Van Horn (1983)	
03-00780	Sorrento	3408 Highway 70, Sorrento	Double Shotgun (Commercial)	Other	c.1920	Not Eligible	ERM (2020)	Louisiana Treated Lumber, Inc.
03-00930	Gonzales	North of Illinois Central Railroad, Geismar	Railroad spur	n/a	c.1961	Not Eligible	2021	
03-00941	Darrow	3380 River Road/ LA-44, Darrow	Church (Rectangular)	No Style	c.1960	Not Eligible	ERM (2020)	Jeremiah Baptist Church
17-05787	Gonzales	Not available. Likely misplotted						
47-00460	Donaldsonville	1110 Pecan Lane, St. James	Single Shotgun	No Style	c.1935	Not Assessed	P. Leslie (1986)	

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Table 4.4 Cemeteries Located within 0.8 km (0.5 mi) of the OxyChem Geismar to Convent Pipeline project area.

Site #	Parish	Cemetery Name	Size	Number of Identified Graves (Approximate)	Earliest Known Grave	Latest Known Grave	Current Status	NRHP Assessment	Notes
16AN28	Ascension	Burnside Cemetery	2.7 ha (6.7 ac)	20	1907	1943	Inactive	Not Assessed	Only 6 marked graves; info obtained from site form
16AN31	Ascension	Monroe Cemetery	0.6 ha (1.5 ac)	no data	1877	no data	Inactive	Eligible	Portions of site determined Eligible; Sign indicates an unmarked African American cemetery that dates to the 1820s, with "as many as a thousand" interments.
16AN32	Ascension	Bruslie Cemetery	0.3 ha (0.7 ac)	no data	no data	no data	Inactive	Eligible	Portions of site determined Eligible; Sign indicates an unmarked African American cemetery that dates to the 1830s, with "several hundred" interments.
16AN35	Ascension	Great Houmas Village	2.4 ha (5.9 ac)	no data	no data	no data	Inactive	Not Assessed	Historic aboriginal

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National Register of Historic Places Listed Properties Located within 0.5 mi (0.8 km) of the Project Area

Two National Register Historic Properties or Historic Districts occur within 0.8 km (0.5 mi) of the Project Jupiter project area (Figure 4.1; Table 4.5). The Houmas House (NPS# 80001694) occurs immediately across the railroad tracks and approximately 0.15 km (0.09 mi) south of the project area. The original Houmas House was built in circa 1790 and was expanded in 1840 to be a large, central hall residence in Greek Revival style. The NRHP listing includes the original 1790s as well as the larger house, garconnieres, a caretaker's house, carriage house, and several other outbuildings and the formal gardens. Houmas House is of National significance, as the owner in the 1850s-60s was the largest slave holder in Louisiana, and the architecture remains an excellent example of the region's grand plantation houses.

A part of archaeological site 16AN30, the Tezcuco Plantation was a single-family Greek Revival plantation house located near Burnside, Ascension Parish, Louisiana. The structure was likely built by Benjamin Turead around 1855 and its plan was much like an enlarged version of a traditional Creole plantation house. Its architecture was considered significant on a statewide level, reflecting the style of the time it was built. Its floorplan was more elaborate and developed then typical plantation houses of its time, and it remained remarkably intact up until the 21st century. The house remained in the Bringier-Tureaud family until the 1950s when it was bought by the Potts family, and then the plantation grounds were sold to the Motiva Convent Refinery in 1982. The following year, it was listed on the NRHP. The Tezcuco Plantation house was destroyed by a fire in 2002, and was subsequently delisted from the NRHP in 2019.

Table 4.5 **Properties Listed on the National Register of Historic Places and National Register Historic Districts Located within 0.8 km (0.5 mi) of the OxyChem Geismar to Convent Pipeline project area.**

Historic Name	NPS #	Address	Date Placed on Register	Level of Significance	Area of Significance	Architectural Style	Notes
Houmas House	80001694	1.5 miles northwest of intersection of Highway 22 & 44, Burnside	9/27/1980	National	Architecture, Economics	Greek Revival	
Tezcuco	n/a	River Road, Burnside	3/3/1983	State	Architecture	Greek Revival	Delisted 2019; destroyed by fire 2002

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Chapter V
Research Design and Methodology

This chapter describes the field methodology used to complete the Phase I cultural resources survey of the proposed pipeline routes in Ascension Parish and St James Parish, Louisiana (Figures 1.1, 1.2). This cultural resources inventory was designed to identify and to evaluate all cultural resources (archaeological sites, isolated finds, historic above-ground resources, and cemeteries) situated within the proposed Project area that may be impacted adversely by this undertaking, applying the National Register of Historic Places (NRHP) Criteria for Evaluation (36 CFR 60.4 [a-d]). All fieldwork was conducted in accordance with the Secretary of the Interior's "Standards and Guidelines" (48 FR 44716), the Advisory Council on Historic Preservation's handbook entitled *Treatment of Archaeological Properties*, the procedures outlined in the National Historic Preservation Act of 1966, as amended, the Archaeological and Historic Preservation Act of 1974, and Title 36 of the Code of Federal Regulations, Parts 60-66 and 800 as appropriate. Additionally, this survey effort abided by the guidance provided in *Louisiana's Comprehensive Archaeological Plan* (Girard et al. 2022), and the Louisiana Division of Archaeology's online guidelines for cultural resources investigations. Finally, this investigation was guided by a project-specific scope of work (SOW) developed in consultation with the Louisiana SHPO's office, which is reproduced in Appendix I. This chapter also presents information regarding the curation of all records, cultural materials, photographs, and field notes generated as a result of this investigation.

Research Design and Probability Modeling

The investigation was designed to identify all cultural resources located within or immediately adjacent to the project area. Fieldwork was comprehensive in nature; planning took into account the results of those archeological surveys previously completed within 0.8 km (0.5 mi) of the project area, as well as an assessment of the probability of each portion of the project area to contain cultural resources. This archeological inventory was based on methods that provided for consistency and quality control, as well as for precisely locating all cultural resources identified during survey. Fieldwork included both surface reconnaissance throughout the entire length and width of the proposed project items and the implementation of a stratified and systematic subsurface testing regime.

Based on the results of the background research, the project area was segmented and the segments classified according to their potential containing cultural resources and their requirements for survey. Approximately 9.8 km (6.1 mi) of the pipeline ROW and 6.7 km (4.2 mi) of the temporary access roads were characterized as having a high probability for containing cultural resources and were investigated by intensive pedestrian survey and shovel testing at high probability intervals. These locations were identified based on proximity to known archeological sites or suspected sites based on examination of historic maps, as well as positioning on the landscape. Specifically, locations not in wetlands and positioned on natural levee soils or above the 10 ft contour line as indicated on USGS quadrangle maps were determined to be high probability. Another 14.4 km (8.9 mi) of pipeline ROW and 4.2 km (2.6 mi) of access roads were characterized as having a low probability for containing cultural resources and was investigated by intensive pedestrian survey and shovel testing at low probability intervals. Locations classified as low probability were identified based on positioning below the 10 ft contour lines on USGS quadrangle maps and/or within wetlands, and outside the known or suspected locations of archeological

sites. The remaining 5.4 km (3.4 mi) of pipeline ROW and 3.6 km (2.2 mi) of access roads were not surveyed either because they fell within locations that had been investigated previously for cultural resources, or because they did not require survey because no ground disturbing activities are planned to occur in those locations.

Phase I Cultural Resources Survey and Archeological Inventory

The frequency and distance between shovel tests reflected this perceived probability of an area to contain cultural resources. In areas with a high probability for containing intact cultural deposits, shovel tests were excavated at 30 m (98.4 ft) intervals along survey transects spaced 30 m (98.4 ft) apart. In low probability areas, shovel tests were excavated at 50 m (164.0 ft) intervals along survey transects spaced 50 m (164.0 ft) apart.

Each shovel test measured approximately 30 cm (12 in) in diameter and each was excavated to a minimum depth of 50 cmbs (20 inbs), to sterile clay or clay-like subsoil, or until an influx of water hindered the excavation process. All fill soils were screened through 0.25 in (0.64 cm) hardware cloth; extremely wet soils and clay was hand-sifted, troweled, and examined visually for cultural material. Each shovel test was excavated in 10 cm (4 in) artificial levels within natural strata, and the fill from each level was screened separately. Munsell® Soil Color Charts were used to record soil color; soil texture and other identifiable characteristics were recorded using standard soils nomenclature. All shovel tests were backfilled immediately upon completion of the archeological recordation process.

Field data collection at each of the proposed corridor survey segments and of all identified cultural resources employed sub-meter accurate handheld Trimble TDC 150 units. Field data was processed in-house by GIS specialists using ESRI Collector software and exported to an ArcGIS geodatabase. Trimble TDC 150 units were equipped with software to provide 'real time' transfer of field data to the home office for processing. This software allowed for project updates to be sent directly to field crews. A customized data dictionary designed for the Phase I cultural resources survey was loaded to each GPS unit through RCG&A's use of the ESRI Collector, and all data generated in the field was transferred to a cloud-based backup database on-the-fly or when in-field connectivity was optimal.

Archeological Site Delineation

All identified cultural resources were delineated sufficiently so their vertical and horizontal extent could be determined within the limits of the proposed project corridor. Archeological recordation of each resource included a combination of the following: (1) establishment of a site datum; (2) intensive surface reconnaissance of the site area; (3) excavation of tightly spaced shovel tests at 10 m (32.8 ft) intervals along rays emanating from datum in each of the cardinal directions to delineate both site size and configuration within the proposed pipeline corridor; and (4) mapping and color photography of the site. For those archaeological sites where the plan was to avoid by reroute, site delineation was focused on determining the outer boundaries of the site and close-interval shovel testing was not completed throughout the entire site interior.

Laboratory Analysis

Laboratory analysis of all recovered cultural material followed established archeological protocols. All field specimen bag proveniences first were crosschecked against the field notes and the information checked for accuracy and completeness. Following this quality-control process, all recovered material was washed by hand, air-dried, sorted into basic material categories, and then encoded into customized relational databases built using Microsoft Access © 2019 software, to allow for further manipulation of the data.

Each database organized most of the recorded data into sortable fields, which allowed analysts to query specific data according to a broad range of variables. Consistent with the research design for this project, which was focused on the identification and evaluation of cultural resources within the proposed project area, particular care was taken to observe and record the chronologically sensitive attributes of each artifact, in order to evaluate whether the item was more than 50 years in age, and whether it was indicative of a particular period or culture. While basic descrip-

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tive information was recorded for all recovered items, less effort was expended on classes of artifacts that provide little information that is relevant to the research design, such as bulk historic materials (i.e., brick fragments, coal, mortar), lithic debitage, and faunal material.

Historic Artifact Analysis

Analytical protocols for historic artifacts involved the recordation of attributes that are both descriptive, and that may be used to identify items that are temporally diagnostic. In the database, each basic attribute category occurred as a separate column heading; these included *Material Class*, *Material Category*, *Form*, *Manufacture*, *Ware*, and *Decorative Class*. The first two categories, *Material Class* and *Material Category*, were used to sort items by basic material type. *Material Class* segregated items into broad classes such as "ceramic," "glass," and "metal." *Material Category* further divided the Material Classes into commonly recognized categories, such as "refined earthenware," "stoneware," or "porcelain" for the ceramic class; "solarized manganese," "colorless," or "aqua" for the glass class; and "ferrous," "cupreous," and "lead" for the metal class. The next attribute category, *Form*, identified artifacts by basic morphology, such as "bottle," "plate," or "nail." For fragmented pieces of glass or ceramic containers, if the original vessel form was not readily apparent, these were recorded simply as "shard" for glass items, or "sherd" for ceramic items.

The categories *Manufacture* and *Ware* both related to the production of an item. *Manufacture* most often was used for container glass and certain metal items. For example, the *Manufacture* of a glass bottle could be identified as "machine made," "hand blown," "post bottom mold," and so on, while a metal nail could be classified as "wire," "cut," or "wrought." *Manufacture* typically was not recorded for ceramic items, as the *Ware* type often is more readily identified, and more diagnostic, than the *Manufacture*. *Ware* categories for ceramic vessel sherds included "whiteware," "pearlware," and "soft-paste porcelain." The *Manufacture* of a ceramic item would be recorded if it was noteworthy, but otherwise was left blank, or recorded as "typical for type."

The final basic attribute category, *Decorative Class*, was used to record any form of decoration noted on an item. For ceramic items, categories could include such common decorative modes as "transfer printed," "hand painted," and "annular," while categories of decorated glass could include "pressed," "cut," and "etched." Embossed lettering, which frequently occurs on molded or machine made glass bottles, as well as on some ceramic items, also was recorded as a *Decorative Class*. Items that exhibited no decoration were recorded as "plain/undecorated," unless it was an item that typically is never decorated, such as a nail, in which case the *Decorative Class* was recorded as "n/a" (i.e., "not applicable").

The historic artifact database also was designed to record other diagnostic traits that occur on only a minority of artifacts. For example, finish types on glass bottles, slips and glazes on unrefined earthenware and stoneware vessels, and makers' marks on ceramic or glass items, all were recorded in separate, sortable columns whenever they were identified. Finally, any additional attributes that do not fit within one of the built-in categories, or that require extended narrative description, were recorded in the *Additional Description* column. The identification of artifacts was aided by consulting standard reference works such as Fike (1987), Hume (1969), Jones and Sullivan (1989), Kovel and Kovel (1986), Lindsey (2023), Lockhart (2006), Markell et al. (1999), Miller (1980, 1991), Miller et al. (2000), Nelson (1968), South (1977), Switzer (1974), Toulouse (1971, 1977), Whitten (n.d.) and Wilson (1981). Date ranges for items often are taken from Miller et al. (2000) and from the online Digital Archaeological Archive of Comparative Slavery (DAACS) database (2023). If an item exhibits more than one attribute that is temporally diagnostic, then the trait or combination of traits that provides the most narrowly circumscribed date range is preferred. For example, if a glass bottle is identified as machine made (ca. 1903–present; Miller et al. 2000), and it is produced from manganese glass (ca. 1875–1920; Lockhart 2006), then the date range for that item is recorded as ca. 1903–1920.

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Curation

After the final reports have been accepted, RCG&A anticipates that all drawings, maps, photographs, field notes, and cultural materials not returned to individual landowners will be curated with the State of Louisiana.

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Chapter VI
Results

This chapter describes the results of the Phase I cultural resources investigations completed to date of the proposed OxyChem pipeline installation from the Convent facility in St. James Parish to the Geismar facility in Ascension Parish, Louisiana. R. Christopher Goodwin & Associates, Inc. completed the fieldwork for this project on behalf of OxyChem between dates. The proposed project includes approximately 29.6 km (18.4 mi) of proposed and formerly proposed pipeline right-of-way (ROW), as well as about 14.5 km (9 mi) of proposed access roads. This survey examined a total of 164.9 ha (407.4 ac) of area (Figure 6.1).

Pipeline Right of Way

During the field investigations, the pipeline ROW was divided into 37 segments for the purposes of survey and reporting (Figure 6.1; Table 6.1). Most segments generally were the equivalent of the distance that could be investigated in a single day, although some segments required more than one day to complete due to weather, access issues, the discoveries of archaeological sites, or other factors. The discussions to follow begin at the south end of the project ROW near OxyChem's Convent facility and work north to the terminus of the pipelines at the OxyChem Geismar facility. All proposed access roads will be described following the discussion of the pipeline ROW. As a result of those efforts, two new archaeological sites were recorded (i.e., Sites 16AN168 and 16AN169), and three previously recorded sites were revisited (i.e., Sites 16AN31, 16AN32, 16AN89); furthermore, one previously recorded site located within the Project ROW was not investigated because it will be avoided by HDD (Site 16AN60) (Table 6.2).

St. James Parish Segments

The first 12.3 km (7.65 mi) of the proposed pipeline ROW was situated within St. James Parish. This portion of the ROW was divided into 8 survey segments during the field investigations. Additionally, portions of the pipeline corridor between M.P. 0.0 and 0.88 as well as between M.P. 6.90 and 7.65 did not require survey because these locations had been examined previously using current survey standards. No cultural resources were identified as a result of the field investigations within St. James Parish.

M.P. 0.0 to 0.88

The portion of the pipeline ROW and associated workspaces that fell between M.P. 0.0 and 0.88, as well as two unnamed access roads fell entirely within an area that was investigated previously for cultural resources (Poche et al. 2016) (Figure 6.1 [Sheets 1-3]; Table 6.1). Because these project items were investigated previously and no cultural resources were identified, no additional work is recommended.

Segment AWG111823A (M.P. 0.88 to 1.51)

Segment AWG11823A extended from M.P. 0.88 to 1.51 and measured approximately 1,014 m (3,326.8 ft) in length. The segment originated at M.P. 0.88 and ended at LA-3125 (Figures 6.1 [Sheets 3, 4], 6.2; Table 6.1). A horizontal directional drill will be used to extend the proposed corridor across LA-3125 and into the next segment. The width of the proposed corridor measured 50 m (164 ft) for the majority of the segment. The proposed corridor expanded to a maximum of 65 m (213 ft) at the origin and terminus of the survey segment to accommodate additional workspaces at those locations.

Figure 6.1 Sheet 1 **Aerial image of the OxyChem Geismar to Convent Pipeline ROW, overlaid with the locations of survey segments, extra workspaces, access roads, and identified cultural resources.**

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Figure 6.1 Sheet 2 **Aerial image of the OxyChem Geismar to Convent Pipeline ROW, overlaid with the locations of survey segments, extra workspaces, access roads, and identified cultural resources.**

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Figure 6.1 Sheet 3 **Aerial image of the OxyChem Geismar to Convent Pipeline ROW, overlaid with the locations of survey segments, extra workspaces, access roads, and identified cultural resources.**

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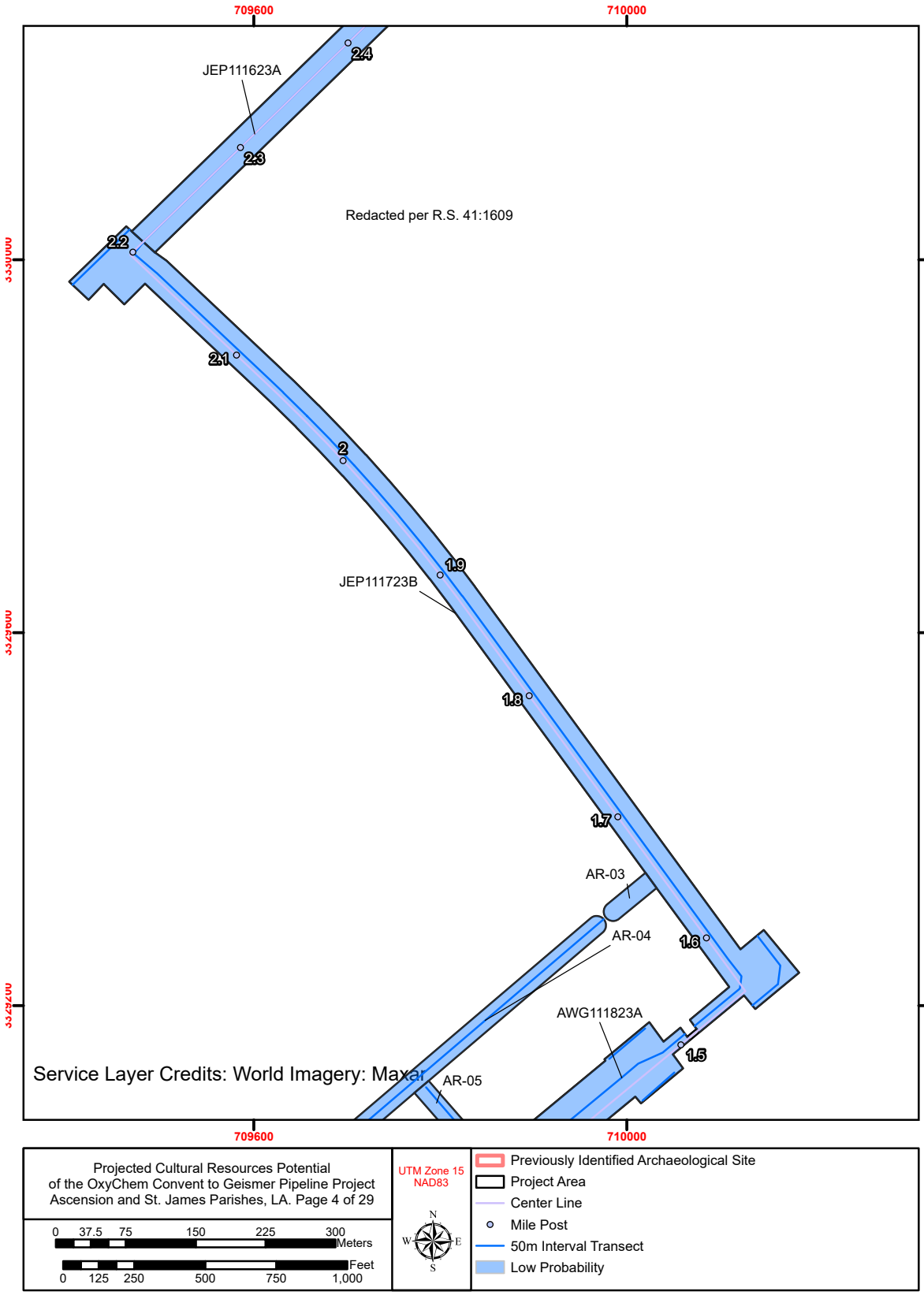

Figure 6.1 Sheet 4 **Aerial image of the OxyChem Geismar to Convent Pipeline ROW, overlaid with the locations of survey segments, extra workspaces, access roads, and identified cultural resources.**

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Figure 6.1 Sheet 5 **Aerial image of the OxyChem Geismar to Convent Pipeline ROW, overlaid with the locations of survey segments, extra workspaces, access roads, and identified cultural resources.**

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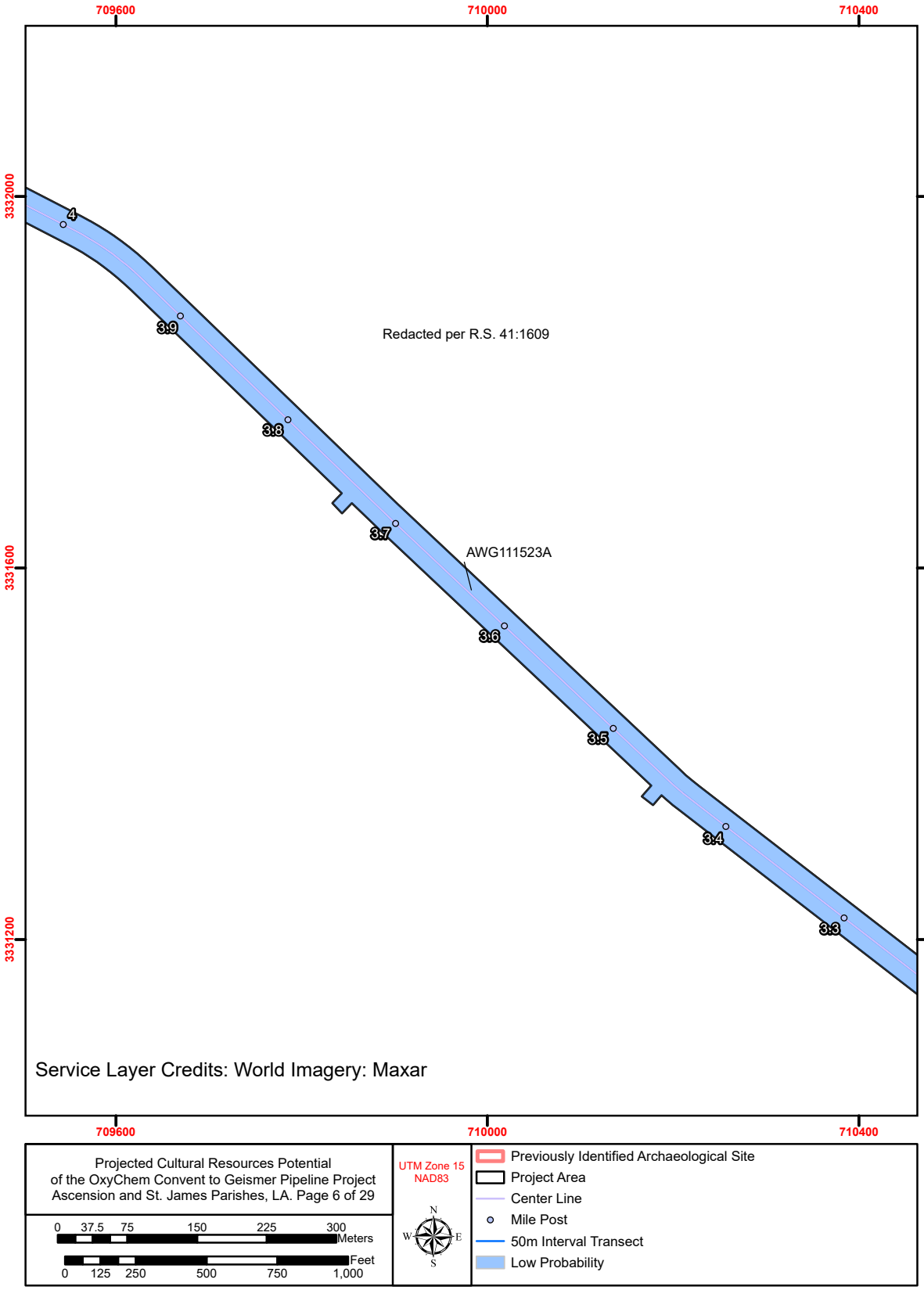

Figure 6.1 Sheet 6 **Aerial image of the OxyChem Geismar to Convent Pipeline ROW, overlaid with the locations of survey segments, extra workspaces, access roads, and identified cultural resources.**

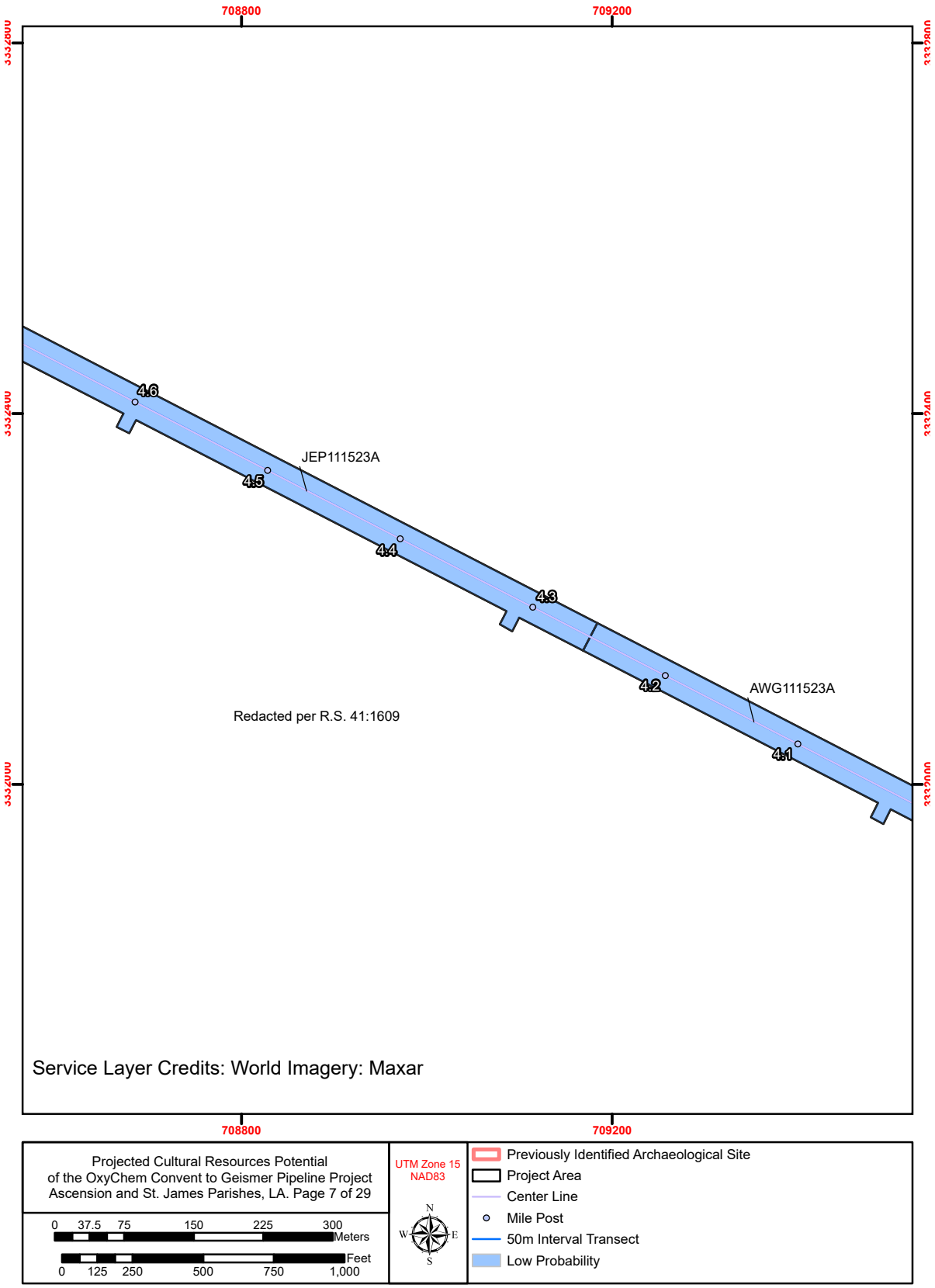

Figure 6.1 Sheet 7 **Aerial image of the OxyChem Geismar to Convent Pipeline ROW, overlaid with the locations of survey segments, extra workspaces, access roads, and identified cultural resources.**

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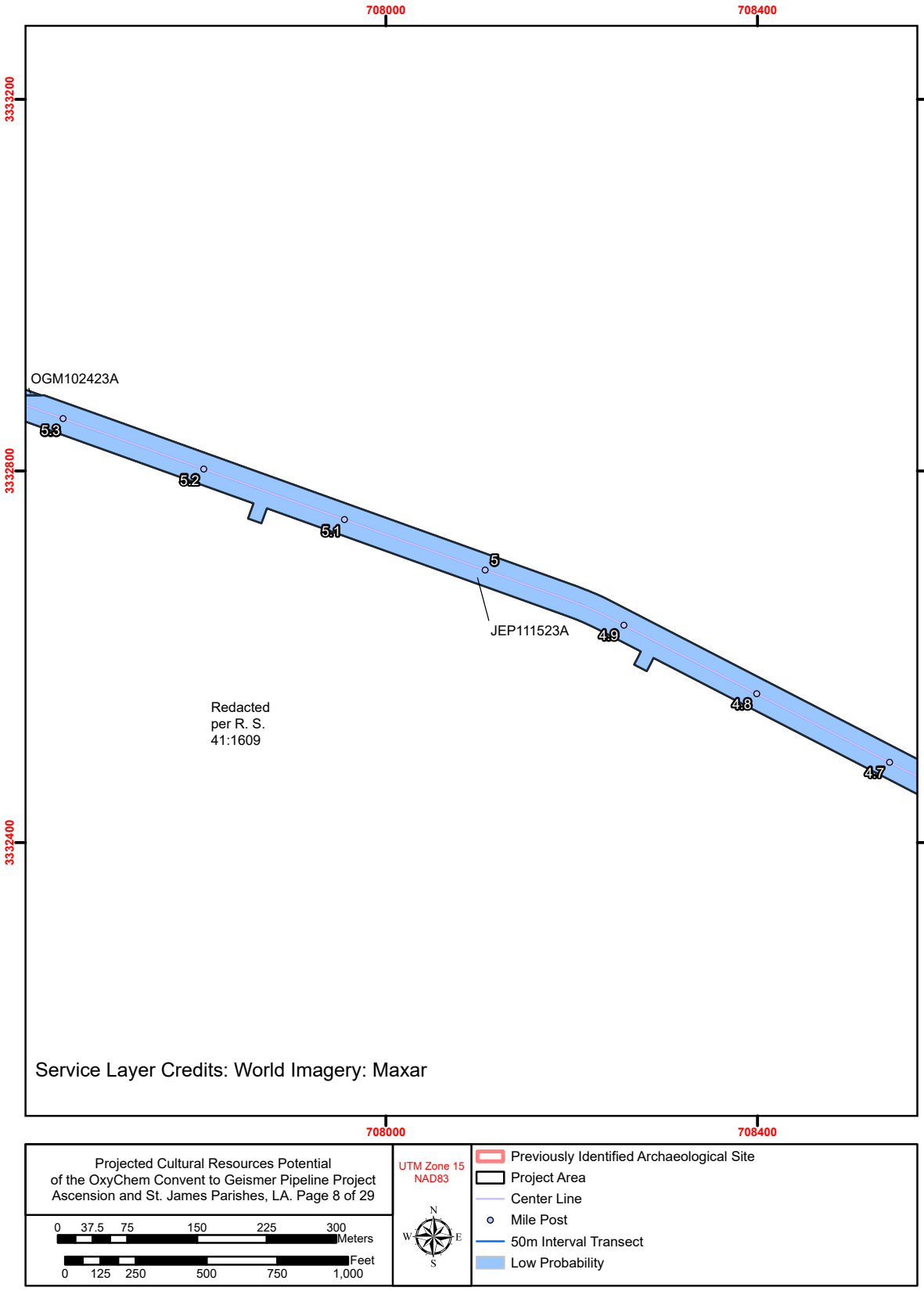

Figure 6.1 Sheet 8 **Aerial image of the OxyChem Geismar to Convent Pipeline ROW, overlaid with the locations of survey segments, extra workspaces, access roads, and identified cultural resources.**

EXHIBIT E

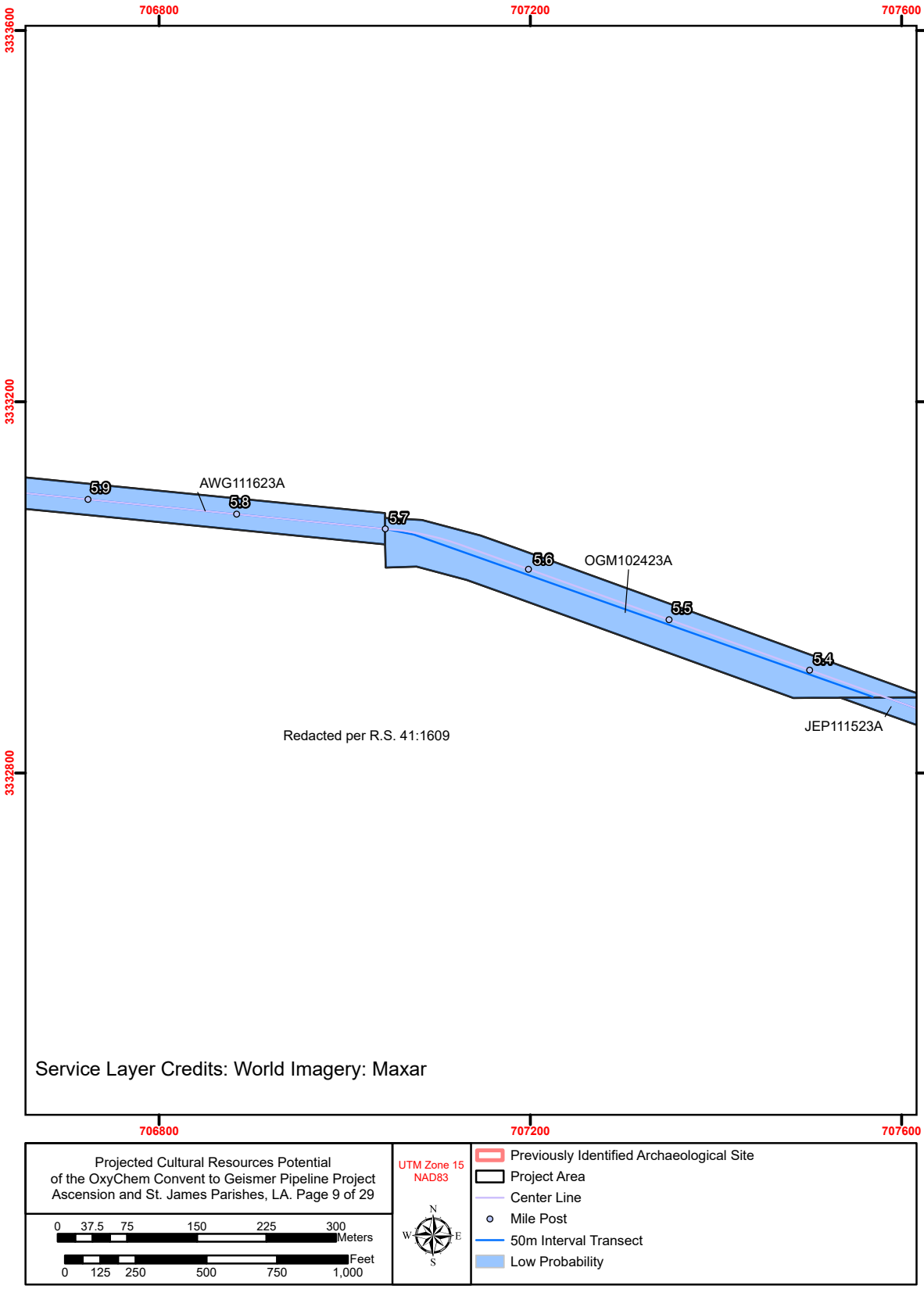

Figure 6.1 Sheet 9 **Aerial image of the OxyChem Geismar to Convent Pipeline ROW, overlaid with the locations of survey segments, extra workspaces, access roads, and identified cultural resources.**

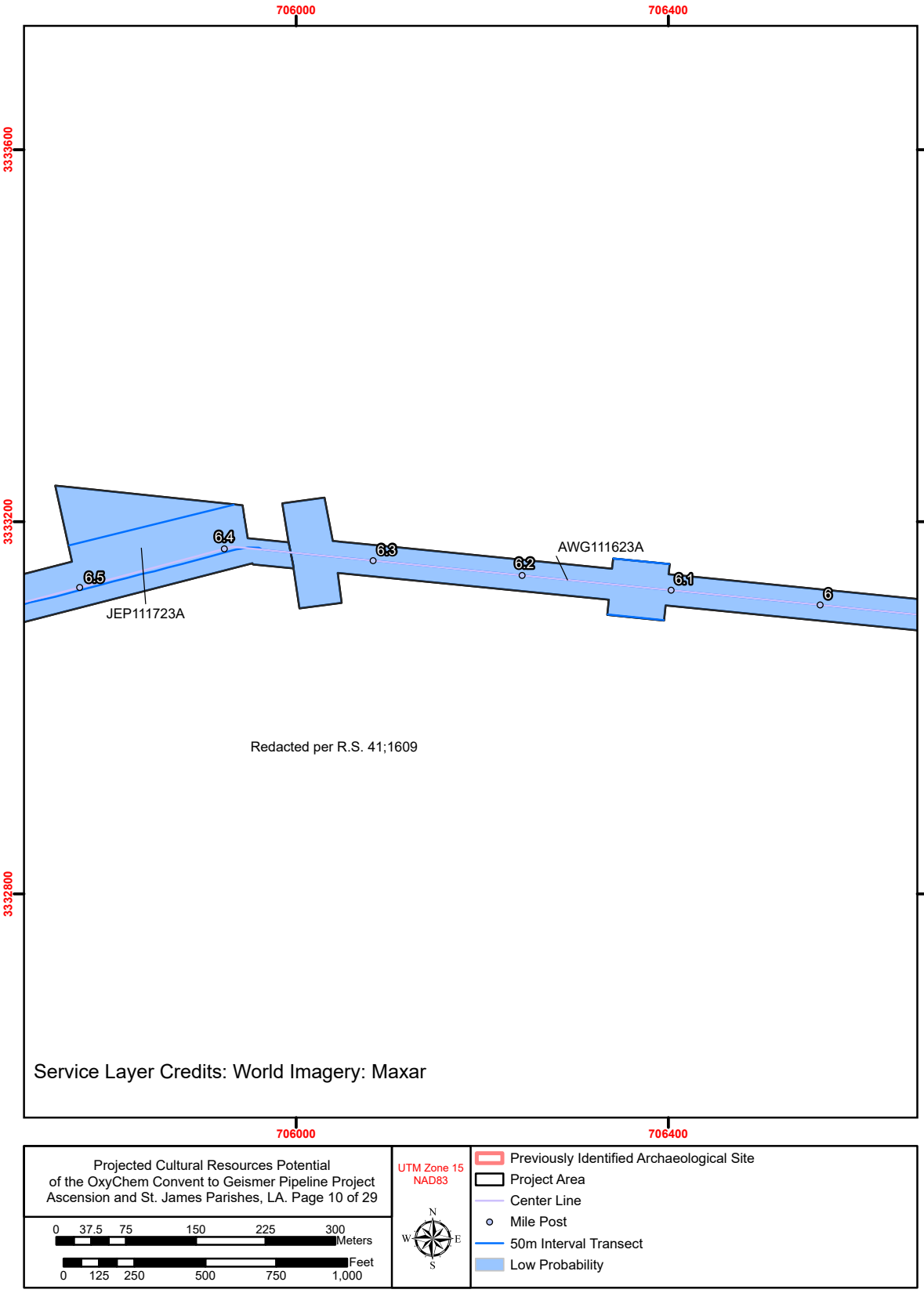

Figure 6.1 Sheet 10 **Aerial image of the OxyChem Geismar to Convent Pipeline ROW, overlaid with the locations of survey segments, extra workspaces, access roads, and identified cultural resources.**

EXHIBIT E

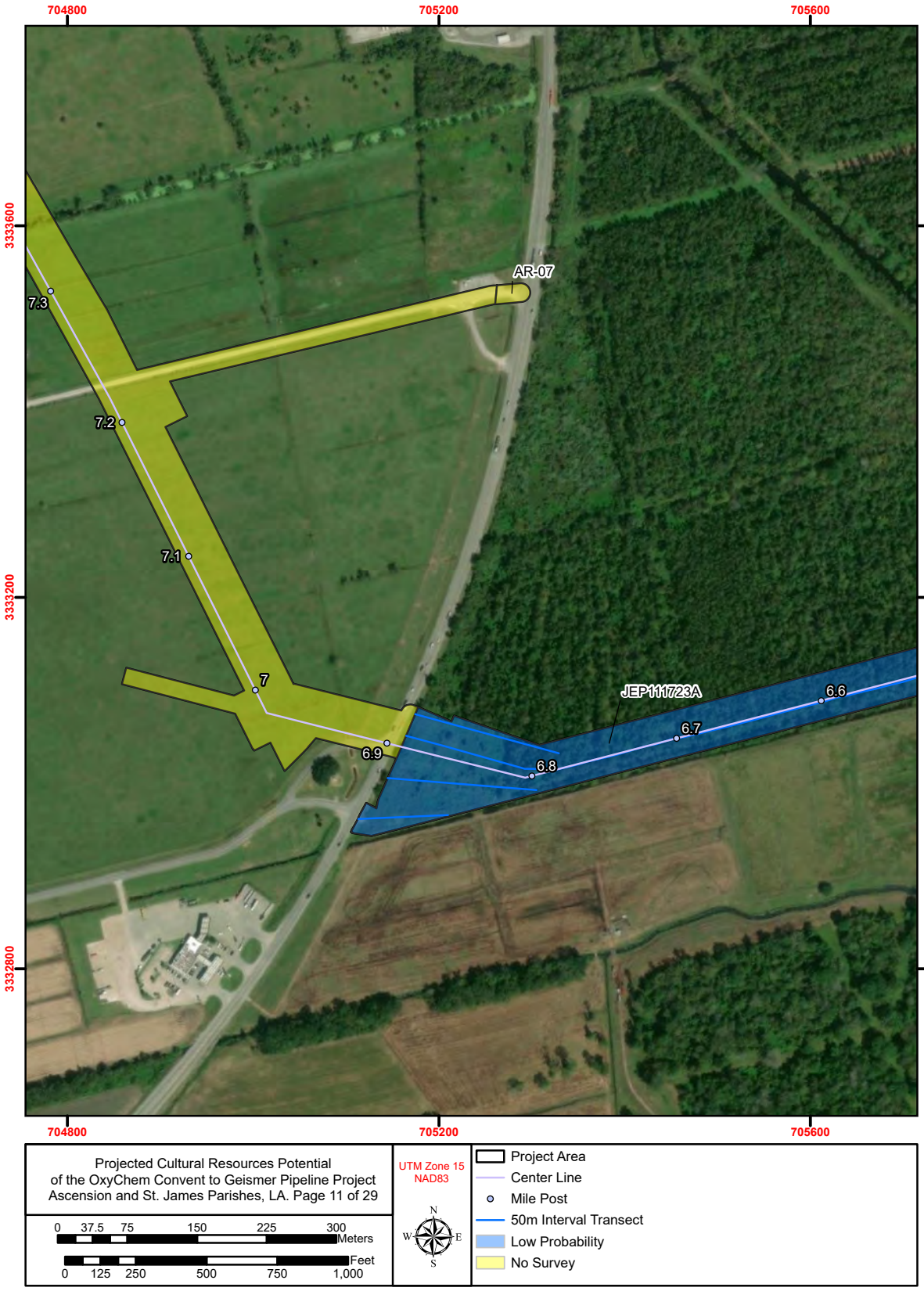

Figure 6.1 Sheet 11 **Aerial image of the OxyChem Geismar to Convent Pipeline ROW, overlaid with the locations of survey segments, extra workspaces, access roads, and identified cultural resources.**

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Figure 6.1 Sheet 12 **Aerial image of the OxyChem Geismar to Convent Pipeline ROW, overlaid with the locations of survey segments, extra workspaces, access roads, and identified cultural resources.**

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Figure 6.1 Sheet 13 **Aerial image of the OxyChem Geismar to Convent Pipeline ROW, overlaid with the locations of survey segments, extra workspaces, access roads, and identified cultural resources.**

EXHIBIT E

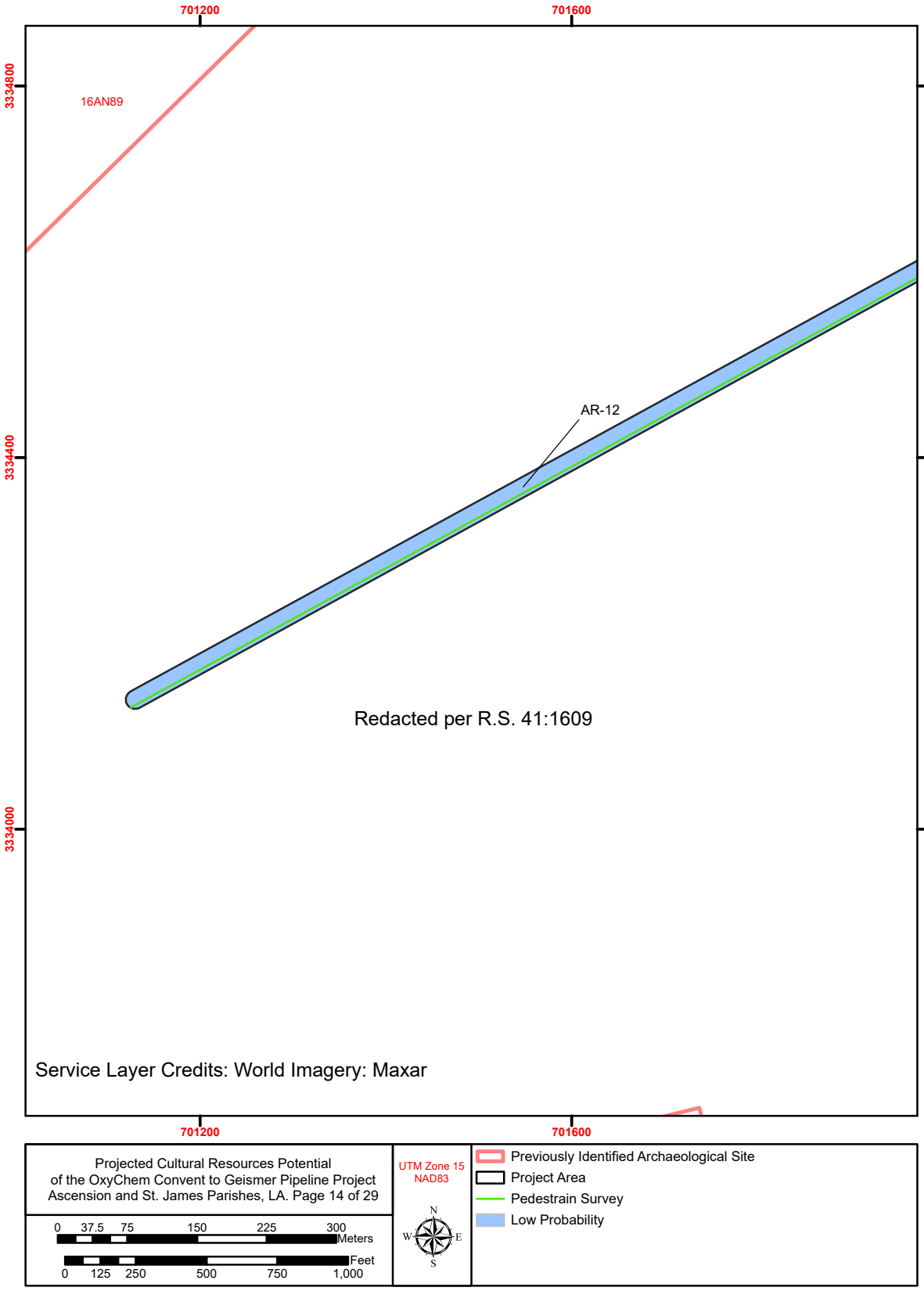

Figure 6.1 Sheet 14 **Aerial image of the OxyChem Geismar to Convent Pipeline ROW, overlaid with the locations of survey segments, extra workspaces, access roads, and identified cultural resources.**

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Figure 6.1 Sheet 15 **Aerial image of the OxyChem Geismar to Convent Pipeline ROW, overlaid with the locations of survey segments, extra workspaces, access roads, and identified cultural resources.**

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Figure 6.1 Sheet 16 **Aerial image of the OxyChem Geismar to Convent Pipeline ROW, overlaid with the locations of survey segments, extra workspaces, access roads, and identified cultural resources.**

EXHIBIT E

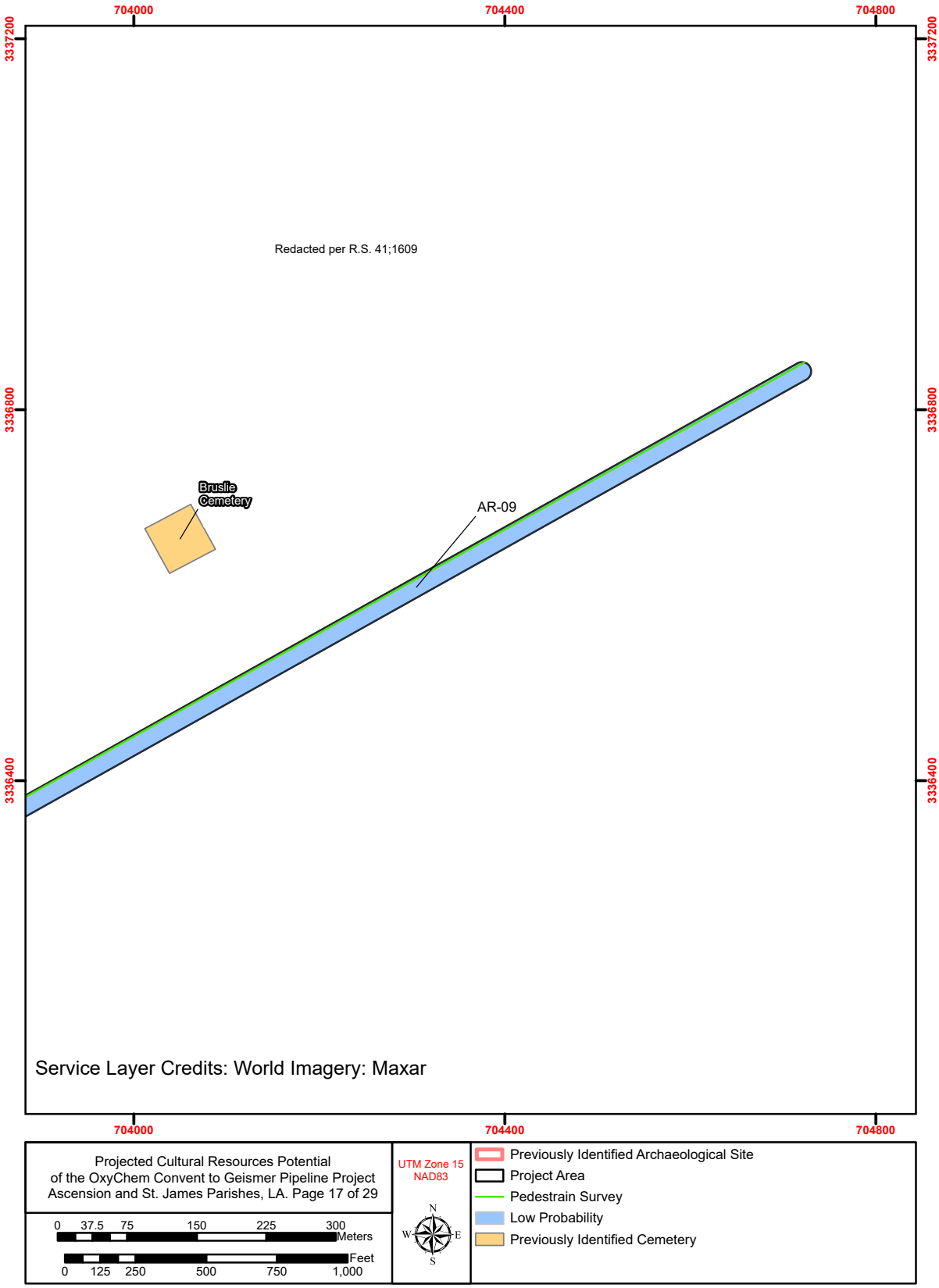

Figure 6.1 Sheet 17 **Aerial image of the OxyChem Geismar to Convent Pipeline ROW, overlaid with the locations of survey segments, extra workspaces, access roads, and identified cultural resources.**

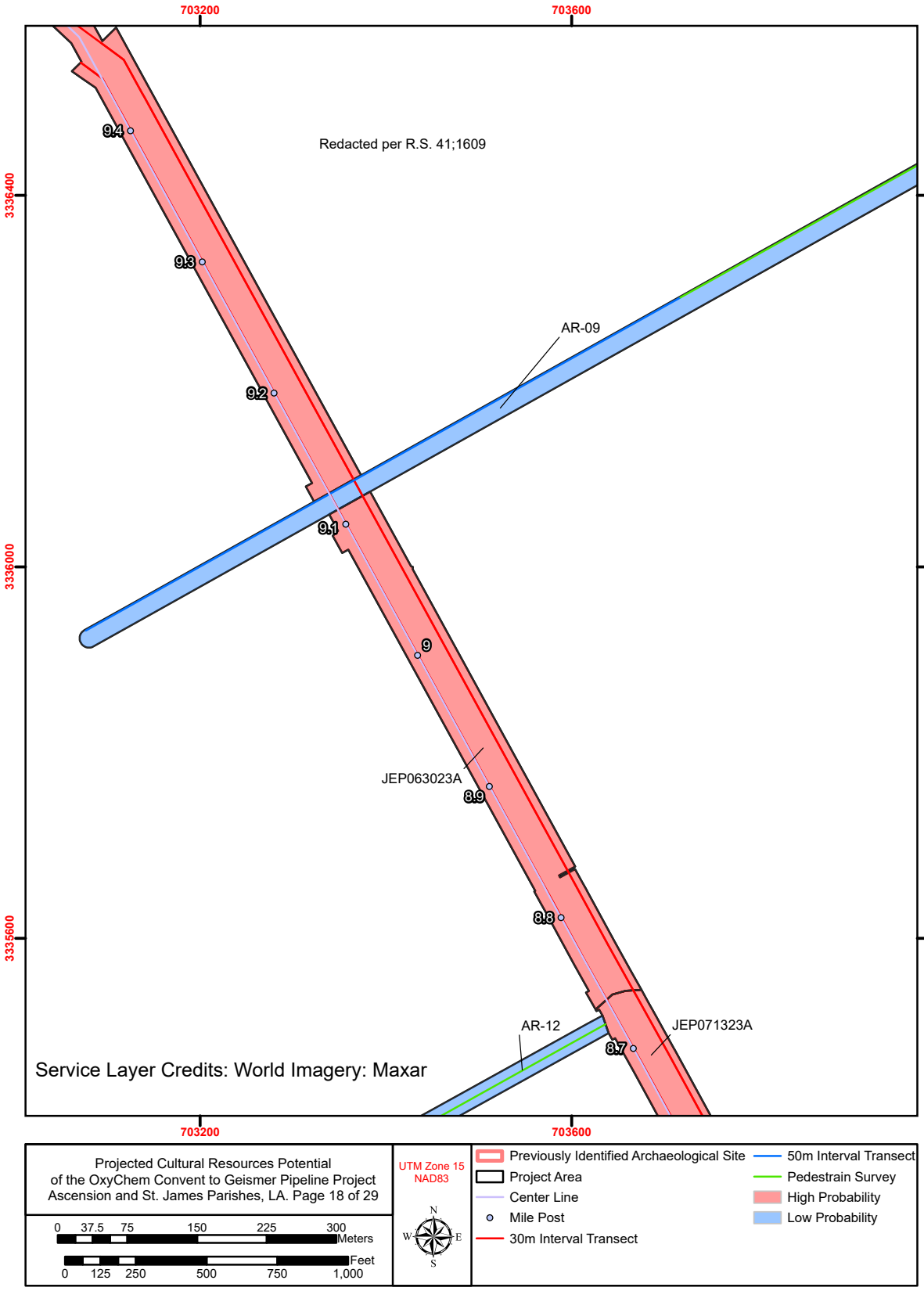

Figure 6.1 Sheet 18 **Aerial image of the OxyChem Geismar to Convent Pipeline ROW, overlaid with the locations of survey segments, extra workspaces, access roads, and identified cultural resources.**

EXHIBIT E

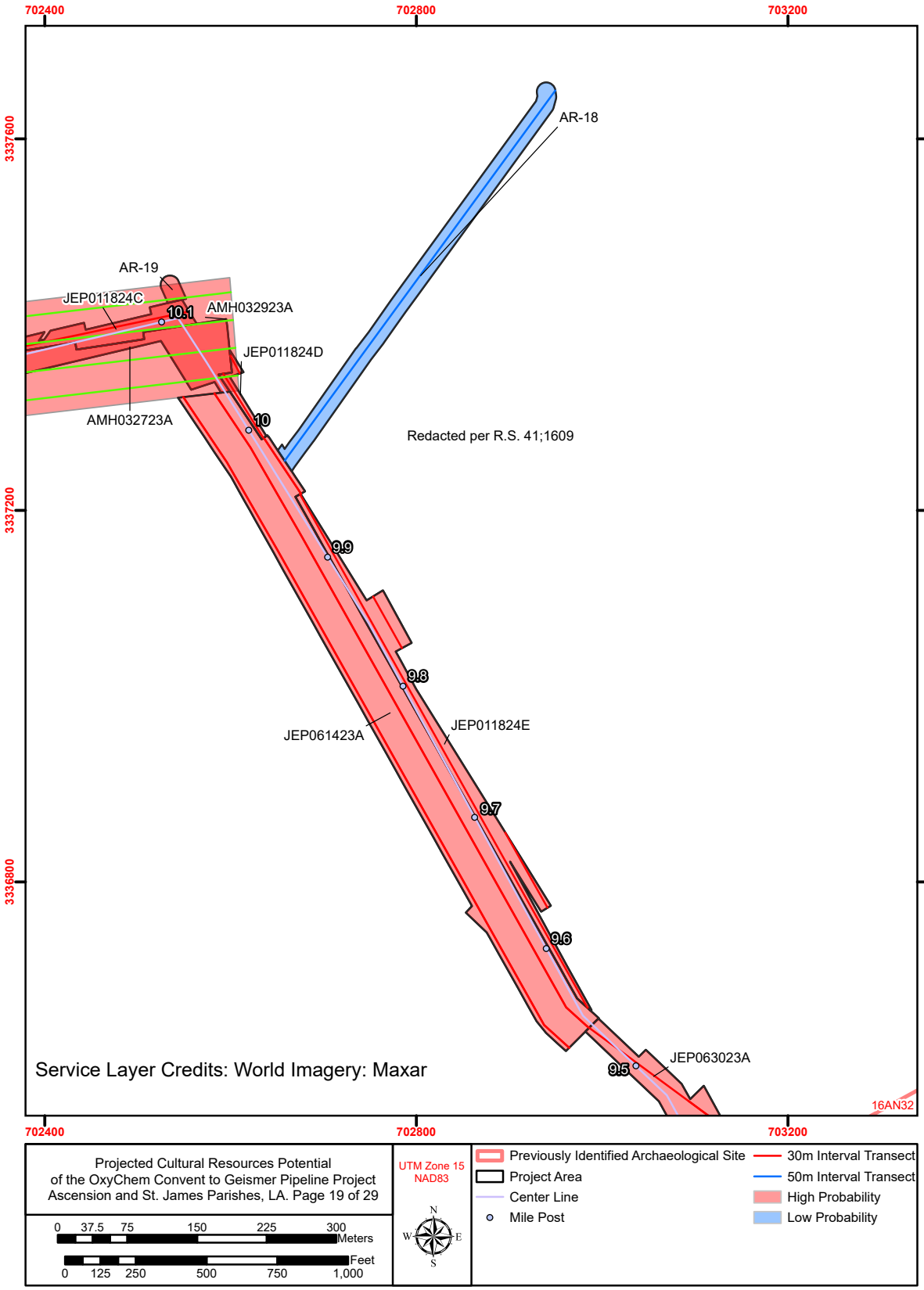

Figure 6.1 Sheet 19 **Aerial image of the OxyChem Geismar to Convent Pipeline ROW, overlaid with the locations of survey segments, extra workspaces, access roads, and identified cultural resources.**

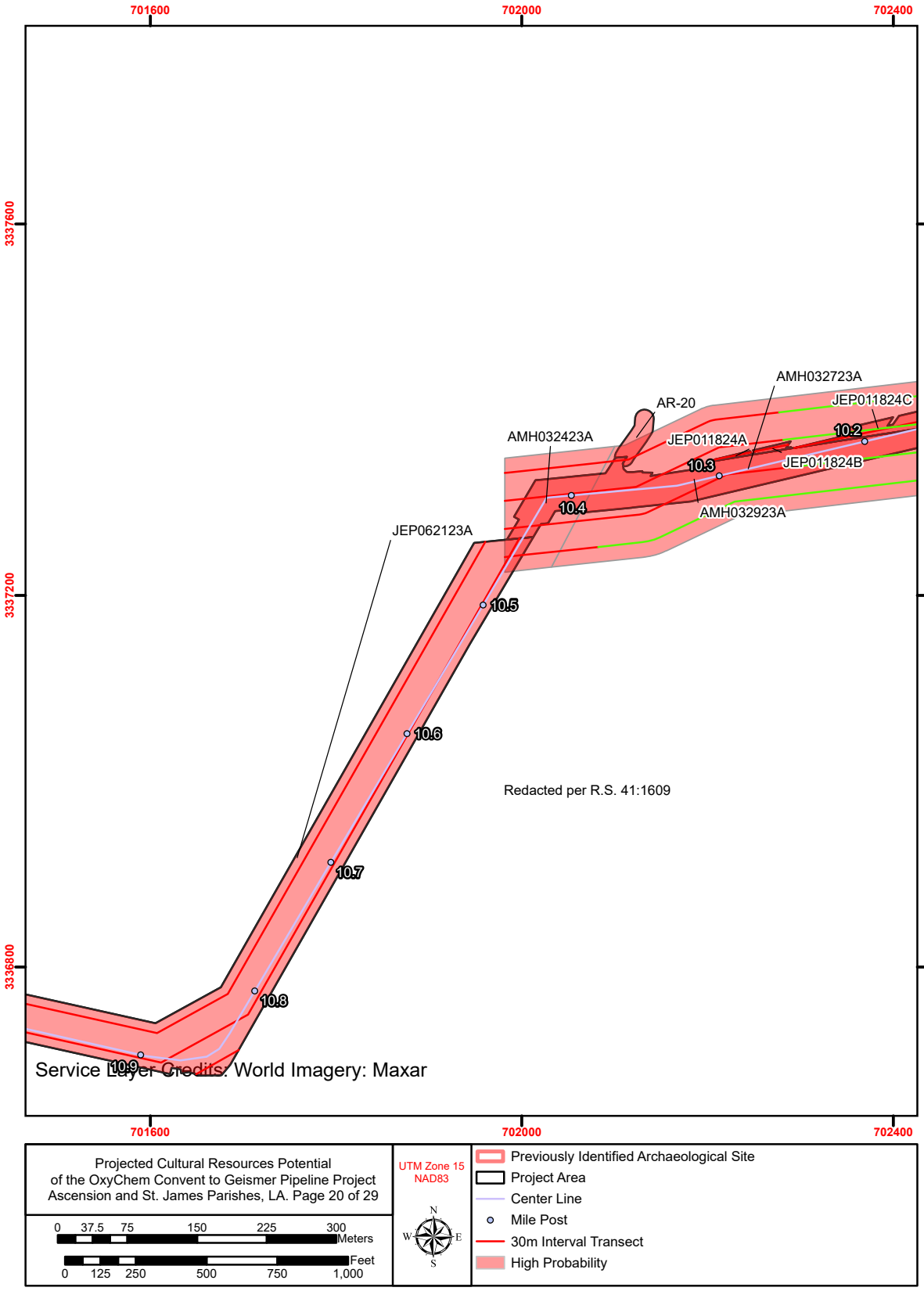

Figure 6.1 Sheet 20 **Aerial image of the OxyChem Geismar to Convent Pipeline ROW, overlaid with the locations of survey segments, extra workspaces, access roads, and identified cultural resources.**

EXHIBIT E

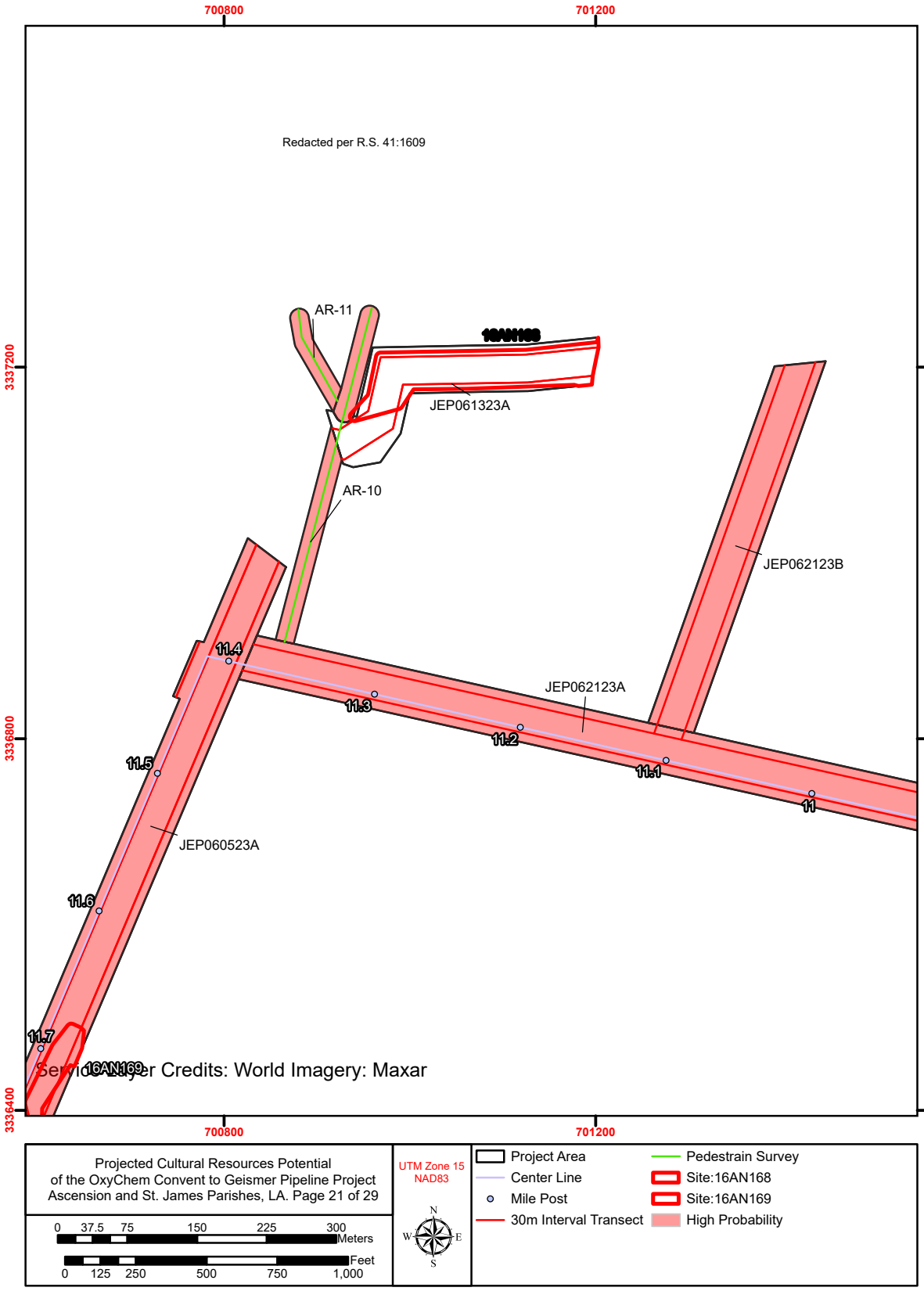

Figure 6.1 Sheet 21 **Aerial image of the OxyChem Geismar to Convent Pipeline ROW, overlaid with the locations of survey segments, extra workspaces, access roads, and identified cultural resources.**

EXHIBIT E

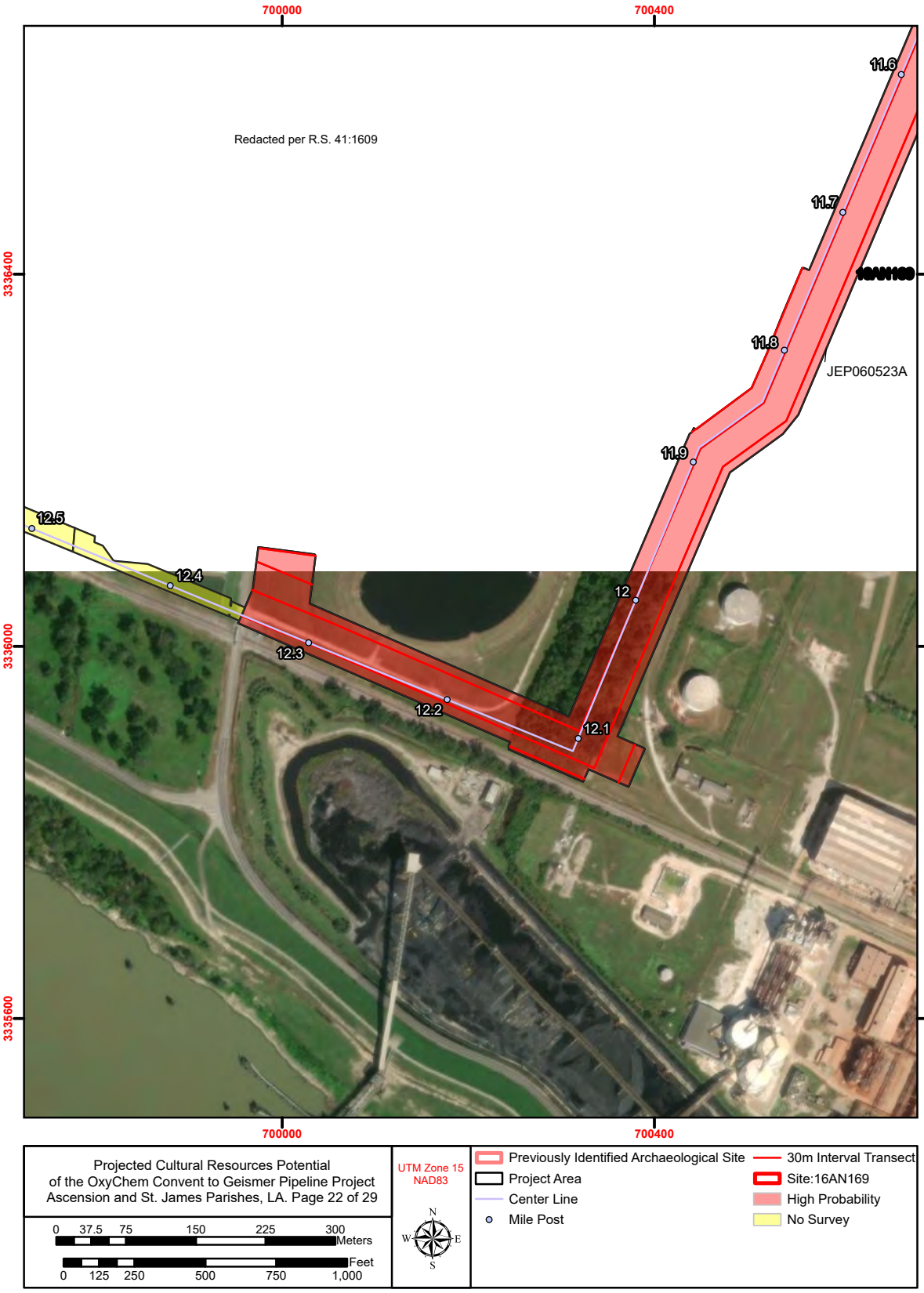

Figure 6.1 Sheet 22 **Aerial image of the OxyChem Geismar to Convent Pipeline ROW, overlaid with the locations of survey segments, extra workspaces, access roads, and identified cultural resources.**

EXHIBIT E

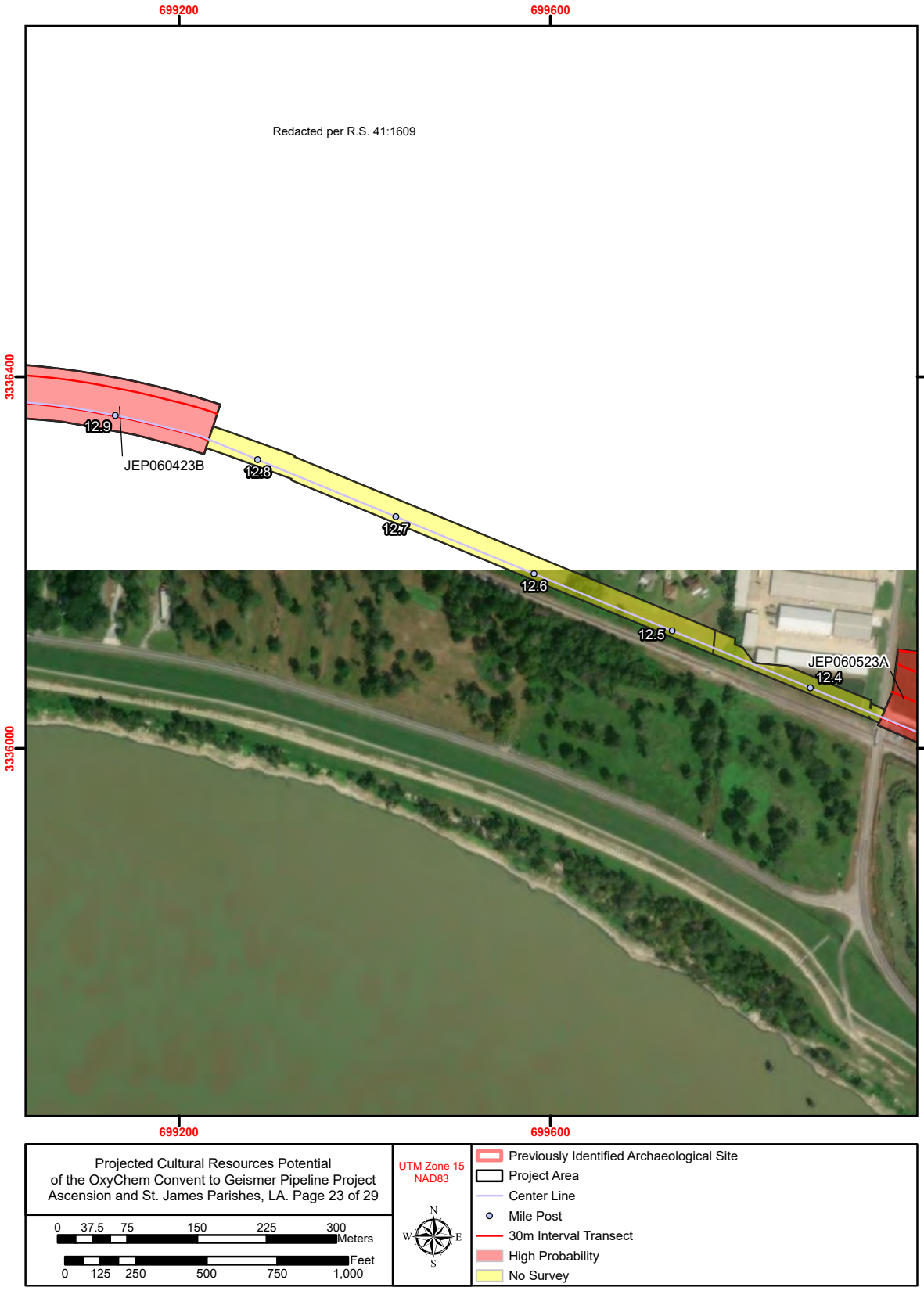

Figure 6.1 Sheet 23 **Aerial image of the OxyChem Geismar to Convent Pipeline ROW, overlaid with the locations of survey segments, extra workspaces, access roads, and identified cultural resources.**

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Figure 6.1 Sheet 24 **Aerial image of the OxyChem Geismar to Convent Pipeline ROW, overlaid with the locations of survey segments, extra workspaces, access roads, and identified cultural resources.**

EXHIBIT E

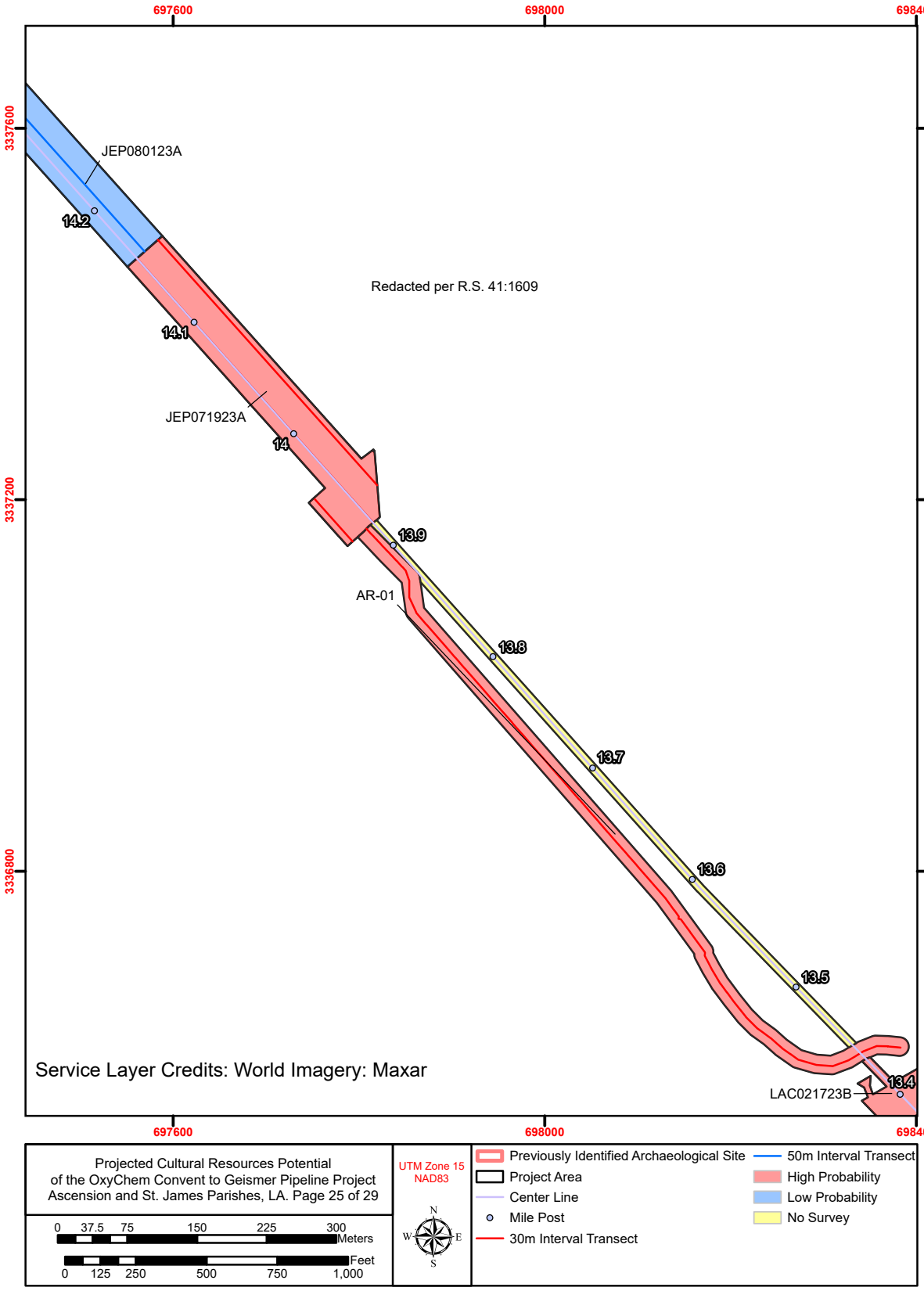

Figure 6.1 Sheet 25 **Aerial image of the OxyChem Geismar to Convent Pipeline ROW, overlaid with the locations of survey segments, extra workspaces, access roads, and identified cultural resources.**

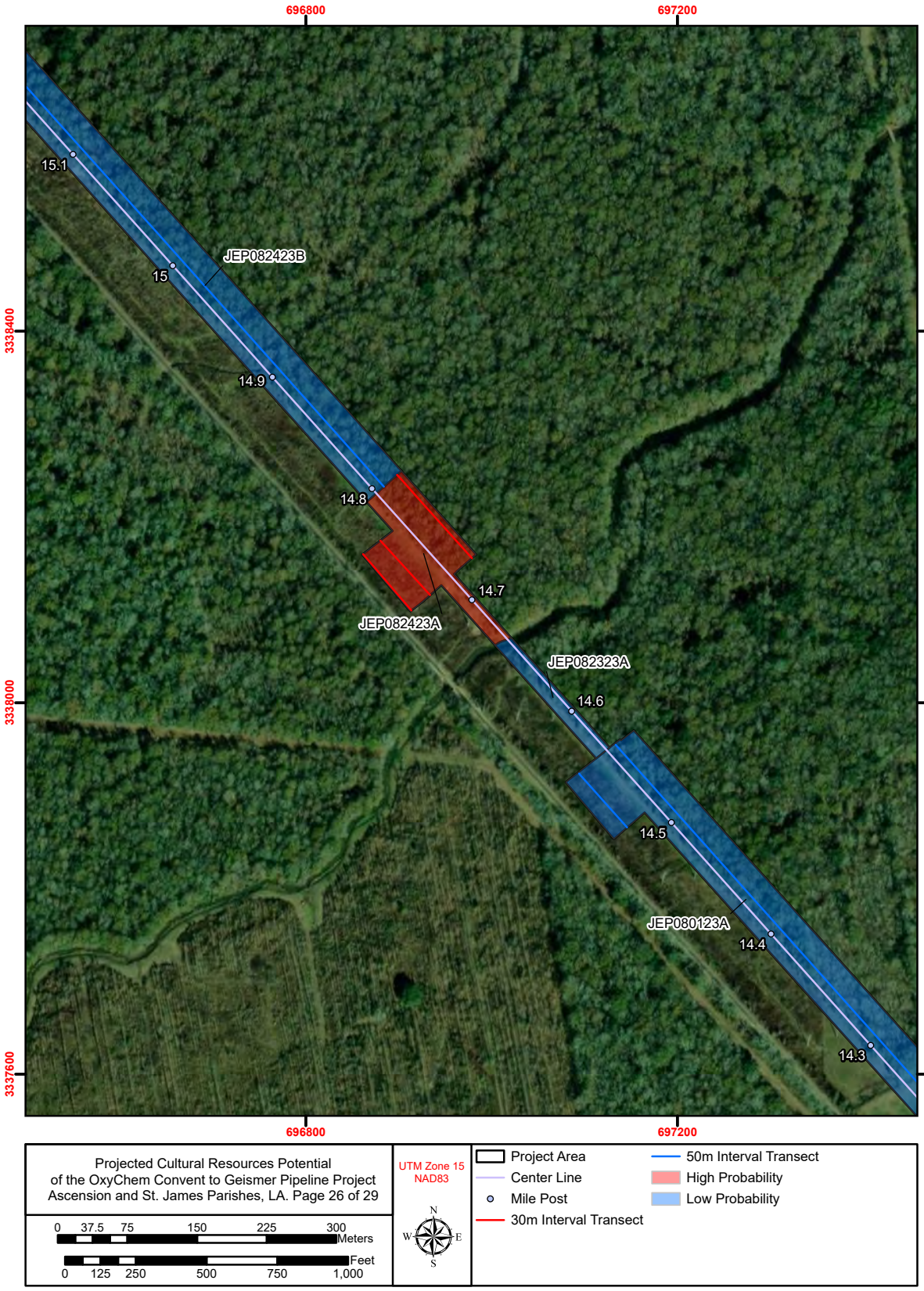

Figure 6.1 Sheet 26 **Aerial image of the OxyChem Geismar to Convent Pipeline ROW, overlaid with the locations of survey segments, extra workspaces, access roads, and identified cultural resources.**

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Figure 6.1 Sheet 27 **Aerial image of the OxyChem Geismar to Convent Pipeline ROW, overlaid with the locations of survey segments, extra workspaces, access roads, and identified cultural resources.**

EXHIBIT E

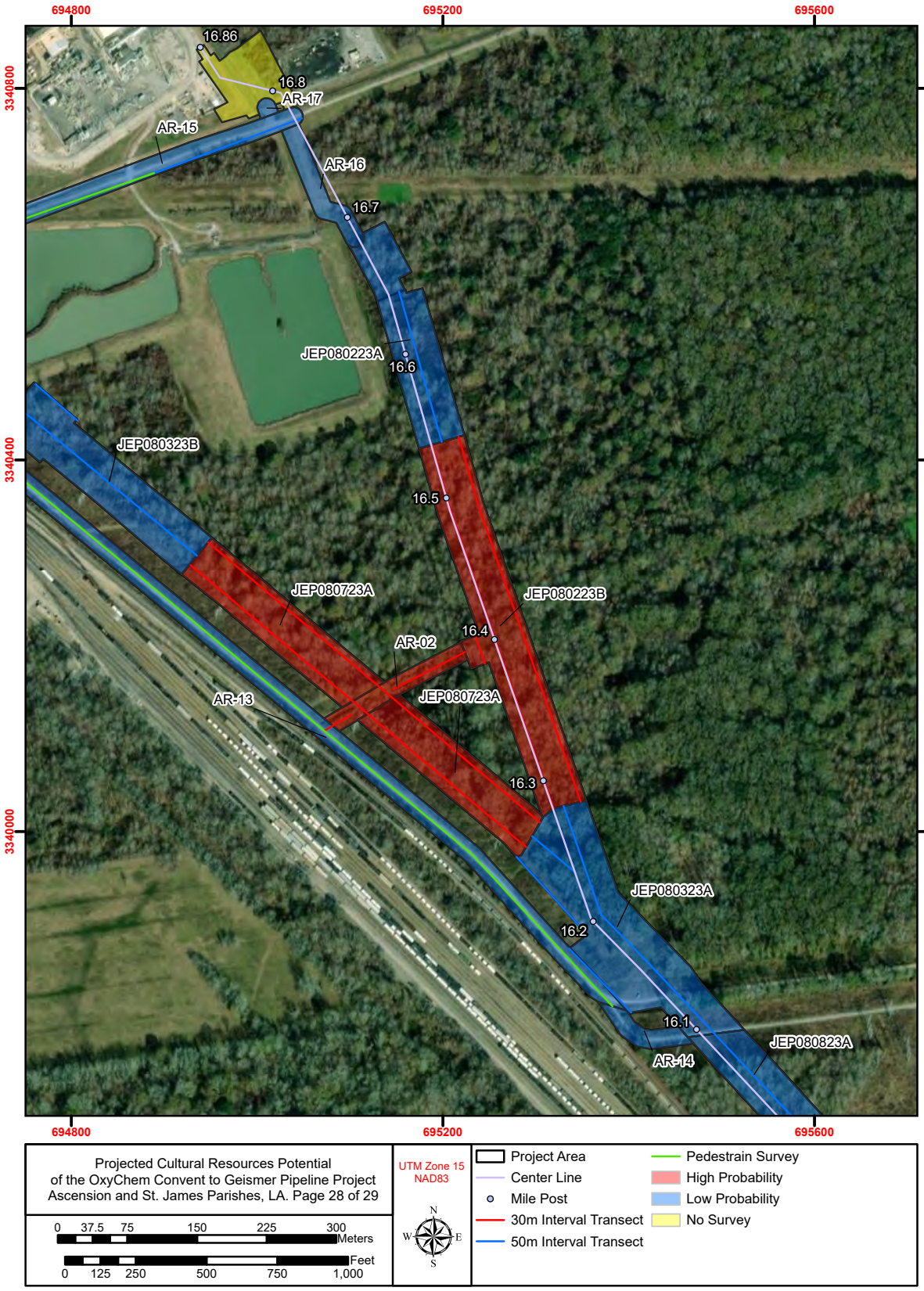

Figure 6.1 Sheet 28 **Aerial image of the OxyChem Geismar to Convent Pipeline ROW, overlaid with the locations of survey segments, extra workspaces, access roads, and identified cultural resources.**

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Figure 6.1 Sheet 29 **Aerial image of the OxyChem Geismar to Convent Pipeline ROW, overlaid with the locations of survey segments, extra workspaces, access roads, and identified cultural resources.**

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Table 6.1 Summary of the cultural resources investigations completed for the OxyChem Geismar to Convent Pipeline Project.

Segment/ Area/ Access Road	Length (m)	Width (m)	Beg. M.P.	End M.P.	Soils	Probability	Transect STs Excavated	Delineation STs Excavated	Cultural Resource(s) Identified	Associated Workspaces	Notes	Date(s) Surveyed
Segments and Extra Workspaces, St. James Parish												
n/a	1416	50	0.00	0.88	GrA, SkA	n/a	0	0	n/a	3.1 ac of associated XWS	Previously surveyed: Report # 22-5271 (Poche et al. 2016)	n/a
Segment AWG111823A	1014	50	0.88	1.51	CvA, SkA, VhA	Low	26	0	n/a	0.5 ac HDD XWS at M.P. 0.88; 0.9 ac HDD XWS at M.P. 1.46	Segment ends at LA 3125; road will be crossed by HDD	11/18/2023
Segment JEP111723B	1127	30	1.51	2.21	CvA, Sm, VhA	Low	27	0	n/a	0.7 ac HDD XWS at M.P. 1.56, 0.85 ac XWS at M.P. 2.20	Segment begins at LA 3125; road will be crossed by HDD	11/17/2023
Segment JEP111623A	1545	30	2.21	3.17	BA, SkA, Sm	Low	8	0	n/a	0.73 ac HDD XWS at M.P. 2.97; 0.84 ac XWS at M.P. 3.09; 1.43 ac HDD XWS at M.P. 3.15	Segment to cross St. James Parish Canal by HDD at M.P. 3.1	11/16/2023
Segment AWG111523A	1754	30	3.17	4.26	BA	Low	36	0	n/a	Three small XWS (< 0.1 ac each) at ca. 460 m intervals along segment	n/a	11/15/2023
Segment JEP111523A	1754	30	4.26	5.35	BA, Sm	Low	32	0	n/a	Four small XWS (< 0.1 ac each) at ca. 460 m intervals along segment	n/a	11/15/2023
Segment OGM102423A	563	30	5.35	5.70	Sm	Low	11	0	n/a	n/a	ROW reduced from 50 m to 30 m wide after survey	10/24/2023
Segment AWG111623A	1062	30	5.70	6.36	BA, Sm	Low	28	0	n/a	0.9 ac HDD XWS at M.P. 6.11; 1.17 ac XWS at M.P. 6.32	HDD from M.P. 6.13 to 6.39	11/16/2023
Segment JEP111723A	869	50	6.36	6.90	SkA, Sm	Low	32	0	n/a	3 ac HDD XWS at M.P. 6.4; 3.85 ac HDD XWS at M.P. 6.8	HDD from M.P. 6.85 to 6.95 to cross LA 70	11/17/2023
n/a	1207	50	6.90	7.65	SkA, Sm	n/a	0	0	n/a	1.95 ac HDD XWS at M.P. 6.95; 0.51 XWS at M.P. 7.38; 1.18 ac XWS at M.P. 7.59	Previously surveyed: Report # 22-6510 (Jenkins 2020) and 22-7044 (Stanyard et al. 2022)	n/a
Segments and Extra Workspaces, Ascension Parish												
Segment JEP071123A	418	50	7.65	7.91	Sj	High	28	0	16AN31	n/a	n/a	7/11/2023
Segment JEP071323A	1336	50	7.91	8.74	Sj, Sn	High	92	0	16AN31	n/a	n/a	7/13/2023
Segment JEP063023A	1287	50	8.74	9.54	Cm, Co, Sn	High	81	21	16AN31, 16AN32	n/a	HDD from 9.47 to 9.54	6/30/2023

Table 6.1, continued

Segment/ Area/ Access Road	Length (m)	Width (m)	Beg. M.P.	End M.P.	Soils	Probability	Transect STs Excavated	Delineation STs Excavated	Cultural Resource(s) Identified	Associated Workspaces	Notes	Date(s) Surveyed
Segments JEP061423A, JEP011824A, B D, and E, AAC122523A	789	60	9.54	10.03	Co	High	107	31	16AN89 (Loacation 2/3 Extension)	0.98 ac HDD XWS at M.P. 9.85	HDD from M.P. 9.85 to 10.05 to avoid Site 16AN89; ROW reduced to 10 m wide across site for use as access road, road will be matted	6/14/2023, 12/25/2023, 1/18/2024
Segments AMH032923A, JEP011824C	628	125	10.03	10.45	Cm, Co, Sn	High	27	28	16AN89 (Loci AMH032923-01, -07); Locus AMH032923-02	0.83 HDD XWS at M.P. 10.06; additional small HDD XWS for canal crossings at M.P. 10.09, 10.19. 10.27, 10.39	Most of segment was surveyed for a different project that has since been cancelled; results are incorporated into the current report	3/29/2023, 5/8/2023, 5/16/2023, 1/18/2024
Segment JEP062123A	1513	50	10.45	11.39	Cm, Co, Sn	High	96	0	n/a	Small XWS at M.P. 10.84 for PI change and at M.P. 11.11 for canal crossing	Reroute to avoid Site 16AN168; abandoned in favor of JEP062123A	6/21/2023
Segment JEP062123B	415	50	n/a	n/a	Cm, Co	High	30	0	n/a	n/a	Reroute to avoid Site 16AN168; abandoned in favor of JEP062123A	6/21/2023
Segment JEP061323A	335	50	n/a	n/a	Cm, Co	High	25	0	16AN168	n/a	Abandoned route to avoid Site 16AN168	6/13/2023
Segment JEP060523A	1545	50	11.39	12.35	Cm, Co, Cs	High	124	49	16AN169	1 ac XWS at M.P. 12.09 and 12.31 for HDD and PI change; small XWS at M.P. 11.74 and 11.79 for road and canal crossings	Site 16AN169 not significant; HDD from M.P. 12.09 to 12.82 to avoid Site 16AN60 and residential area	6/5/2023, 6/12/2023
n/a	789	0	12.35	12.84	Cm, Cs	n/a	0	0	n/a	n/a	HDD area - no survey	n/a
Segment JEP060423B	805	50	12.84	13.34	Cm	High	56	0	n/a	0.16 ac HDD XWS at M.P. 12.84	n/a	6/4/2023
Segment JEP060423A	215	55	n/a	n/a	Cm	High	15	0	n/a	n/a	Segment abandoned	6/4/2023
XWS LAC021723B	113	n/a	13.34	13.41	Cm	High	8	0	n/a	2 ac HDD XWS at M.P. 13.32	Area was surveyed for a different project that has since been cancelled; results are incorporated into the current report	2/17/2023
n/a	821	n/a	13.41	13.92	Cm, Co, Sn, Tu, W	n/a	0	0	n/a	n/a	HDD from M.P. 13.38 to 13.91 for road crossing	n/a
Segment JEP071923A	386	50	13.92	14.16	Sn	Low	31	0	n/a	0.96 ac HDD XWS at M.P. 13.92	n/a	7/19/2023

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Table 6.1, continued

Segment/ Area/ Access Road	Length (m)	Width (m)	Beg. M.P.	End M.P.	Soils	Probability	Transect STs Excavated	Delineation STs Excavated	Cultural Resource(s) Identified	Associated Workspaces	Notes	Date(s) Surveyed
Segment JEP080123A	547	50	14.16	14.57	Sn	Low	14	0	n/a	1.39 ac HDD XWS at M.P. 14.52; small XWS at M.P. 14.25 for water crossing	HDD from M.P. 14.54 to 14.71	8/1/2023, 8/12/2023
Segment JEP082323A	129	n/a	14.57	14.65	Sn	Low	3	0	n/a	n/a	Surveyed to Conway Bayou at M.P. 14.65 but subsequently will HDD from M.P. 14.54 to 14.71	8/23/2023
Segment JEP082423A	161	50	14.65	14.79	Sn	High	13	0	n/a	1.36 ac HDD XWS at M.P. 14.71	Surveyed to Conway Bayou at M.P. 14.65 but subsequently will HDD from M.P. 14.54 to 14.71	8/24/2023
Segment JEP082423B	1642	50	14.79	15.81	Es, Sn	Low	33	0	n/a	Small XWS for water crossing at M.P. 14.90	n/a	8/24/2023
Segment JEP080823A	467	50	15.81	16.10	Es, Sn	Low	11	0	n/a	n/a	n/a	8/8/2023
East Leg of Pipeline ROW Split												
Segment JEP080323A	290	50	16.10	16.28	Es	Low	11	0	n/a	n/a	Segment also covered first portion of West Leg	8/3/2023
Segment JEP080223B	418	50	16.28	16.54	Sn	High	32	0	n/a	Small XWS for water crossing at M.P. 16.39	n/a	8/2/2023
Segment JEP080223A	241	50	16.54	16.69	Sn	Low	4	0	n/a	0.91 ac HSS XWS (XWS JEP080223A)	HDD from M.P. 16.61 to 16.76 for road and utility crossings	8/2/2023
n/a	274	n/a	16.69	16.86	Sn, UL	Low	0	0	n/a	1.27 ac HDD XWS at end of pipeline within facility	Not surveyed - HDD to M.P. 16.79 and remainder within existing industrial facility	n/a
West Leg of Pipeline ROW Split												
Segment JEP080723A	467	50	0.07	0.36	Es, Sn	Low	34	0	n/a	n/a	n/a	8/7/2023
Segment JEP080323B	274	50	0.36	0.53	Sn	Low	11	0	n/a	0.88 ac HDD XWS at M.P. 0.48	n/a	8/3/2023
n/a	1046	10	0.53	1.18	Sn, Ss, UL, W	n/a	0	0	n/a	n/a	Not surveyed - HDD and within existing industrial facility	n/a
Access Roads, St. James Parish												
Unnamed AR	300	10	n/a	0.00	GrA	n/a	0	0	n/a	n/a	Previously surveyed: Report # 22-5271 (Poche et al. 2016)	n/a
Unnamed AR (Warren Ashe Road)	2200	10	n/a	0.18, 0.75	GrA, SkA	n/a	0	0	n/a	n/a	Previously surveyed: Report # 22-5271 (Poche et al. 2016)	n/a

Table 6.1, continued

Segment/ Area/ Access Road	Length (m)	Width (m)	Beg. M.P.	End M.P.	Soils	Probability	Transect STs Excavated	Delineation STs Excavated	Cultural Resource(s) Identified	Associated Workspaces	Notes	Date(s) Surveyed
AR-3	60	10	n/a	1.65	CvA	Low	0	0	n/a	n/a	Gravel Road - Pedestrian Survey Only	11/18/2023
AR-4	915	10	n/a	1.01	CvA, VhA	Low	3	0	n/a	n/a	Mixed gravel and dirt road	11/18/2023
AR-5	135	10	n/a	1.35	CvA	Low	3	0	n/a	n/a	Dirt Road	11/18/2023
AR-6	115	10	n/a	1.20	CvA	Low	3	0	n/a	n/a	Dirt Road	11/18/2023
AR-7	443	10	n/a	7.23	SkA, Sm	n/a	0	0	n/a	n/a	Gravel Road within area previously surveyed: Report # 22-6510 (Jenkins 2020) and 22-7044 (Stanyard et al. 2022)	n/a
AR-8 (Bagatelle Road)	765	10	n/a	7.64	SkA, Sm	n/a	0	0	n/a	n/a	Gravel Road within area purveyed: Report # 22-6510 (Jenkins 2020) and 22-7044 (Stanyard et al. 2022)	n/a
Access Roads, Ascension Parish												
AR-12	2850	10	n/a	8.72	Cm, Co, Cs, Sn	High	13	0	16AN31	n/a	Mixed asphalt, gravel and dirt road	11/28/2023
AR-9	1875	10	n/a	9.12	Sn	High	15	0	16AN31, 16AN32	n/a	Mixed gravel and dirt road	11/27/2023
AR-18 (Old Hwy. 22)	565	10	n/a	9.96	Co	High	0	0	18AN89	n/a	Paved Road - Pedestrian Survey Only	11/19/2023
AR-19	20	10	n/a	10.09	Co, Sn	High	0	0	16AN89	n/a	Very short segment of road that crosses a culvert - pedestrian survey only	3/29/2023
AR-20	52	10	n/a	10.37	Co, Sn	High	0	0	16AN89	n/a	Dirt Road	3/29/2023
AR-10, AR-11	515	10	n/a	11.38	Co, Sn	High	0	0	n/a	n/a	Paved Road - Pedestrian Survey Only	11/19/2023
AR-1	850	10	n/a	13.91	Cm, Co, Sn, Tu	High	14	0	n/a	n/a	Mixed gravel and dirt road	7/17/2023
AR-13, AR-14	2100	10	n/a	16.11, 16.13	Es, Sn, Ss, UL	Low	0	0	n/a	n/a	Gravel Road, pedestrian survey only	11/19/2023
AR-2	180	10	n/a	16.39	Sn	Low	5	0	n/a	n/a	Dirt Road	8/8/2023
AR-15	570	10	n/a	16.75	Sn	Low	5	0	n/a	n/a	Partial gravel and partial dirt road	11/28/2023
AR-16	155	10	n/a	16.66	Sn	Low	4	0	n/a	n/a	Dirt Road	11/28/2023
AR-17	20	10	n/a	16.80	Sn	Low	0	0	n/a	n/a	Dirt road extending into facility, observed from outside the facility only	11/19/2023

Table 6.2 **Cultural resources identified or revisited for the OxyChem Geismar to Convent Pipeline Project.**

Site #	Locus #	Segment/ Area/ Access Road	Mile Posting	Datum	# of STs	# of Positive STs	# of Surface Positives	# of Artifacts	Site Type	Age/ Affiliation	Recommendation	Notes
16AN31	Monroe Plantation	Segments JEP063023A, JEP071123A, JEP071323A; Potential Shell AR #2 and #3	Between M.P. 7.65 and 9.12, 9.40 and 9.47	n/a	172	0	0	0	Historic	19th-20th centuries	No additional work recommended	No evidence of site identified with project ROW
16AN32	Bruslie Plantation	Segment JEP063023A	Between M.P. 9.12 and 9.42	Transect 2, ST 9 @ 240 m	50	0	3	4	Historic	Late 19th-20th Century	No additional work recommended	Portion of site within the pipeline ROW is not significant
16AN89 (Location 2/3 Extension)	Orange Grove Plantation	Segments JEP061423A, AAC122523A, JEP011824A, B, D, E	Between M.P. 9.87 and 10.01	Segment JEP061423A, Transect 1, ST 4 @ 90 m	50	3	27	465	Historic	Late 18th-20th centuries	Additional work or avoidance	Portion of site with archaeological findings will be avoided by HDD and matting
16AN89	Locus AMH032923-01	Segment AMH032923A	M.P. 10.14	ST N1000 E1000	9	0	1	1	Historic	20th century	No additional work recommended	Locus is not significant
16AN89	Locus AMH032923-07	Segment AMH032923A	M.P. 10.27	ST N1000 E1000	4	0	1	1	Historic	20th century	No additional work recommended	Locus is not significant
n/a	Locus AMH032923-02	Segment AMH032923A	M.P. 10.41	Transect 4, Shovel Test 8 @ 197 m	15	0	2	3	Historic	20th century	No additional work recommended	Locus is not significant
16AN168	JEP061323-01	Segment JEP061323A	offline	Transect 2, ST 2 @ 30 m	25	10	2	75	Historic	Late 18th-20th centuries	Additional work or avoidance	Site will be avoided by a reroute
16AN169	JEP061223-01	Segment JEP061223A	Between M.P. 11.65 and 11.74	Transect 1, ST 38 @ 1110 m	61	2	10	31	Historic	20th century	No additional work recommended	Site is not significant
16AN60	Houmas Central Sugar Factory	n/a	Between M.P. 12.24 and 12.45	n/a	0	0	0	0	Historic	19th-20th centuries	No additional work recommended	Site will be avoided by HDD

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Figure 6.2 Overview photo of Segment AWG111823A, facing northeast. Photo taken on November 18, 2023.

The additional workspace situated near the beginning of the segment measured 0.2 ha (0.5 ac) in extent while the workspace near the end of the segment near LA-3125 the workspace measured 0.36 ha (0.9 ac) in extent. This survey segment was described as nearly level throughout, and was situated within a series of active agricultural fields. During the current survey, all of the fields that comprised the survey segment were densely populated with mature sugarcane plants. A series of farm roads and drainage ditches separated the fields. Soils mapped within the survey segment consisted of Carville Silt Loam, 0 to 2 percent slopes (CvA), Schriever clay, 0 to 1 percent slopes, rarely flooded (SkA), and Vacherie silt loam, 0 to 3 percent slopes (VhA) (Figure 2.1, Table 2.1).

Segment AWG111823A was determined to possess a low probability for containing cultural resources due its location near the transition from natural levee to backswamp, and an elevation below the 10 ft contour line depicted on USGS quadrangle data (Figure 1.2). Pedestrian survey augmented by the excavation of shovel tests at 50 m (164 ft) along a single transect placed along the centerline of the proposed project corridor was utilized to examine the segment. Additional judgmental shovel tests were excavated at the origin and terminus of the segment to accommodate expansion of the corridor to 65 m (213 ft) to accommodate for the additional workspaces. In total, 26 shovel tests were excavated within this portion of the project ROW, while two shovel tests were not excavated due to the presence of buried utilities along LA-3125 and an extant farm road. A typical shovel test was excavated to a maximum depth of 50 cmbs (19.7 inbs) and exhibited a single stratum in profile (Figure 6.3). Stratum I, a dark grayish brown (10YR 4/2) silty clay loam,

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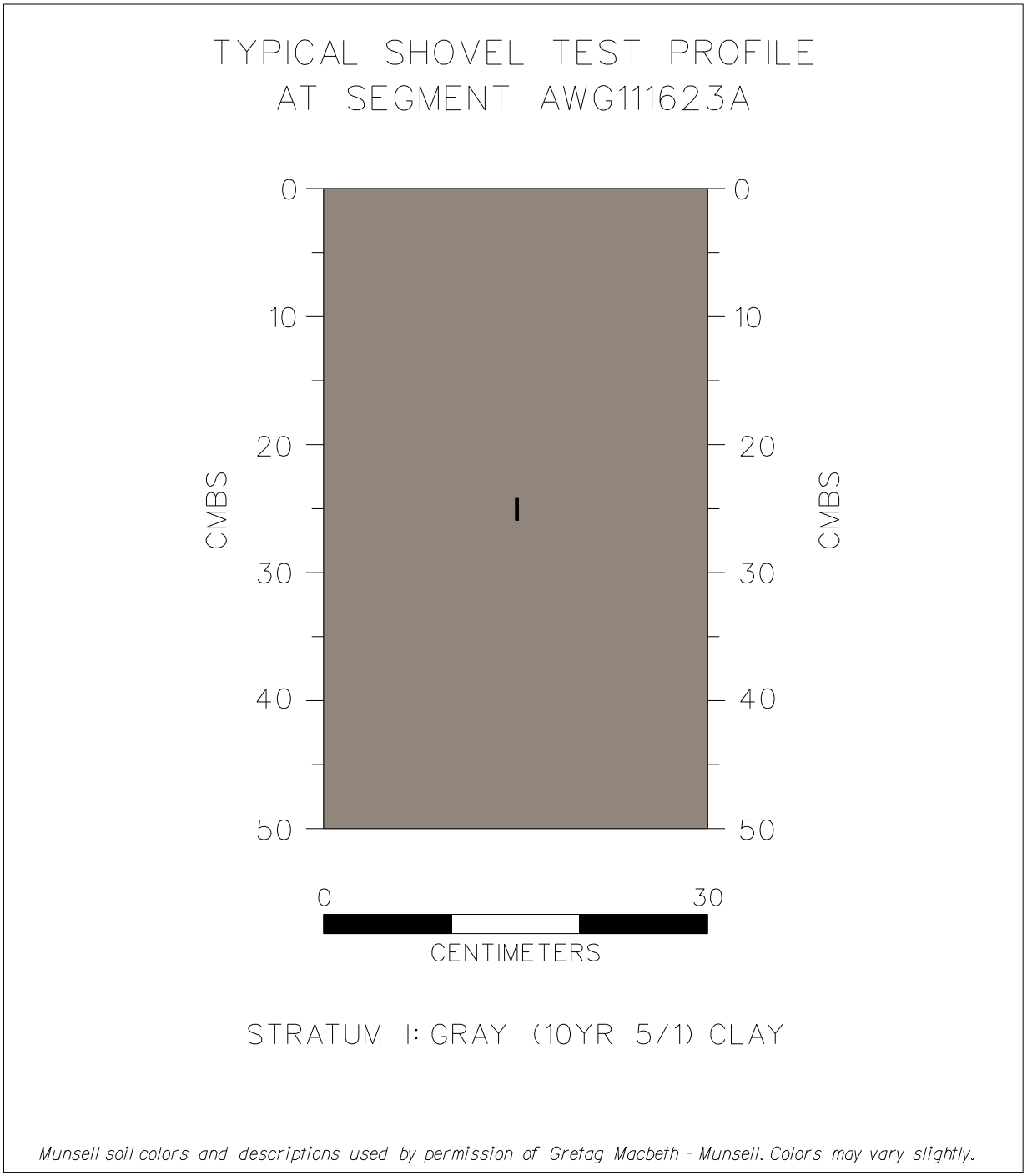

Figure 6.3 **Profile of a typical shovel test excavated within Segment AWG111823A.**

extended from the surface to 50 cmbs (19.7 inbs). No artifacts were recovered from any of the shovel tests excavated within this segment, and no cultural materials or evidence for undisturbed cultural deposits or features was identified anywhere within this portion of the project area; no additional work within Segment AW-G111823A is recommended.

Segment JEP111723B (M.P. 1.51 to 2.21)

Segment JEP111723B extended from M.P. 1.51 to 2.21 and measured approximately 1,127 m (3,697.5 ft) in length (Figures 6.1 [Sheet 4], 6.4; Table 6.1). The segment originated along the east side of LA-3125 and crossed over Shady Grove Road before it terminated at the south end of Segment JEP111623A at M.P. 2.21. The width of the proposed corridor measured 30 m (98 ft) for the majority of the segment. The proposed corridor expanded to accommodate additional workspaces at M.P. 1.56 and at M.P. 2.20. A horizontal directional drill will be used to extend the proposed pipeline across LA-3125 at the origin and terminus of the survey segment. The extra workspace at M.P. 1.56 measured 0.29 ha (0.7 ac) in extent and the extra workspace at M.P. 2.20 measured 0.34 ha (0.85 ac) in extent. Vegetation types observed within the survey segment consisted of wetland species (i.e., palmetto), hardwood trees, and secondary growth species. During the current survey, portions of the survey segment were flooded. A series of drainage canals were present within the area and a small pipeline meter station was observed south of the current survey corridor. Topography was nearly level except within the spoil banks of the aforementioned drainage ditches. Soils mapped within the survey segment consisted of Carville Silt Loam, 0 to 2 percent slopes (CvA), Schriever clay, 0 to 1 percent slopes, frequently flooded (Sm), and Vacherie Silt Loam, 0 to 3 percent slopes (VhA) (Figure 2.1, Table 2.1).

Segment JEP111723B was determined to possess a low probability for containing cultural resources due its location within backswamp, and at an elevation below the 10 ft contour line depicted on USGS quadrangle data (Figure 1.2). Pedestrian survey augmented by the excavation of shovel tests at 50 m (164 ft) along a single transect placed along the centerline of the proposed project corridor was utilized to examine the segment. Additional judgmental shovel tests were excavat-

Figure 6.4 **Overview photo of Segment JEP111723B, facing southwest. Photo taken on November 18, 2023.**

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ed at the origin and terminus of the segment to accommodate the additional workspaces. In total, 27 shovel tests were excavated within this portion of the project ROW. Four shovel tests were not excavated due to the presence of buried utilities along LA-3125, a drainage ditch, and overhead powerline infrastructure. A typical shovel test was excavated to a maximum depth of 50 cmbs (19.7 inbs) and exhibited two strata in profile (Figure 6.5). Stratum I, a brown (10YR 4/3) silt loam, extended from the surface to 25 cmbs (9.8 inbs). Stratum II, a very pale brown (10YR 7/3) silty clay loam, extended from the base of Stratum I to 50 cmbs (9.8 to 19.7 inbs). No artifacts were recovered from any of the shovel tests excavated within this segment, and no cultural materials or evidence for undisturbed cultural deposits or features was identified anywhere within this portion of the project area. No additional work within Segment JEP111723B is recommended.

Segment JEP111623A (M.P. 2.21 to 3.17)

Segment JEP111623A extended from M.P. 2.21 to 3.17 and measured approximately 1,545 m (5,068.9 ft) in length (Figures 6.1 [Sheets 4, 5], 6.6; Table 6.1). The segment originated at the northwest end of Segment JEP111723B and extended east-northeast to the southeast end of Segment AWG111523A. The width of the proposed corridor measured 30 m (98 ft) for the majority of the segment. The proposed corridor expanded to accommodate additional workspaces at M.P. 2.97, M.P. 3.09, and at M.P. 3.15. A horizontal directional drill will be used to extend the proposed pipeline across the St. James Parish Canal. The extra workspaces at M.P. 2.97, M.P. 3.09, and at M.P. 3.15 measured 0.3 ha (0.73 ac), 0.34 ha (0.84 ac), and 0.58 ha (1.43 ac) in extent, respectively. Vegetation types observed within the survey segment consisted of wetland species (i.e., palmetto), hardwood trees, and secondary growth species. During the current survey, a significant portion of the survey segment was inundated. Topography was nearly level throughout most of the segment except along the edge of the canal where a thick spoil bank was present. Soils mapped within the survey segment consisted of Barbary muck (BA), Schriever clay, 0 to 1 percent slopes, rarely flooded (SkA), and Schriever clay, 0 to 1 percent slopes, frequently flooded (Sm) (Figure 2.1, Table 2.1).

Segment JEP111623A was determined to possess a low probability for containing cultural resources due its location within backswamp and at an elevation below the 10 ft contour line depicted on USGS quadrangle data (Figure 1.2). Pedestrian survey augmented by the excavation of shovel tests at 50 m (164 ft) along a single transect placed along the centerline of the proposed project corridor was utilized to examine the segment. Additional judgmental shovel tests were excavated to accommodate the additional workspaces. In total, 8 shovel tests were excavated within this portion of the project ROW, while 20 planned shovel tests were not excavated due the extensive inundation noted along the project corridor. A typical shovel test was excavated to a maximum depth of 50 cmbs (19.7 inbs) and exhibited two strata in profile (Figure 6.7). Stratum I, a very dark gray (10YR 3/1) silt loam, extended from the surface to 5 cmbs (0 to 2.0 inbs). Stratum II, a light brownish gray (10YR 6/2) silty clay loam with iron staining, extended from the base of Stratum I to 50 cmbs (2.0 to 19.7 inbs). No artifacts were recovered from any of the shovel tests excavated within this segment, and no cultural materials or evidence for undisturbed cultural deposits or features was identified anywhere within this portion of the project area. No additional work within Segment JEP111623A is recommended.

Segment AWG111523A (M.P. 3.17 to 4.26)

Segment AWG111523A extended from M.P. 3.17 to 4.26 and measured approximately 1,754 m (5,754.6 ft) in length (Figures 6.1 [Sheets 5-7], 6.8; Table 6.1). The segment originated at the northwest end of Segment JEP111623A and extended northwest to the southeast end of Segment JEP111523A. Segment AWG111523A was situated directly along the north side of and parallel to the St. James Parish Canal; the northern boundary of Site 16SJ20 also was directly south of the segment and canal. The width of the proposed corridor measured 30 m (98 ft) for the majority of the segment. The proposed corridor was expanded to accommodate three small additional workspaces that measured less than 0.04 ha (0.1 ac) in area at approximately 460 m (1,509

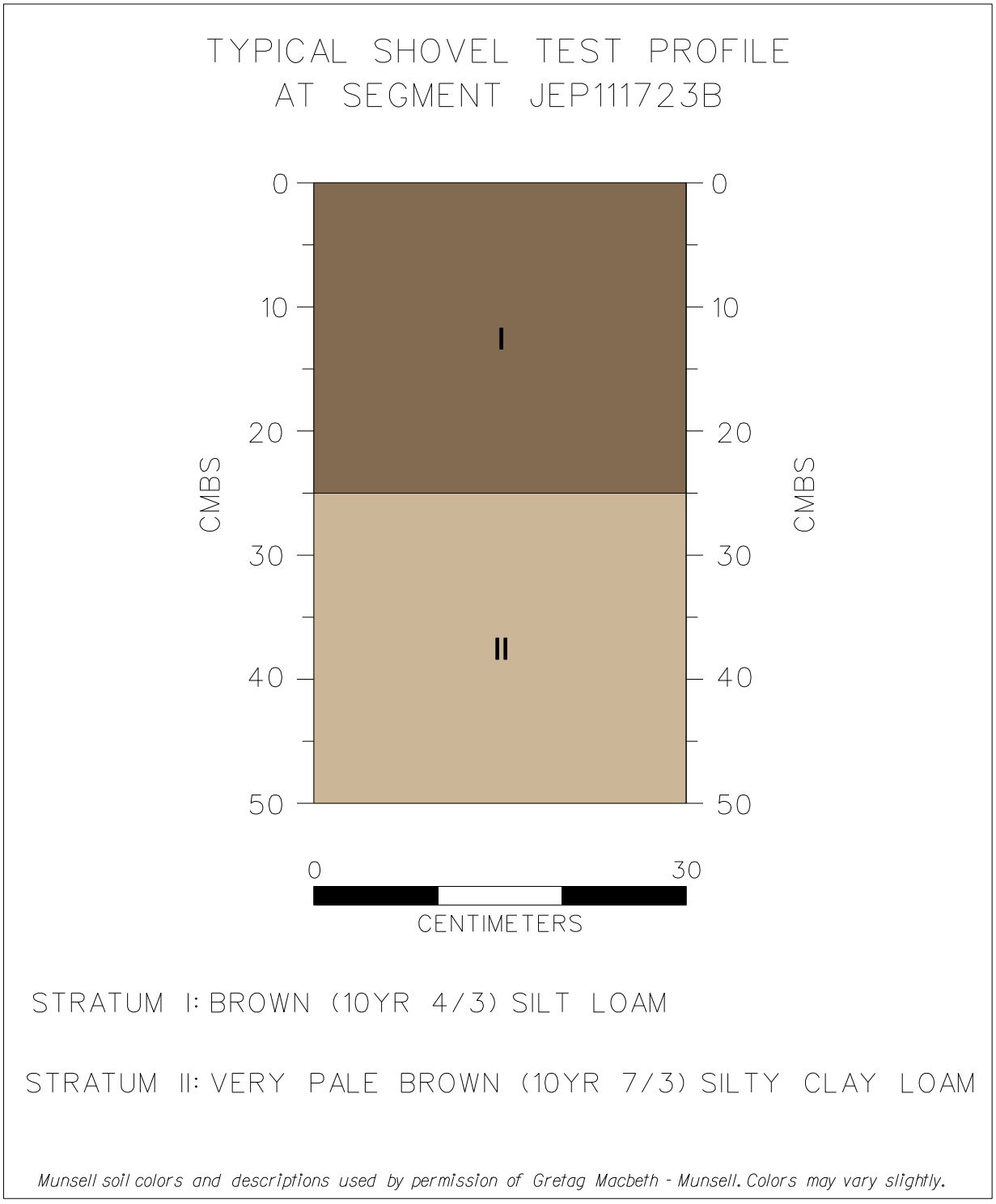

Figure 6.5 **Profile of a typical shovel test excavated within Segment JEP111723B.**

Figure 6.6 Overview photo of Segment JEP111623A, facing southwest. Photo taken on November 16, 2023.

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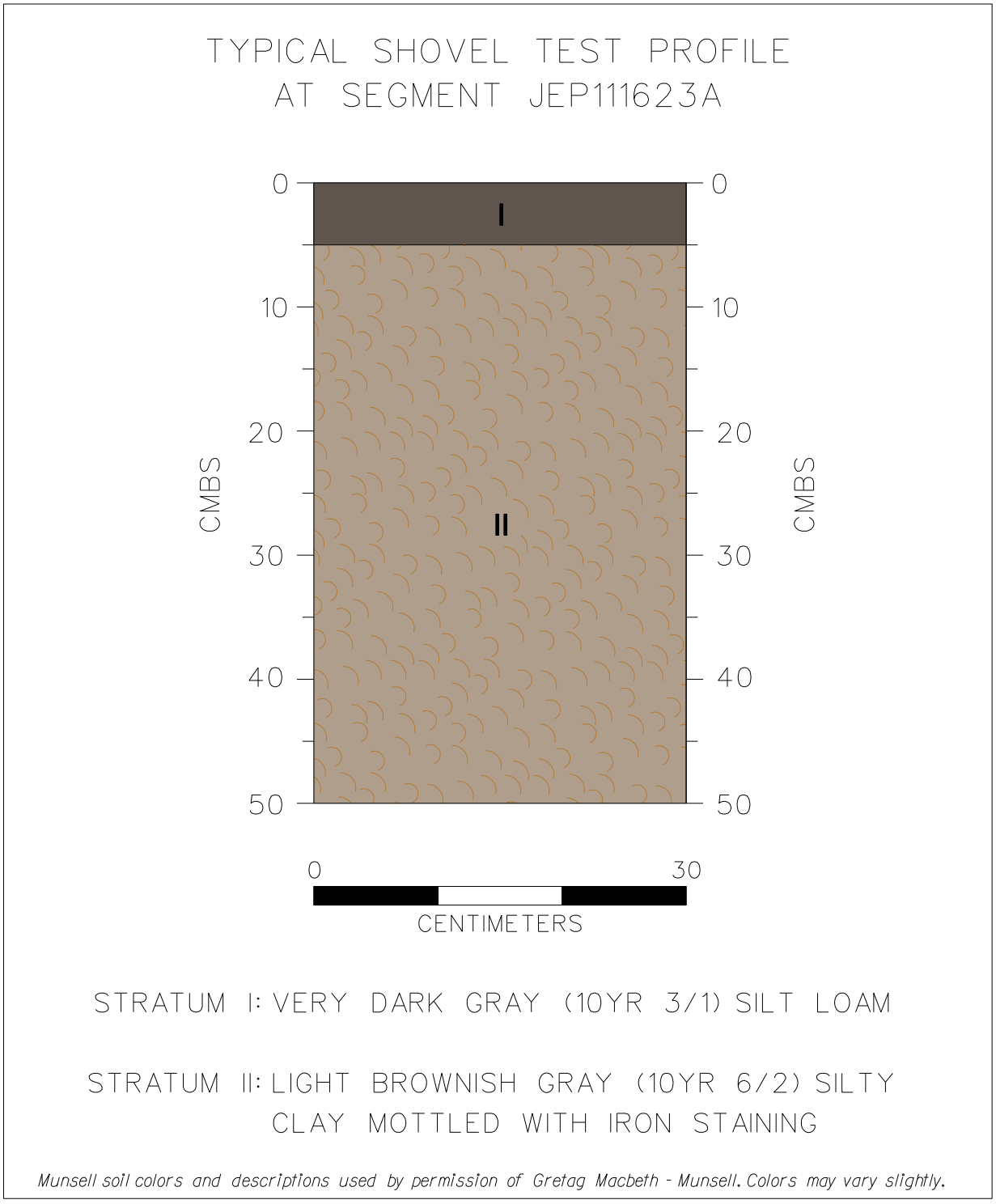

Figure 6.7 **Profile of a typical shovel test excavated within Segment JEP111623A.**

Figure 6.8 Overview photo of Segment AWG111523A, facing southeast. Photo taken on November 15, 2023.

ft) intervals along the segment. Vegetation types observed within the survey segment consisted of wetland species (i.e., palmetto), hardwood trees, and secondary growth species. During the current survey, a majority of the survey segment was inundated. Topography was nearly level except within the spoil banks of the canal. Soils mapped within the survey segment consisted of Barbary muck (BA) (Figure 2.1, Table 2.1).

Segment AWG111523A was determined to possess a low probability for containing cultural resources due its location within backswamp, and at an elevation below the 10 ft contour line depicted on USGS quadrangle data (Figure 1.2). Pedestrian survey augmented by the excavation of shovel tests at 50 m (164 ft) along a single transect placed along the centerline of the proposed project corridor was utilized to examine the segment. In total, 36 shovel tests were excavated within this portion of the project ROW. A typical shovel test was excavated to a maximum depth of 50 cmbs (19.7 inbs) and exhibited a single stratum in profile (Figure 6.9). Stratum I, gray (10YR 5/1) clay, extended from the surface to 50 cmbs (0 to 19.7 inbs). No artifacts were recovered from any of the shovel tests excavated within this segment, and no cultural materials or evidence for undisturbed cultural deposits or features was identified anywhere within this portion of the project area. No additional work within Segment AWG111523A is recommended.

Segment JEP111523A (M.P. 4.26 to 5.35)

Segment JEP111523A extended from M.P. 4.26 to 5.35 and measured approximately 1,754 m (5,754.6 ft) in length (Figures 6.1 [Sheets 7, 8], 6.10; Table 6.1). This segment originated at the northwest end of Segment AWG111523A and extended northwest to the southeast end of Segment OGM102423A. Segment JEP111523A was

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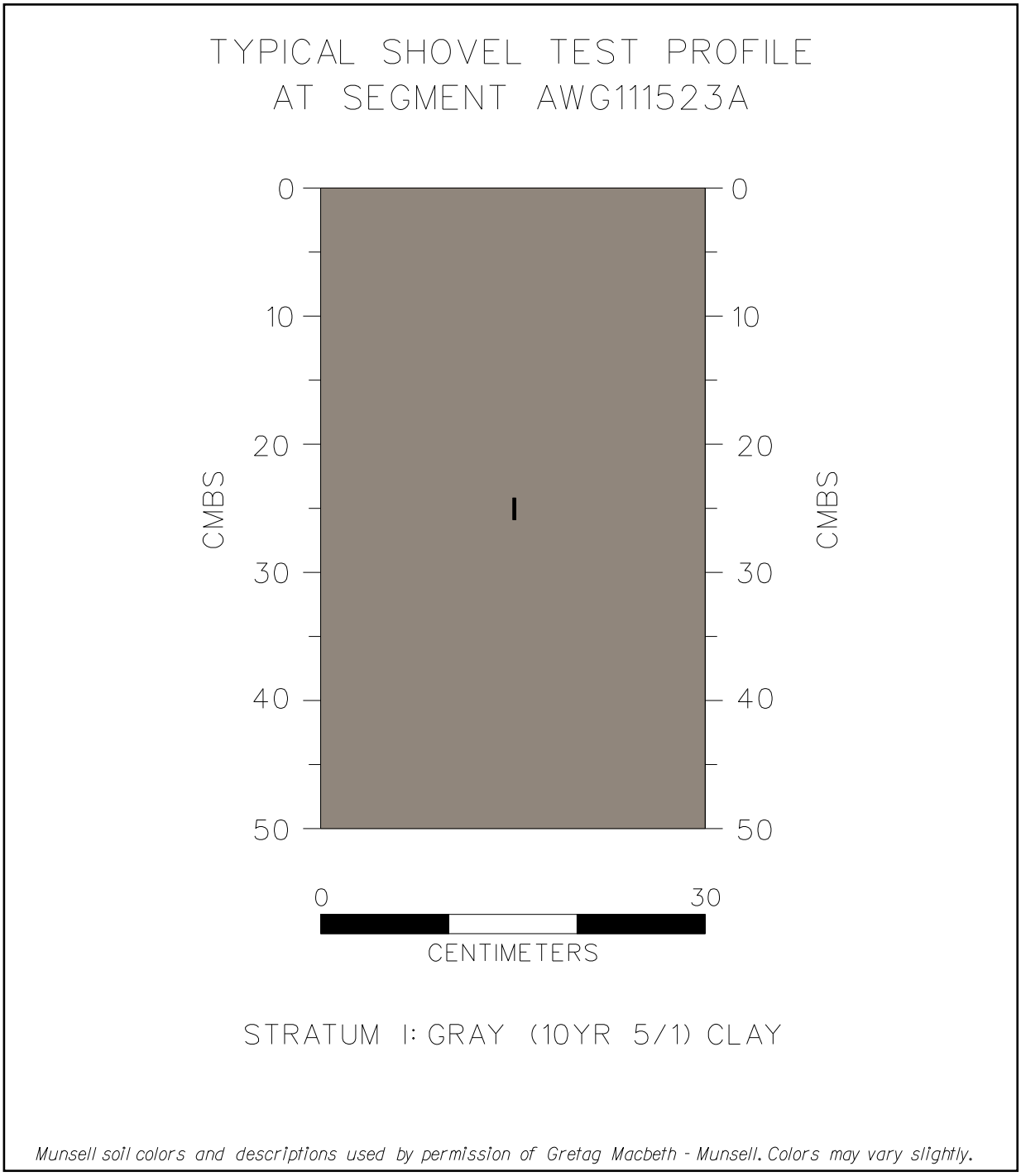

Figure 6.9 Profile of a typical shovel test excavated within Segment AWG111523A.

Figure 6.10 Overview photo of Segment JEP111523A, facing southeast. Photo taken on November 15, 2023.

situated directly along the north side of and parallel to the St. James Parish Canal, while the northern boundary of Site 16SJ20 was directly south of the segment and canal. The width of the proposed corridor measured 30 m (98 ft) for the majority of the segment. The proposed corridor was expanded to accommodate four small additional workspaces that measured less than 0.04 ha (0.1 ac) in area at approximately 460 m (1,509 ft) intervals along the segment. Vegetation types observed within the survey segment consisted of wetland species (i.e., palmetto), hardwood trees, and secondary growth species. During the current survey, a majority of the survey segment was inundated. Topography was nearly level except within the spoil bank that ran parallel to the canal. Soils mapped within the survey segment consisted of Barbary muck (BA) and Schriever clay, 0 to 1 percent slopes, frequently flooded (Sm) (Figure 2.1, Table 2.1).

Segment JEP111523A was judged to possess a low probability for containing cultural resources due its location within backswamp, and at an elevation below the 10 ft contour line depicted on USGS quadrangle data (Figure 1.2). Fieldwork consisted of pedestrian survey augmented by the excavation of shovel tests at 50 m (164 ft) along a single transect placed along the centerline of the proposed project corridor. A total of 31 shovel tests were excavated within this portion of the project ROW, with 7 planned shovel tests not excavated due to flooding. A typical shovel test was excavated to a maximum depth of 50 cmbs (19.7 inbs) and exhibited a single stratum in profile (Figure 6.11). Stratum I was described as a grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 5/8) iron staining, and it extended from the surface to a depth of 50 cmbs (0 to 19.7 inbs). No artifacts were recovered from any

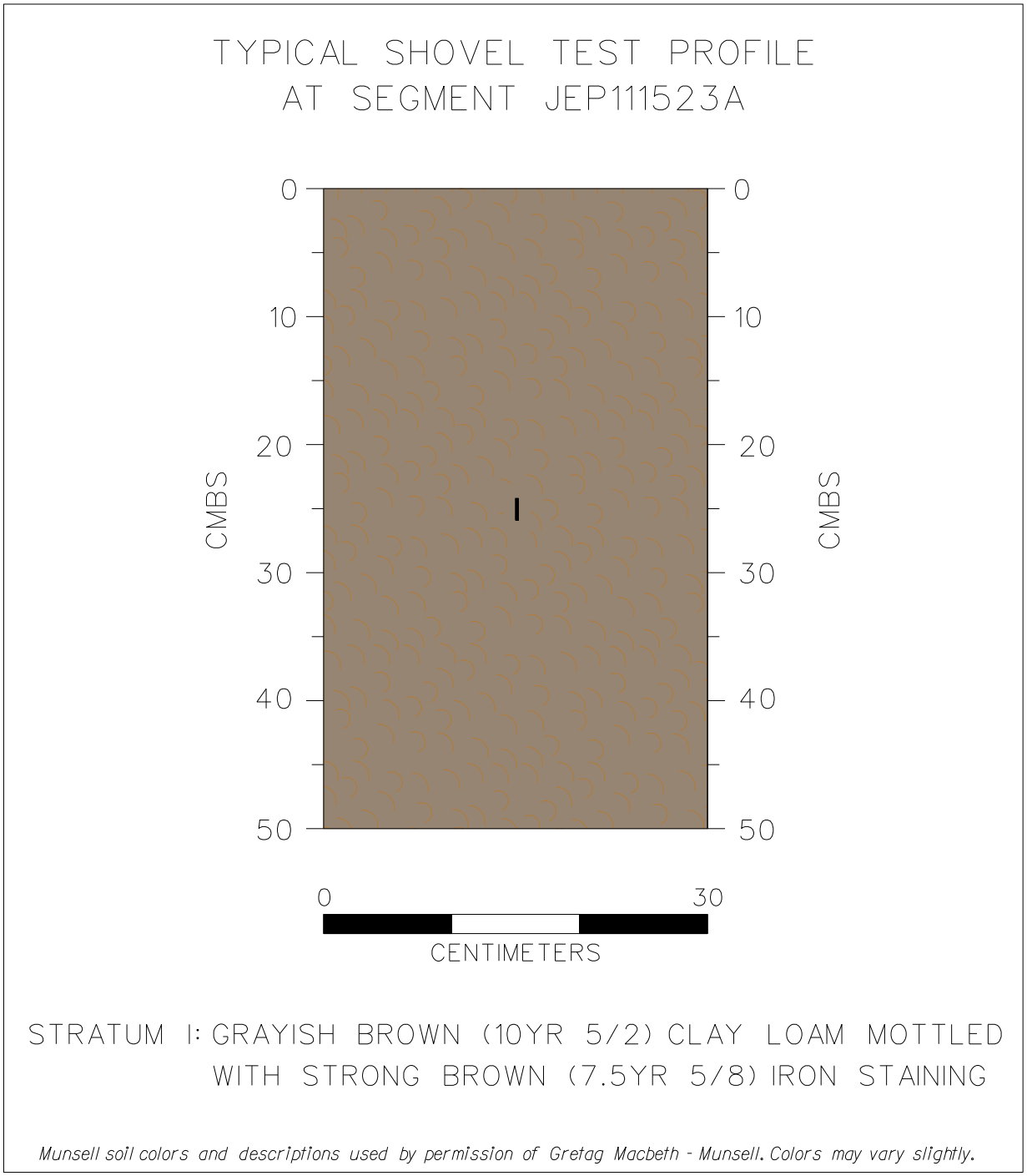

Figure 6.11 Profile of a typical shovel test excavated within Segment JEP111523A.

of the shovel tests excavated within this segment, and no cultural materials or evidence for undisturbed cultural deposits or features was identified anywhere within this portion of the project area. No additional work within Segment JEP111523A is recommended.

Segment OGM102423A (M.P. 5.35 to 5.70)

Segment OGM102423A was a ca. 563 m (1847.1 ft) long segment of 50 m (164 ft) wide project ROW that originated at the northwest end of Segment JEP111523A near M.P. 5.35 and extended west-northwest through backswamp, terminating at the east end of Segment AWG111623A at an existing transmission ROW and near M.P. 5.70 (Figures 6.1 [Sheet 9], 6.12; Table 6.1). This segment ran parallel to the St. James Parish Canal, located immediately to its south, and the northern limits of Site 16SJ20 occurred just south of the canal. Topography was nearly level throughout except along the southern edge of the segment where spoil from the excavation of the canal was present. Vegetation types observed within the survey segment consisted of wetland species (i.e., palmetto), hardwood trees, and secondary growth species. Soils mapped within the survey segment consisted of Schriever clay, 0 to 1 percent slopes, frequently flooded (Sm) (Figure 2.1, Table 2.1).

Segment OGM102423A was judged to possess a low probability for containing cultural resources due its location within backswamp, and at an elevation below the 10 ft contour line depicted on USGS quadrangle data (Figure 1.2). This segment was investigated by pedestrian survey supplemented with shovel testing at 50 m (164 ft) intervals along a single transect placed along the centerline of the proposed pipeline, with a total of 11 shovel tests excavated within this segment; furthermore, a single planned shovel test

Figure 6.12 Overview photo of Segment OGM102423A, facing south. Photo taken on October 24, 2023.

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was not excavated due to the presence of deadfall. A typical shovel test was excavated to a depth of 50 cmbs (19.7 inbs) and exhibited two strata in profile (Figure 6.13). Stratum I (0 to 30 cmbs [0 to 11.8 inbs]) was described as a deposit of gray (10YR 6/1) silt loam. Below Stratum I was Stratum II (30 to 50 cmbs [11.8 to 19.7 inbs]), a pale brown (10YR 6/3) silty clay. No artifacts were recovered from any of the shovel tests excavated within this segment, and no cultural materials or evidence for undisturbed cultural deposits or features was identified anywhere within this portion of the project area; no additional work within Segment OGM102423A is recommended.

Segment AWG111623A (M.P. 5.70 to 6.36)

Segment AWG111623A extended from M.P. 5.70 to 6.36 and measured approximately 1,062 m (3,484.3 ft) in length (Figures 6.1 [Sheets 9, 10], 6.14; Table 6.1). The segment originated at the existing transmission corridor at the west end of Segment OGM102423A and extended west, crossing two existing pipeline corridors between M.P. 6.14 and 6.2 and terminating at the east end of Segment JEP111723A near the St. James Parish Canal. The width of the proposed corridor measured 30 m (98 ft) for the majority of its length, with a proposed expanded workspace encompassing 0.36 ha (0.9 ac) of area situated near M.P. 5.41, and another proposed expanded workspace encompassing 0.47 ha (1.17 ac) of area located near M.P. 5.33. Vegetation types observed within the survey segment consisted of wetland species (i.e., palmetto), hardwood trees, and secondary growth species. Topography was nearly level except where the segment intersected with the spoil bank of the canal. Soils mapped within the survey segment consisted of Barbary muck (BA) and Schriever clay, 0 to 1 percent slopes, frequently flooded (Sm) (Figure 2.1, Table 2.1).

Segment AWG111623A was determined to possess a low probability for containing cultural resources due its location within backswamp, and at an elevation below the 10 ft contour line depicted on USGS quadrangle data (Figure 1.2). This segment was investigated by pedestrian survey supplemented with shovel testing at 50 m (164 ft) intervals along a single transect placed along the centerline of the proposed pipeline, with additional judgmental shovel tests excavated within the expanded workspaces. A total of 28 shovel tests excavated within this portion of the project ROW. A typical shovel test was excavated to a maximum depth of 50 cmbs (19.7 inbs) and exhibited a single stratum in profile (Figure 6.15). Stratum I was described as a gray (10YR 5/1) clay that extended from the surface to 50 cmbs (0 to 19.7 inbs). No artifacts were recovered from any of the shovel tests excavated within this segment, and no cultural materials or evidence for undisturbed cultural deposits or features was identified anywhere within this portion of the project area. No additional work within Segment AWG111623A is recommended.

Segment JEP111723A (M.P. 6.36 to 6.90)

Segment JEP111723A originated at the west end of Segment AWG111623A near M.P. 6.36 and extended west-southwest and west-northwest for a distance of 869 m (2,851 ft), ending at LA-70 near M.P. 6.90 (Figures 6.1 [Sheets 10, 11], 6.16; Table 6.1). The width of the segment was 50 m (164 ft) for most of its length, with an expanded workspace encompassing about 1.21 ha (3 ac) of area situated at its east end near M.P. 6.40, and another expanded workspace encompassing about 1.56 ha (3.85 ac) of area situated at its west end near M.P. 6.80. The northern boundary of the previously reported Site 16SJ21 was located just south of this segment. Vegetation types observed within the survey segment consisted of wetland species (i.e., palmetto), hardwood trees, and secondary growth species. Topography was described as nearly level throughout except where the segment intersected with the spoil bank of the canal. Soils mapped within the survey segment consisted of Schriever clay, 0 to 1 percent slopes, rarely flooded (SkA), and Schriever clay, 0 to 1 percent slopes, frequently flooded (Sm) (Figure 2.1, Table 2.1).

Segment JEP111723A was determined to possess a low probability for containing cultural resources due its location within backswamp, and at an elevation below the 10 ft contour line depicted on USGS quadrangle data (Figure 1.2). This segment was investigated by pedestrian survey supplemented with shovel testing at 50 m (164 ft) intervals along a single transect placed

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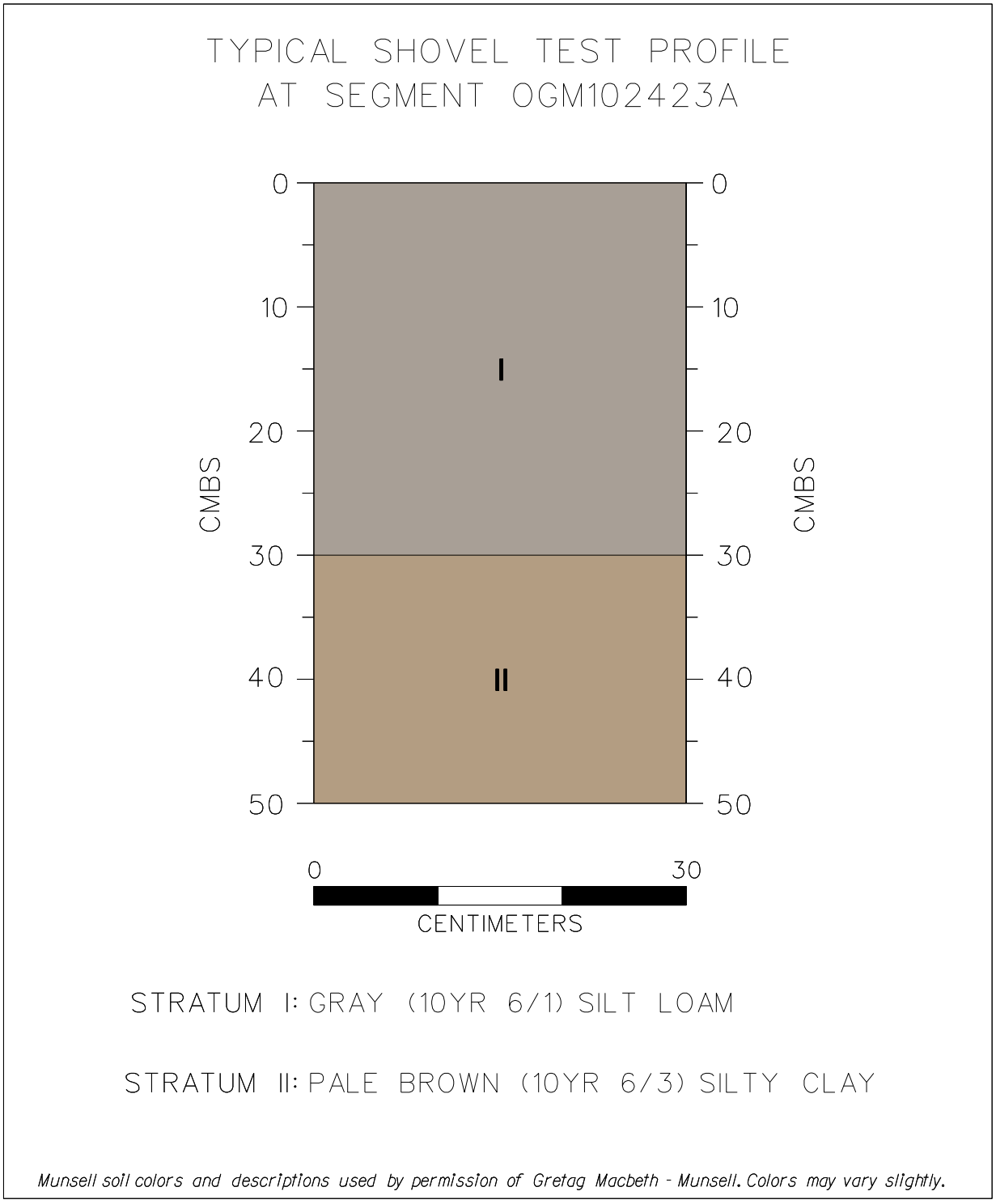

Figure 6.13 Profile of a typical shovel test excavated within Segment OGM102423A.

Figure 6.14 Overview photo of Segment AWG111623A, facing east-southeast. Photo taken on November 16, 2023.

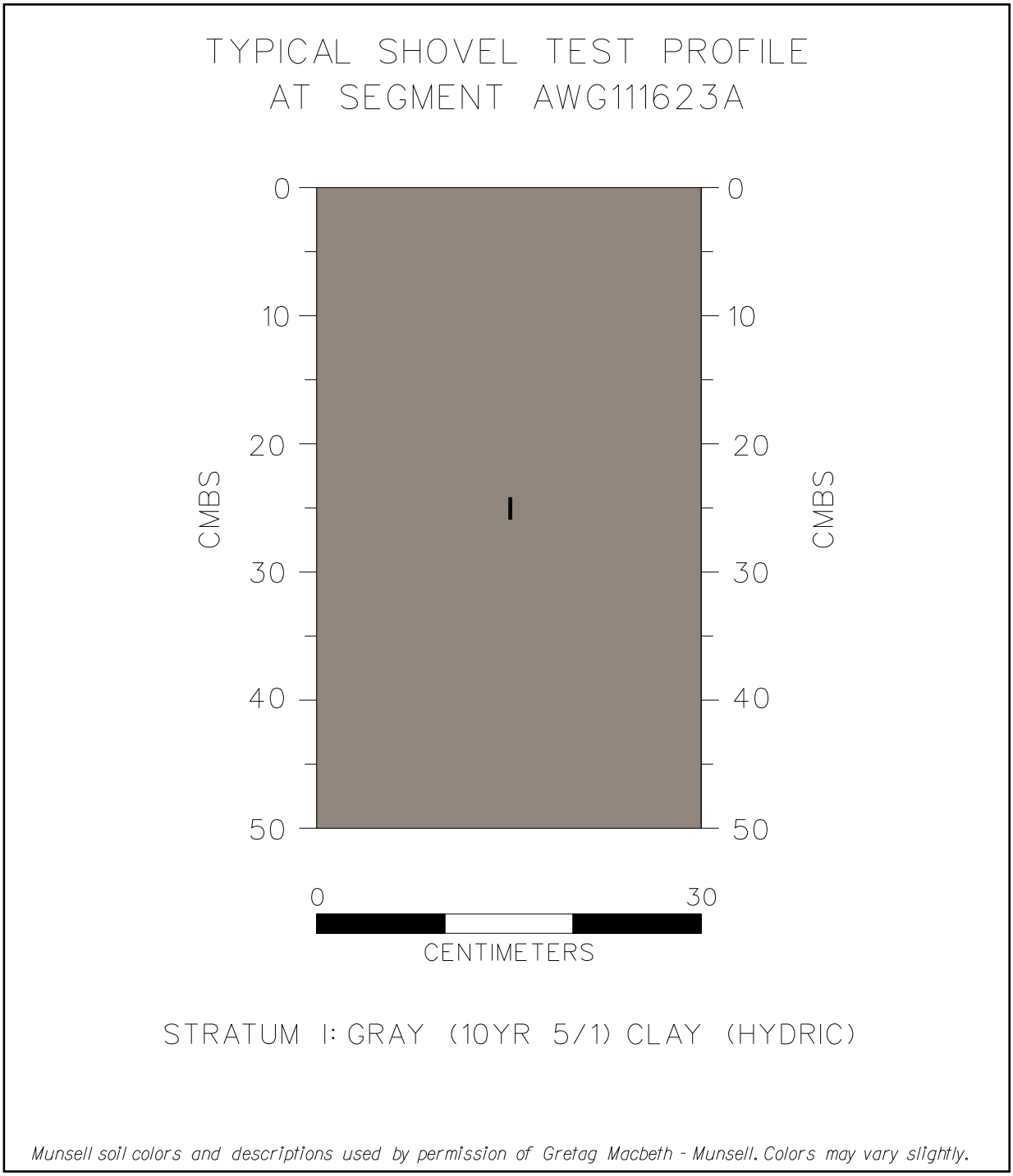

Figure 6.15 Profile of a typical shovel test excavated within Segment AWG111623A.

Figure 6.16 Overview photo of Segment JEP111723A, facing southeast. Photo taken on November 17, 2023.

along the centerline of the proposed pipeline, with additional judgmental shovel tests excavated within the expanded workspaces. A total of 32 shovel tests excavated within this portion of the project ROW, with another 5 planned shovel tests not excavated due to the presence of existing dirt roads and buried utilities. A typical shovel test was excavated to a maximum depth of 50 cmbs (19.7 inbs) and exhibited a single stratum in profile (Figure 6.17). Stratum I was described as a gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) iron staining that extended from the surface to 50 cmbs (0 to 19.7 inbs). No artifacts were recovered from any of the shovel tests excavated within this segment, and no cultural materials or evidence for undisturbed cultural deposits or features was identified anywhere within this portion of the project area. No additional work within Segment JEP111723A is recommended.

M.P. 6.90 to 7.65

The portion of the pipeline ROW and associated workspaces that fell between M.P. 6.90 and 7.64, as well as two proposed access roads (AR-7 and AR-8/Bagatelle Road) fell entirely within an area that was investigated previously for cultural resources by Jenkins et al. (2020) and Stanyard et al. (2022) (Figure 6.1 [Sheets 11, 12]; Table 6.1). Because these project items were investigated previously and no cultural resources were identified, no additional work is recommended.

Ascension Parish Segments

The final 17.3 km (10.7 mi) of the proposed and formerly proposed pipeline ROW was situated within Ascension Parish. This portion of the ROW was divided into 29 survey segments during the field investigations. Additionally, portions of the pipeline corridor between M.P. 9.47 and 9.54, 13.42 and 13.92, and 16.69 and 16.86 along the mainline, as well as between M.P. 0.53 and 1.18 on a secondary branch (i.e., the West Leg) of the pipeline did not require survey either because these locations had been examined previously using current survey standards, because they occurred within existing facilities where field investigations were neither feasible nor warranted. Three previously known archaeological sites within Ascension Parish were revisited (Sites 16AN31, 16AN32, 16AN89), and two new archaeological sites (16AN168 and 16AN169)

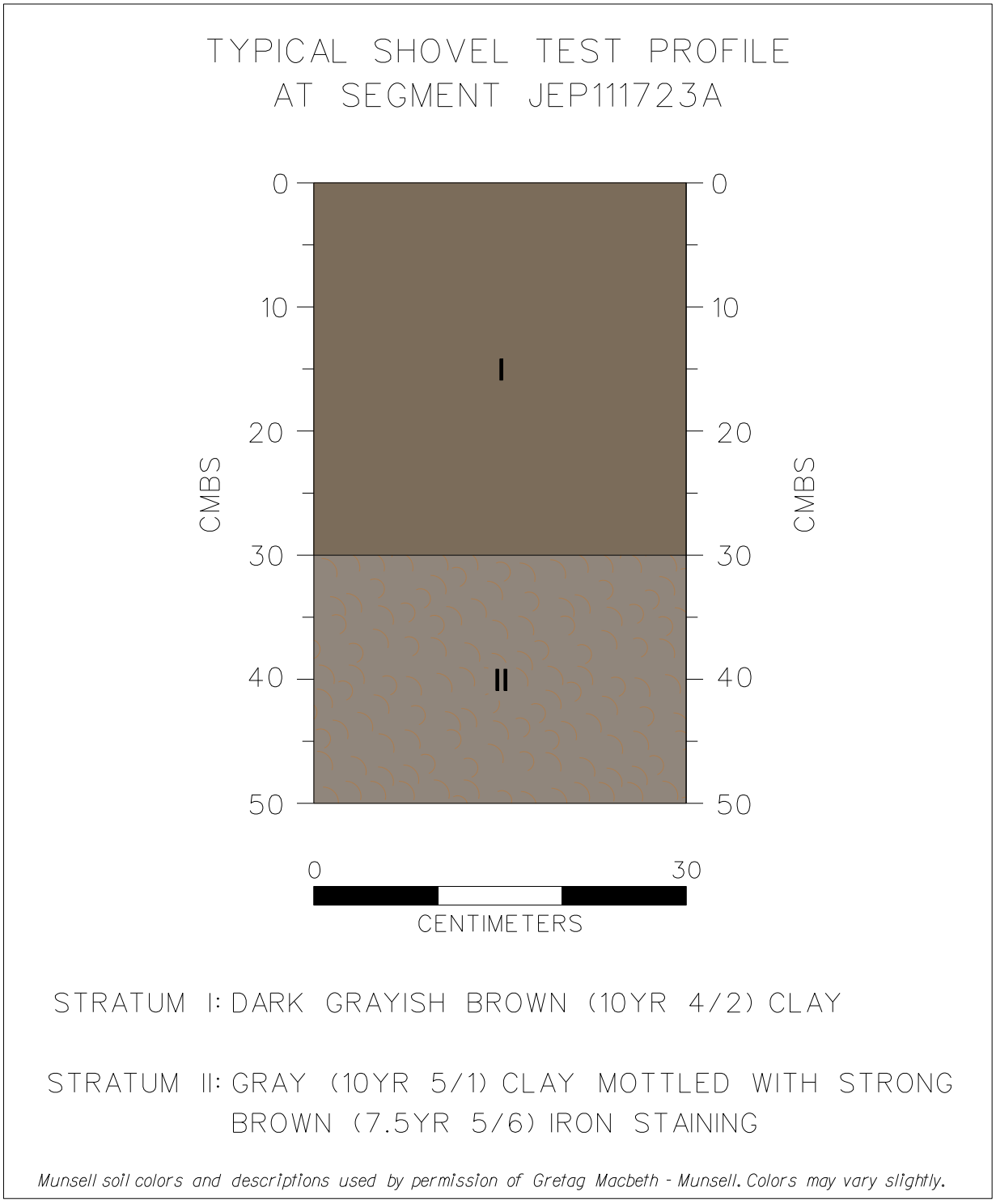

Figure 6.17 Profile of a typical shovel test excavated within Segment JEP111723A.

and one non-site archaeological locus (Locus AMH032923-02) were recorded.

Segment JEP071123A (M.P. 7.65 to 7.91)

Segment JEP071123A was a ca. 418 m (4,383.2 ft) long segment of proposed pipeline ROW that originated at the Ascension Parish line/Bagatelle Road near M.P. 7.65 and extended north-northwest to its northern terminus near M.P. 7.91 (Figures 6.1 [Sheets 12, 13], 6.18; Table 6.1). This portion of the ROW measured 50 m (164 ft) in width and was collocated to an existing pipeline corridor immediately to its west. Topography was described as nearly level throughout, while vegetation within the segment consisted of secondary growth hardwood forest, with heavy growth of tall grasses and weeds within the neighboring corridor. Soils recorded in the vicinity consisted of Schriever clay, 0 to 1 percent slopes, frequently flooded (Sj) (Figure 2.1, Table 2.1).

Segment JEP071123A extended through a portion of the previously reported Monroe Plantation, Site 16AN31, described below (Figure 4.1). Due to its location within a known archaeological site, Segment JEP071123A was determined to have a high probability for containing cultural resources. This segment was investigated by pedestrian survey supplemented with shovel testing at 30 m (98.4 ft) intervals along two transects spaced 30 m (98.4 ft) apart. A total of 28 shovel tests were excavated within this portion of the project ROW, with another 2 planned shovel tests not excavated due to the presence of an existing dirt road and a ditch. A typical shovel test was excavated to a maximum depth of 50 cmbs (19.7 inbs) and exhibited two strata in profile (Figure 6.19). Stratum I was described as a dark grayish brown (10YR 4/2) clay that extended from the surface to 30 cmbs (0 to 11.8 inbs). Below Stratum I was Stratum II, a gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) clay that continued from 30 cmbs (11.8 inbs) to the bottom of the excavation at 50 cmbs (19.7 inbs). No artifacts were recovered from any of the shovel tests excavated within this segment, and no cultural materials or evidence for undisturbed cultural deposits or features was identified anywhere within this portion of the project area. No additional work within Segment JEP071123A is recommended.

Figure 6.18 Overview photo of Segment JEP071123A and Site 16AN31, facing northwest. Photo taken on July 11, 2023.

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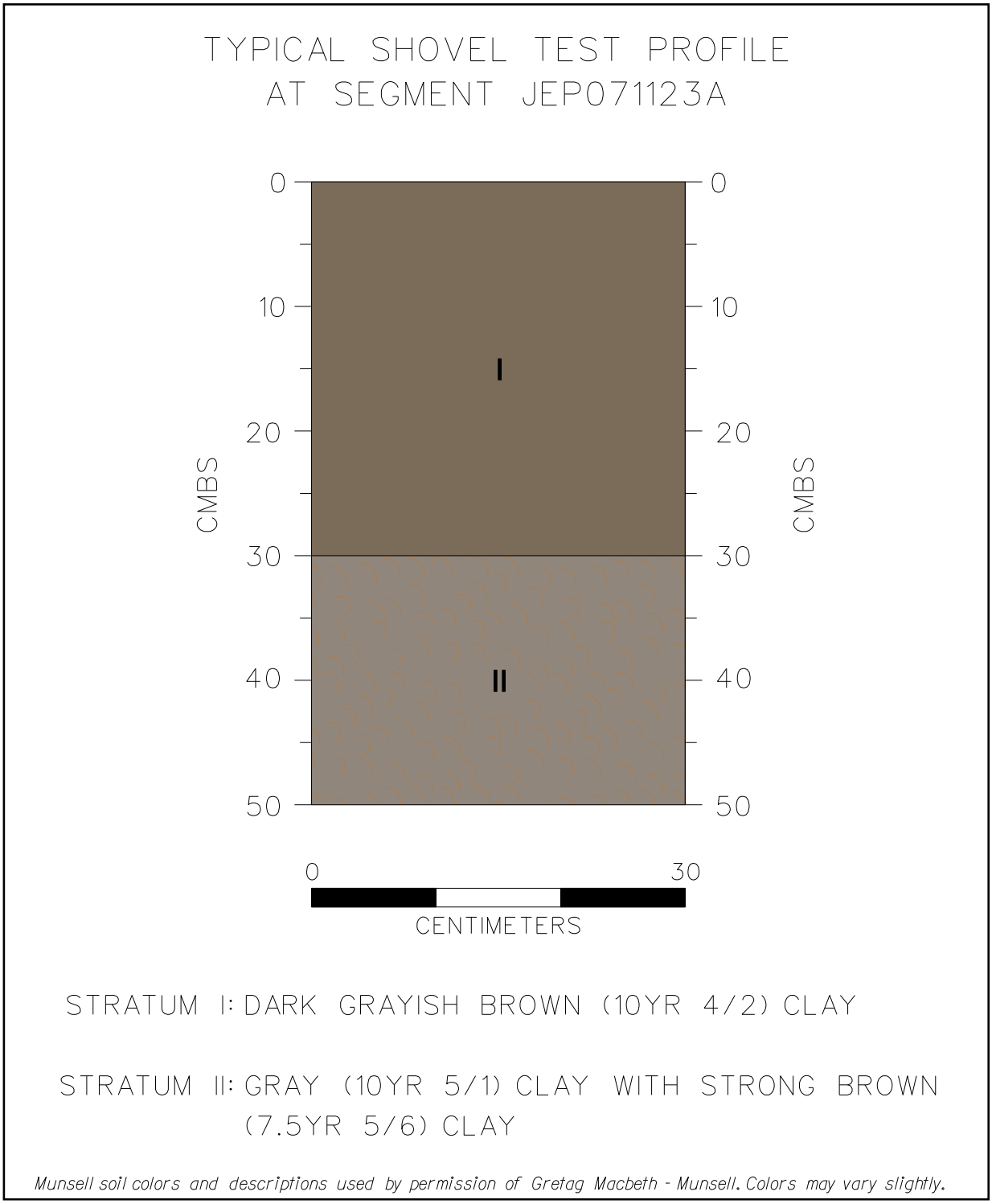

Figure 6.19 Profile of a typical shovel test excavated within Segment JEP071123A and Site 16AN31.

Segment JEP071323A (M.P. 7.91 to 8.74)

Segment JEP071323A was a ca. 1,336 m (4,383.2 ft) long segment of proposed pipeline ROW that originated at the north end of Segment JEP071123A near M.P. 7.91 and extended north-northwest to a ditch separating two agricultural fields near M.P. 8.74 (Figures 6.1 [Sheets 13, 16], 6.20; Table 6.1). This portion of the ROW measured 50 m (164 ft) in width and was collocated to an existing pipeline corridor immediately to its west. Vegetation within the first 150 m (492.1 ft) of the segment consisted of secondary growth hardwood forest, with heavy growth of tall grasses and weeds within the neighboring corridor, while the remainder of the segment traversed open cow pasture characterized by low grasses, with narrow stands of hardwood trees at crossings of ditches at M.P. 8.39, 8.43, and 8.72. Topography was described as nearly level throughout the segment. Soils recorded in the vicinity consisted of Schriever clay, 0 to 1 percent slopes, frequently flooded (Sj) and Schriever clay, 0 to 1 percent slopes, rarely flooded (Sn) (Figure 2.1, Table 2.1).

Similar to Segment JEP071123A, Segment JEP071323A extended through a portion of the previously reported Monroe Plantation, Site 16AN31, described below (Figure 4.1). Due to its location within a known archaeological site, this segment was determined to have a high probability for containing cultural resources and was investigated by pedestrian survey supplemented with shovel testing at 30 m (98.4 ft) intervals along two transects spaced 30 m (98.4 ft) apart. A total of 92 shovel tests excavated within this portion of the project ROW, with another 7 planned shovel tests not excavated due to the presence of an existing ditches and the aforementioned collocated pipeline. A typical shovel test was excavated to a maximum depth of 50 cmbs (19.7 inbs) and exhibited two strata in profile (Figure 6.21). Stratum I was described as a dark gray (10YR 4/1) clay that extended from the surface to 25 cmbs (0 to 9.8 inbs), while Stratum II was a gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) clay that continued from 25 cmbs (9.8 inbs) to the bottom of the excavation at 50 cmbs (19.7 inbs). No artifacts were recovered from any of the shovel tests excavated within this segment, and no cultural materials or evidence for undisturbed cultural deposits or features was identified anywhere within this portion of the project area. No additional work within Segment JEP071323A is recommended.

Figure 6.20 Overview photo of Segment JEP071323A and Site 16AN31, facing southeast. Photo taken on July 13, 2023.

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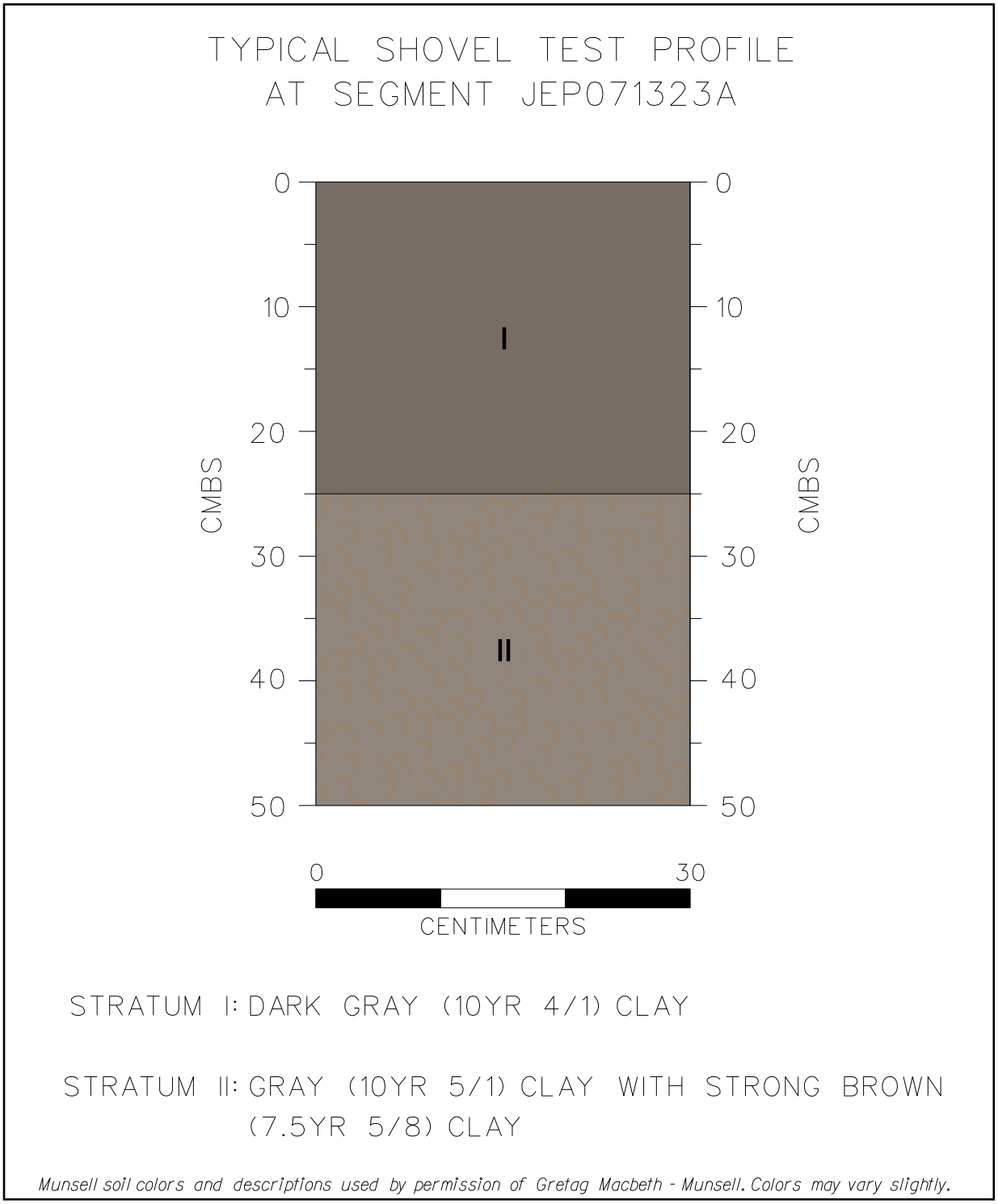

Figure 6.21 Profile of a typical shovel test excavated within Segment JEP071323A and Site 16AN31.

Segment JEP063023A (M.P. 8.74 to 9.54)

Segment JEP063023A was a ca. 1,287.5 m (4,224 ft) long segment of proposed pipeline ROW that originated at the north end of Segment JEP071323A near M.P. 8.74 and extended north-northwest, ending within an agricultural field near M.P. 9.54 (Figures 6.1 [Sheet 18], 6.22; Table 6.1). This portion of the ROW measured 50 m (164 ft) in width and was collocated to an existing pipeline corridor immediately to its west. Between M.P. 9.47 and 9.54 the pipeline will be installed by HDD to pass under an existing pipeline that was surveyed previously by Kelley et al. (2011). Vegetation within this segment consisted of dense sugarcane along most of its length, with a narrow stand of secondary growth hardwoods near Access Road AR-9 at M.P. 9.12. Topography was described as nearly level throughout. Soils recorded in the vicinity consisted of Commerce silty clay loam (Cm), Commerce silt loam, 0 to 1 percent slopes (Co), and Schriever clay, 0 to 1 percent slopes, rarely flooded (Sn) (Figure 2.1, Table 2.1).

Similar to Segments JEP071123A and JEP071323A, Segment JEP063023A extended through portions of the previously reported Monroe Plantation, Site 16AN31 from M.P. 8.74 to 9.12 and from M.P. 9.40 to 9.47, as well as a portion of the Bruslie Plantation, Site 16AN32 from M.P. 9.12 to 9.40, both of which are described below (Figure 4.1). Due to its location within two known archaeological sites, this segment was determined to have a high probability for containing cultural resources and was investigated by pedestrian survey supplemented with shovel testing at 30 m (98.4 ft) intervals along two transects spaced 30 m (98.4 ft) apart.

A total of 81 transect shovel tests excavated within this portion of the project ROW, with another 21 shovel tests excavated in order to delineate around three surface finds within Site 16AN32, described below. A typical shovel test was excavated to a maximum depth of 50 cmbs (19.7 inbs) and exhibited two strata in profile (Figure 6.23). Stratum I was described as a dark gray (10YR 4/1) clay that extended from the surface to 40 cmbs (0 to 15.7 inbs). Below Stratum I was Stratum II, a gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) clay that continued from 40 cmbs (15.7 inbs) to the bottom of the excavation at 50 cmbs (19.7 inbs). Although no artifacts were recovered from any of the shovel

Figure 6.22 Overview photo of Segment JEP063023A and Site 16AN32, facing north. Photo taken on July 16, 2023.

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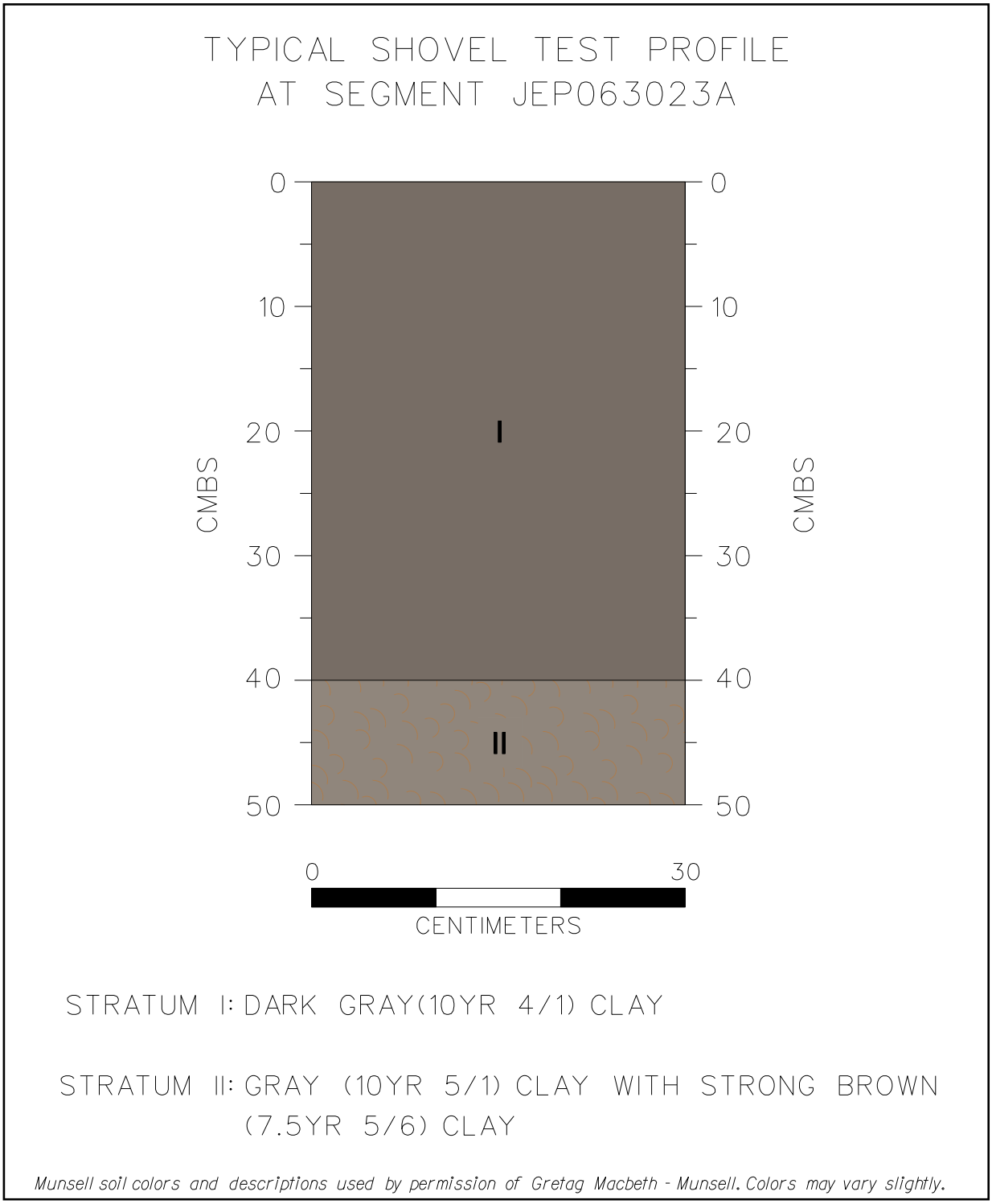

Figure 6.23 Profile of a typical shovel test excavated within Segment JEP063023A and Site 16AN32.

tests excavated within this segment, three surface finds were recovered within the limits of Site 16AN32 and those findings are described below. With the exception of those aforementioned surface finds, no cultural materials or evidence for undisturbed cultural deposits or features was identified anywhere within this portion of the project area. No additional work within Segment JEP063023A is recommended.

Monroe Plantation, Site 16AN31

A portion of the proposed pipeline ROW – situated between M.P. 7.65 and 9.12 as well as between 9.40 and 9.47 – fell within the limits of Site 16AN31, Monroe Plantation (Figure 6.1 [Sheets 12-18]; Table 6.2). This site originally was recorded in 1981 by Coastal Environments, Inc. (CEI) as a mid-nineteenth to mid-twentieth century sugar plantation complex (Figure 4.1). A number of features were identified, including the quarters area, sugarhouse, machine shop, cemetery, and main plantation house. The site was recommended as potentially eligible at that time. A small portion of the site, located near the southern border, was revisited in 2011 during an RCG&A survey, which failed to reveal any evidence of cultural resources (Hale et al. 2011). As a result of survey and archival research, the boundary of Site 16AN31 was shifted in 2012 to reflect historic parish boundary changes. Another portion of the site was surveyed by CEI in 2011 (Kelley et al. 2011). That Phase I survey traversed the mid-rear width of the site, and also did not result in the recovery of any artifacts or identify any features. The most recent site visit occurred in 2013, as part of Port et al.'s (2015) Phase I and II survey and testing of a large portion of the site. During that visit, they clarified that a majority of the site was under sugarcane cultivation, with the exception of the cemetery and quarters areas, which were located in the northwestern corner of the site and near the Mississippi River. Structural remains were relocated in the quarters, mill manger's residence, and sugarhouse areas, and intact cultural deposits, including artifact scatters, were located below the plowzone in those areas as well as in Tracts C and D. Furthermore, mechanical stripping was conducted at the Monroe Cemetery in order to define the border of the area; 163 burial features were documented. Although the project was cancelled before Phase II testing was completed, CEI recommended that Tracts A1, A2, D1, D3, and G be considered eligible for listing on the NRHP as a series of discontinuous contributing elements to Monroe Plantation.

Figure 6.24 depicts the locations of survey transects and shovel tests that fell within the boundaries of Site 16AN31. The portion of Site 16AN31 that intersected with the current project ROW was located more than 0.5 km (0.3 mi) from any of the locations where previous investigators identified eligible cultural resources associated with the Monroe Plantation; furthermore, the Bruslie Plantation, Site 16AN32is was situated within the northeastern portion of Site 16AN31 and is described separately below. Vegetation within the project ROW was comprised of sugarcane fields with some wooded areas along the eastern side of the large site boundary (Figures 6.18, 6.20). Slope was described as nearly level across the site area, and several farm roads and extant utility corridors were present within the large site boundary.

As described previously, survey Segments JEP071323A and JEP071323A as well as a portion of Segment JEP063023A all fell within the recorded boundaries of Site 16AN31. A total of 172 shovel tests excavated for the investigations of those three segments fell within the site area, which were situated at 30 m (98.4 ft) intervals within two transects placed 30 m (98.4 ft) apart. The profiles of typical shovel tests that fell within the site boundaries are illustrated within Figures 6.19 and 6.21 and described above. No artifacts were recovered from any of the shovel tests excavated within Site 16AN31, and no cultural materials or evidence for undisturbed cultural deposits or features was identified anywhere within this portion of the project area. No additional work within those portions of Site 16AN31 that fell within the current project area is recommended.

Bruslie Plantation, Site 16AN32

In addition to the Monroe Plantation described above, a portion of the proposed pipeline ROW situated between M.P. 9.12 and 9.40 fell within the limits of Site 16AN32, the Bruslie Plantation (Figure 6.1 [Sheets 16-18]; Table

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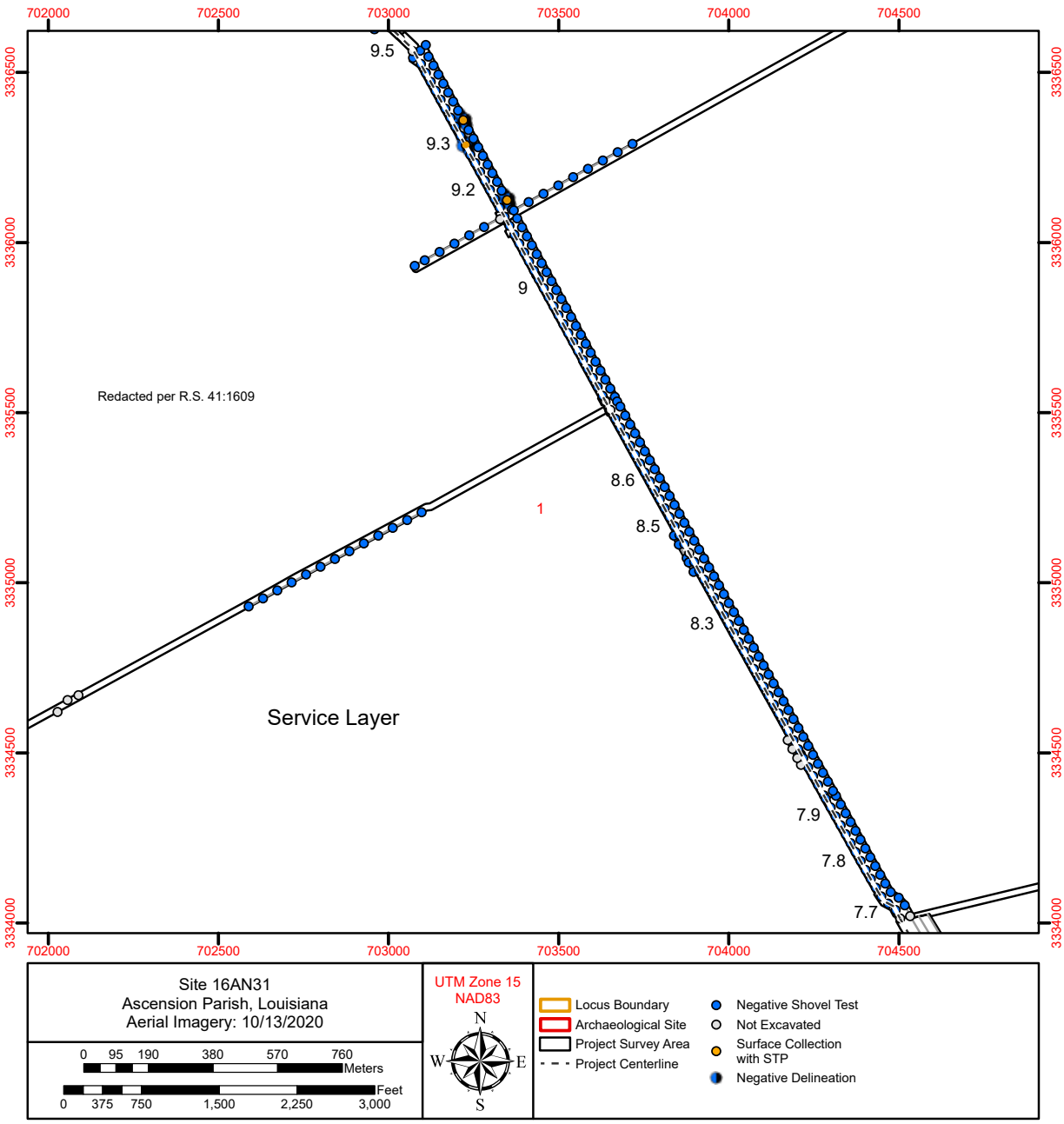

Figure 6.24 **Aerial photo of Site 16AN31 overlaid with the locations of transects and shovel tests excavated within the site area.**

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6.2). Recorded in 1981 by CEI, Site 16AN32 is nested within the boundaries of Monroe Plantation (16AN31) (Castille and McCloskey 1981) (Figure 4.1). This site was described as a late nineteenth to mid-twentieth century sugar plantation, with residential and sugarhouse features, and was recommended as potentially significant. The site was revisited in 2000 by archeologists from CEI. Although the investigated area did not contain significant cultural resources, it was noted that artifact density increased towards the south of the survey area and additional testing may be necessary if the proposed project corridor moved. Another portion of the site was surveyed by CEI in 2011 (Kelley et al. 2011). That Phase I survey traversed the southwestern edge of the site, and based on the recovered artifacts those investigators confirmed the late nineteenth to early twentieth century occupation, but also noted that the presence of pearlware might indicate an earlier occupation of the site. The most recent site visit occurred in 2013, as part of Port et al.'s (2015) Phase I and II survey and testing of the site. In addition to mechanical stripping and unit excavation at selected building locations, remote sensing and mechanical stripping were utilized to identify and define the boundaries of Bruslie Cemetery, which is located approximately 800 m (2,624.7 ft) west-northwest of the current project ROW.

Approximately 450 m (1,476.4 ft) of the project ROW – located between M.P. 9.12 and 9.40 within Segment JEP063023A – fell within the boundaries of Site 16AN32 and extended along the west edge of the site (Figures 6.25). Vegetation throughout the area was characterized by dense sugarcane growth (Figure 6.22). The segment was investigated by the excavation of shovel tests at 30 m (98.4 ft) intervals along two transects spaced 30 m (98.4 ft) apart, with a total of 29 shovel tests falling within the limits of Site 16AN32. Although no cultural materials were recovered from within any of these shovel tests, four historic artifacts were recovered from the site surface in close proximity to three of the shovel tests. The first location (Transect 2, ST 18 @ 510 m) produced a single piece of olive glass. Seven additional shovel tests were excavated at 10 m (32.8 ft) intervals around this surface find, but with the exception of a few small brick fragments noted within two of the shovel tests no additional artifacts were recovered. The second location (Transect 1, ST 11 @ 300 m) produced two ceramic sherds of undecorated pearlware. Seven additional shovel tests also were excavated at 10 m (32.8 ft) intervals around this surface find, but no additional artifacts were recovered. The third location (Transect 2, ST 9 @ 240 m) produced a single ceramic sherd of undecorated ironstone. Seven additional shovel tests also were excavated at 10 m (32.8 ft) intervals around this surface find, but again no additional artifacts were recovered.

A typical shovel test situated within Site 16AN32 was excavated to a depth of 50 cmbs (19.7 inbs) and exhibited a single stratum in profile (Figure 6.26). Stratum I was a plowzone deposit of dark grayish brown (10YR 4/2) clay that extended from the surface to the base of the excavation. With the exception of an occasional brick fragment, no artifacts were recovered from any of the shovel tests excavated within Site 16AN32. All artifact recoveries were limited to the four surface finds described above, and no cultural materials or evidence for undisturbed cultural deposits or features was identified anywhere within this portion of the project area. No additional work within those portions of Site 16AN32 that fell within the current project area is recommended.

Segments JEP061423A, JEP011824A, B, D, and E, and AAC121523A (M.P. 9.54 to 10.03)

Segment JEP061423A was a segment of 50 m (164 ft) pipeline ROW that originated near a property boundary and existing pipeline ROW at M.P. 9.54 and extended north-northwest for a distance of 789 m (2,588.6 ft) to abut with Segment AMH032923A near M.P. 10.03 (Figures 6.1 [Sheet 19], 6.27, 6.28; Table 6.1). This segment, which was collocated with an existing pipeline corridor to the east, traversed portions of three fallow agricultural fields and crossed an existing dirt farm road near M.P. 9.75, as well as a paved road (AR-18, Old Highway 22) near M.P. 9.96. Additionally, this segment fell entirely within the boundaries of the previously reported Site 16AN89, Orange Grove Plantation and within an area that had been investigated previously by Shuman and Taylor (2012a) and Shuman et al. (2014) (Figure 4.1). Topography was de-

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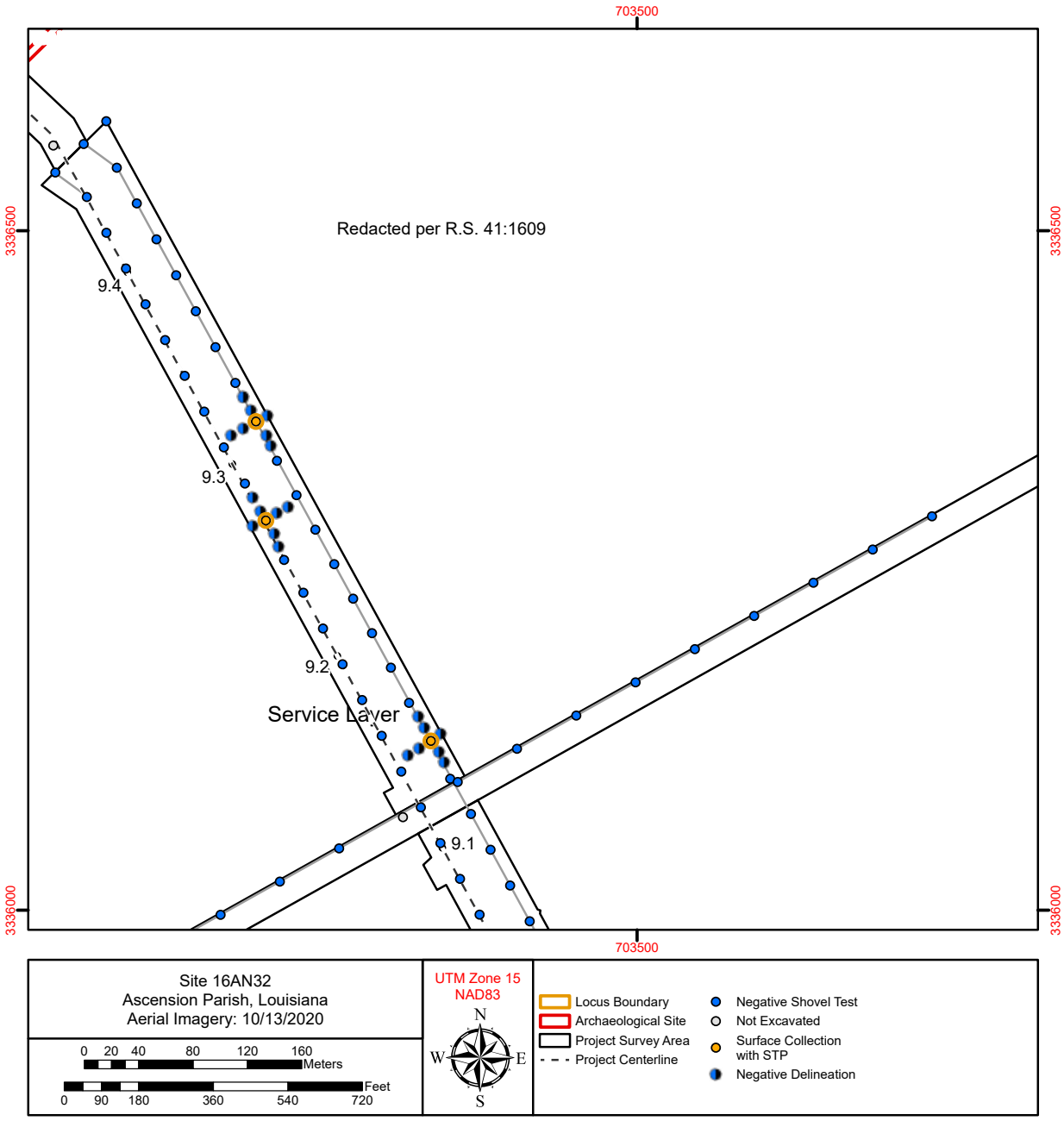

Figure 6.25 **Aerial photo of Site 16AN32 overlaid with the locations of transects and shovel tests excavated within the site area.**

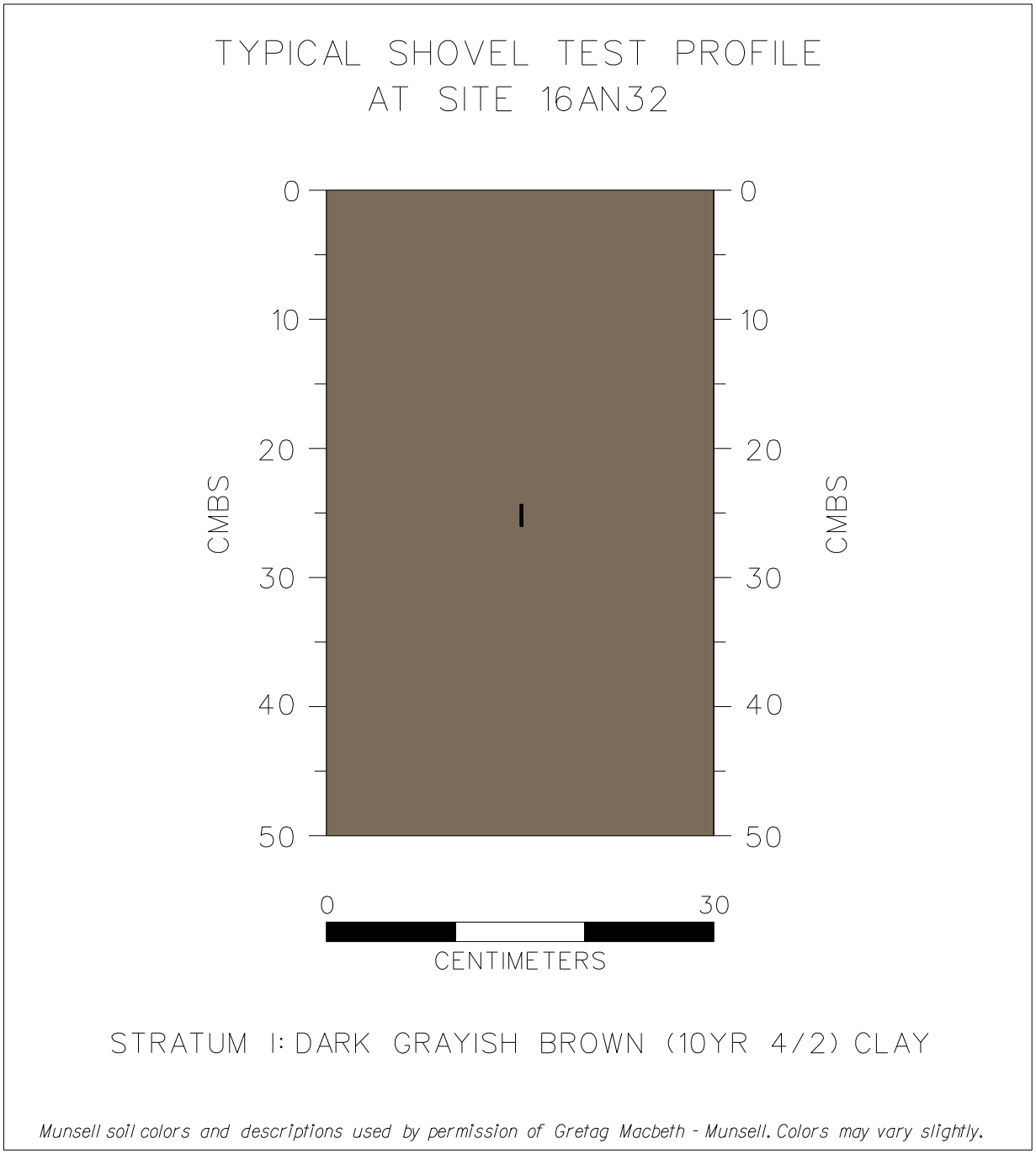

Figure 6.26 Profile of a typical shovel test excavated within Site 16AN32.

Figure 6.27 Overview photo of Segment JEP061423A and Site 16AN89, facing northwest. Photo taken on June 15, 2023.

Figure 6.28 Overview photo of Segment AAC122523A and Site 16AN89, facing south. Photo taken on December 5, 2023.

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scribed as nearly level throughout, while vegetation consisted of low grasses, weedy plants and low regrowth of soybeans. Soils mapped in the vicinity consisted of Commerce silty clay loam (Co) (Figure 2.1, Table 2.1).

Because Segment JEP061423A fell within the limits of a known archaeological site an in close proximity to a portion of that site where cultural materials had been identified (i.e., Locations 2 and 3 of Site 16AN89, Shuman et al. 2014), it was investigated by pedestrian survey supplemented by shovel testing at 30 m (98.4 ft) intervals along two transects spaced 30 m (98.4 ft) apart. A total of 57 shovel tests were excavated, with two planned shovel tests not excavated due to the presence of a farm road and the existing pipeline. During this investigation, a dense surface scatter of historic artifacts was identified that extended between M.P. 9.87 and 10.01, or for a length of 225 m (738.2 ft). Historic artifacts were recovered from the surface at 16 locations within this segment, while a single shovel test also produced both surface finds and one artifact recovered from depths between 0 and 10 cmbs (0 and 3.9 inbs). Twenty-nine additional shovel tests were excavated within the surface scatter area, and of those two produced one historic artifact each from depths between 10 and 20 cmbs (3.9 and 7.9 inbs). Furthermore, artifacts were recovered from the surface at another nine locations.

Following this initial discovery, an attempt was made to reroute around the artifact scatter by extending the project ROW further to the east and avoid impacting the site; this attempted reroute was designated as Segment AAC120523A. Another 17 shovel tests were excavated within this segment at 10 m (32.8 ft) intervals, while 12 planned shovel tests were not excavated due to an pipeline and a farm road. Four locations within this segment produced surface finds of historic artifacts. Subsequently, the project plans again were altered so that installation of the pipeline between M.P. 9.85 and 10.03 will be accomplished by HDD in order to avoid impacting the site. Between those two mileposts the width of the ROW was reduced to 10 m (32.8 ft) and additional shovel testing was completed to provide thorough survey coverage throughout the revised ROW. This reduced portion of the ROW was divided into four discontinuous segments that were designated as Segments JEP011824A, B, D, and E. Another 35 shovel tests were excavated at 10 m (32.8 ft) intervals within this area, while 14 planned shovel tests were not excavated due to the pipeline and farm roads. No additional cultural materials were recovered within these survey segments.

Although the entirety of Segment JEP061423A fell within Site 16AN89, only that portion of the segment situated between 9.87 and 10.3 produced cultural materials (described below). A typical shovel test excavated south of the artifact scatter area was extended to a depth of 50 cmbs (19.7 inbs) and exhibited two strata in profile (Figure 6.29). Stratum I (0 to 20 cmbs [0 to 7.9 inbs]) was described as a plowzone deposit of dark gray (10YR 4/1) clay. Stratum II 920 to 50 cmbs [7.9 to 19.7 inbs]) was a subsoil of gray (10YR 6/1) clay mottled with strong brown (7.5YR 5/6) clay. No artifacts were recovered from any of the shovel tests excavated south of M.P. 9.87, and no surface artifacts or evidence for undisturbed cultural deposits or features was identified anywhere within this portion of Segment JEP061423A; no additional work is recommended.

Orange Grove Plantation, Site 16AN89 (Location 2/3 Extension)

Originally recorded by Surveys Unlimited (SURA) in 2012, the Orange Grove Plantation (Site 16AN89) was described as a nineteenth century sugar plantation site with an associated cemetery (Shuman and Taylor 2012a, Shuman et al. 2014). Those investigators identified four locations within the historical boundaries of the plantation, and of these Locations 2 and 3 occurred in close proximity to the current project ROW. These two locations together encompassed approximately 15.8 ha (39 ac) of area and contained artifacts and architectural features that were interpreted as representing the remains of the main house, cabins, a blacksmith shop, and other plantation-related buildings (Shuman et al. 2014:63-145). Based on these findings, the investigators recommended avoidance or additional testing for NRHP eligibility (ibid.:117, 145, 164).

The large artifact scatter identified during the survey of Segment JEP061423A for the cur-

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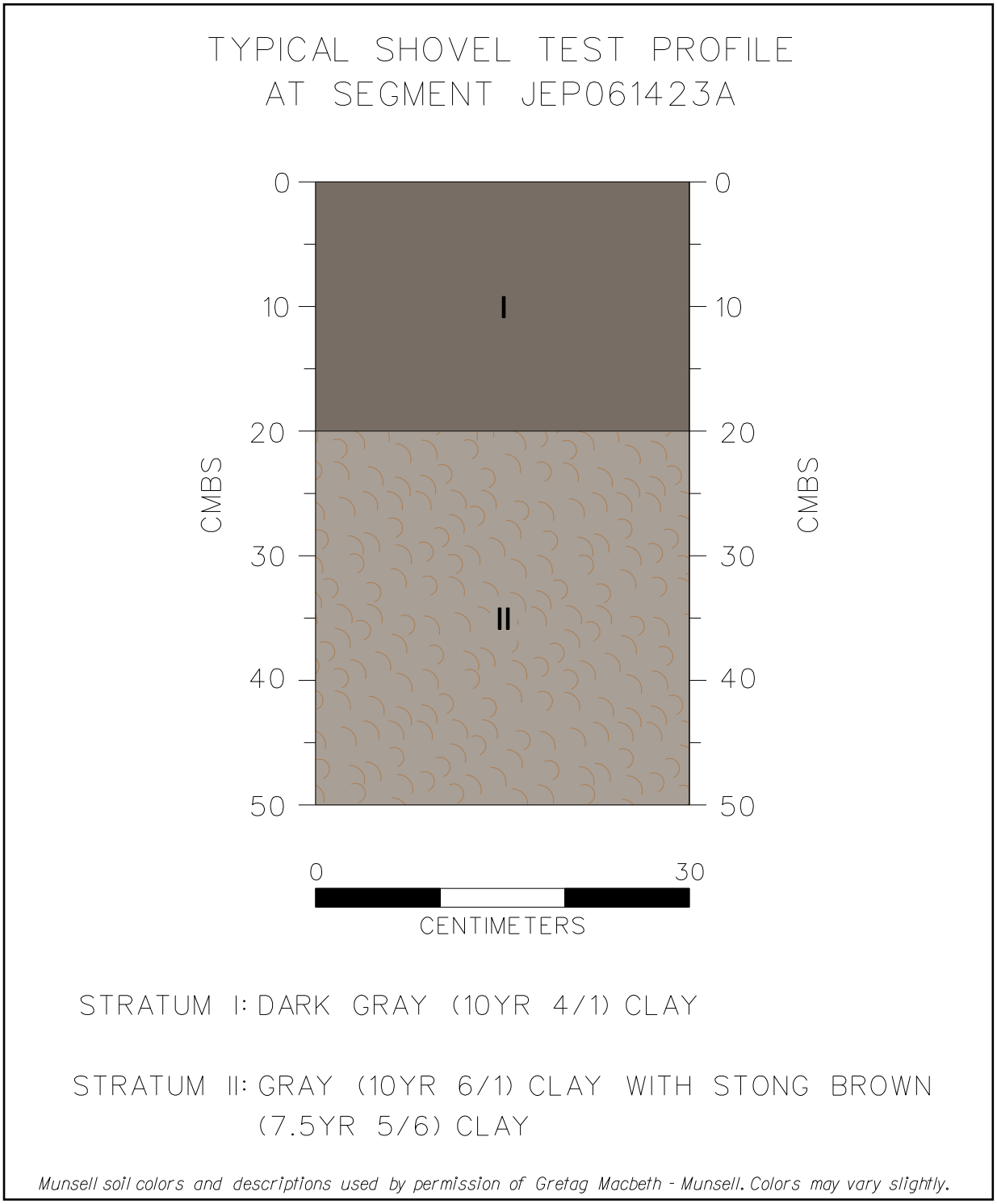

Figure 6.29 Profile of a typical shovel test excavated within Segment JEP061423A.

rent OxyChem pipeline project was situated just east of Locations 2 and 3 as recorded by Shuman et al. (2014) (Figures 6.1 [Sheets 19, 20], 6.22, 6.25; Table 6.2). At the time of the survey this portion of Site 16AN89 was located within both active and fallow agricultural fields with vegetation consisting of grasses, weeds and soybeans. Surface visibility within plow furrows was nearly 100 percent. Slope was described as nearly level across the site area. Soils mapped in the vicinity consisted of Commerce silty clay loam (Co) (Figure 2.1, Table 2.1).

As described above, a total of 138 shovel tests were excavated within the proposed pipeline ROW between M.P. 9.54 and 10.03, and of those 50 shovel tests fell within the limits of the newly-identified locus (Figures 6.30, 6.31). This locus measured 225 m (738.2 ft) in length and 60 m (196.9 ft) in width, and encompassed about 1.35 ha (3.34 ac) of area. Surface collections were made from 5 m (16.4 ft) radii around 29 of those shovel tests, while 3 of those 29 shovel tests also produced one artifact each from subsurface contexts.

A typical shovel test was excavated to a maximum depth of 50 cmbs (19.7 inbs) and exhibited two strata in profile (Figure 6.32). Stratum I, a dark gray (10YR 4/1) silty clay, extended from the surface to 30 cmbs (11.8 inbs) and represented the modern plow zone. Stratum II, a gray (10YR 5/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay, extended from the base of Stratum I to the base of the excavation and represented subsoil. Of the three shovel tests that produced artifacts below surface, all three recoveries originated from Stratum I and from depths between 0 and 10 cmbs (0 and 3.9 inbs) (1 undecorated stoneware ceramic sherd) or between 10 and 20 cmbs (3.9 and 7.9 inbs) (2 undecorated whiteware ceramic sherds). No artifacts were recovered from depths below the modern plowzone, and no evidence for undisturbed cultural deposits or features was identified within any of the shovel test excavated within the surface scatter area.

A total of 465 historic artifacts were recovered from Site 16AN89 (Table 6.3). These consisted of 247 historic ceramic artifacts, 213 glass shards, 2 metal, 2 shell buttons, and 1 graphite rod. The historic ceramic artifacts recovered from the site consisted of 243 vessel fragments and three personal items. Vessel fragments were identified further as creamware (n = 1; Figure 6.33.a), pearlware (n = 32), whiteware (n = 128), ironstone (n = 41), yellowware (n = 4), slip-trailed redware (n = 1; 1750-1820; Florida Museum 2023; Figure 6.33.b), porcelaneous stoneware (n = 8), hard-paste porcelain (n = 22), buff-bodied stoneware (n = 5), and untyped white refined earthenware (n = 5).

A number of dateable decorative applications were identified on ceramic artifacts found within this assemblage, including examples of hand-painted (n = 9; 1775-1920; DAACS 2018b:16; Miller 1991:7-8; Miller et al. 2000:12-13; South 1977:212; Figure 6.34), factory slip (n = 13; 1782-early twentieth century; DAACS 2018a:69; Miller 1991:6-7; Miller et al. 2000:12-13; ; Figure 6.35), transfer print (n = 8; 1783-present; Miller 1991:9; Miller et al. 2000:9-13; South 1977:212; Noel Hume 1969:128; Samford 1997:20; Figure 6.36); edgeware (n = 3; 1780-1895; Miller 1991:5-6; Miller et al. 2000:12-13; Noel Hume 1969:131; South 1977:212; Figure 6.37.a); flow printed (n = 2; 1840-1860; DAACS 2018b:11; Miller et al. 2000:13; Samford 1997:24; Figure 6.37.b); decal (n = 4; 1890-present; DAACS 2018b:7-8; Miller et al. 2000:13); sponge/spatter (n = 1; ca. 1770s-1860; Majewski and O'Brien 1987:161; Miller 1991:6), and cut sponge (n = 3; 1845-1930; Miller 1991:6; Miller et al. 2000:13; Figure 6.38.c) decorations. One partial whiteware cup was the only vessel form to be identified within this assemblage; the remaining ceramic artifacts were classified as unspecified containers. Four ceramic sherds with maker's marks were also recovered; three were indeterminate due to fragmentation (Figure 6.38.b), but one ironstone sherd with a Davenport maker's mark was identified (ca. 1805+; Birks 2023; Figure 6.38.a). Ceramic artifacts not included in the kitchen/household wares category consisted of 2 complete Prosser buttons (Figure 6.39.a), 1 child's tea set cup fragment (Figure 6.39.b), and 1 porcelain doll leg fragment (Figure 6.39.c).

Glass artifacts recovered at Site 16AN89 predominately were categorized as bottles, jars, or other containers (n = 198); a bottle stopper (n = 1), stemware (n = 2), tumbler/drinking glass (n = 2), and a glass jewelry stone (n = 1; Figure 6.40.a)

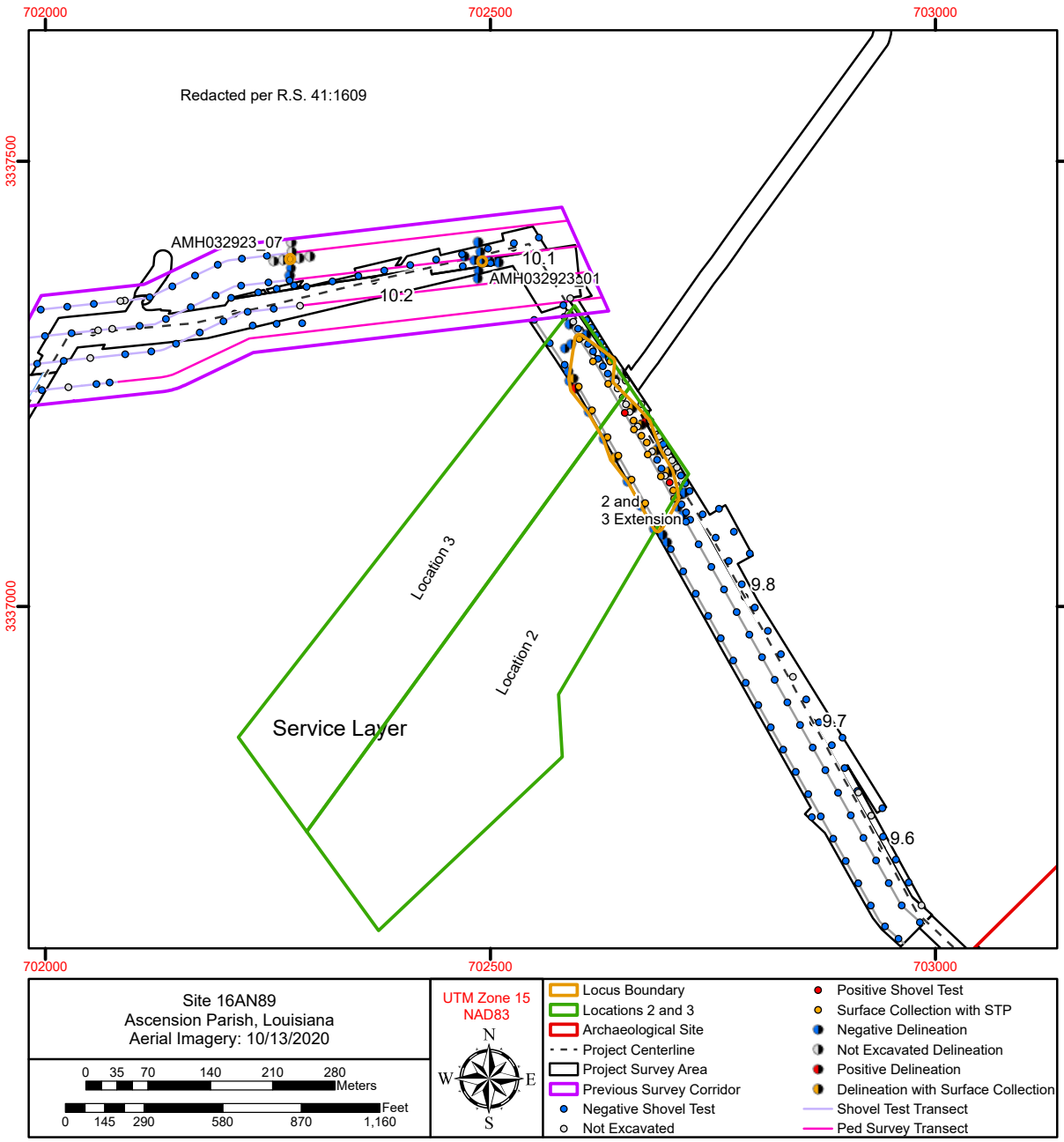

Figure 6.30 **Aerial photo of Site 16AN89 overlaid with the locations of Locations 2 and 3 from Shuman et al. (2014) and of transects and shovel tests excavated within the site area.**

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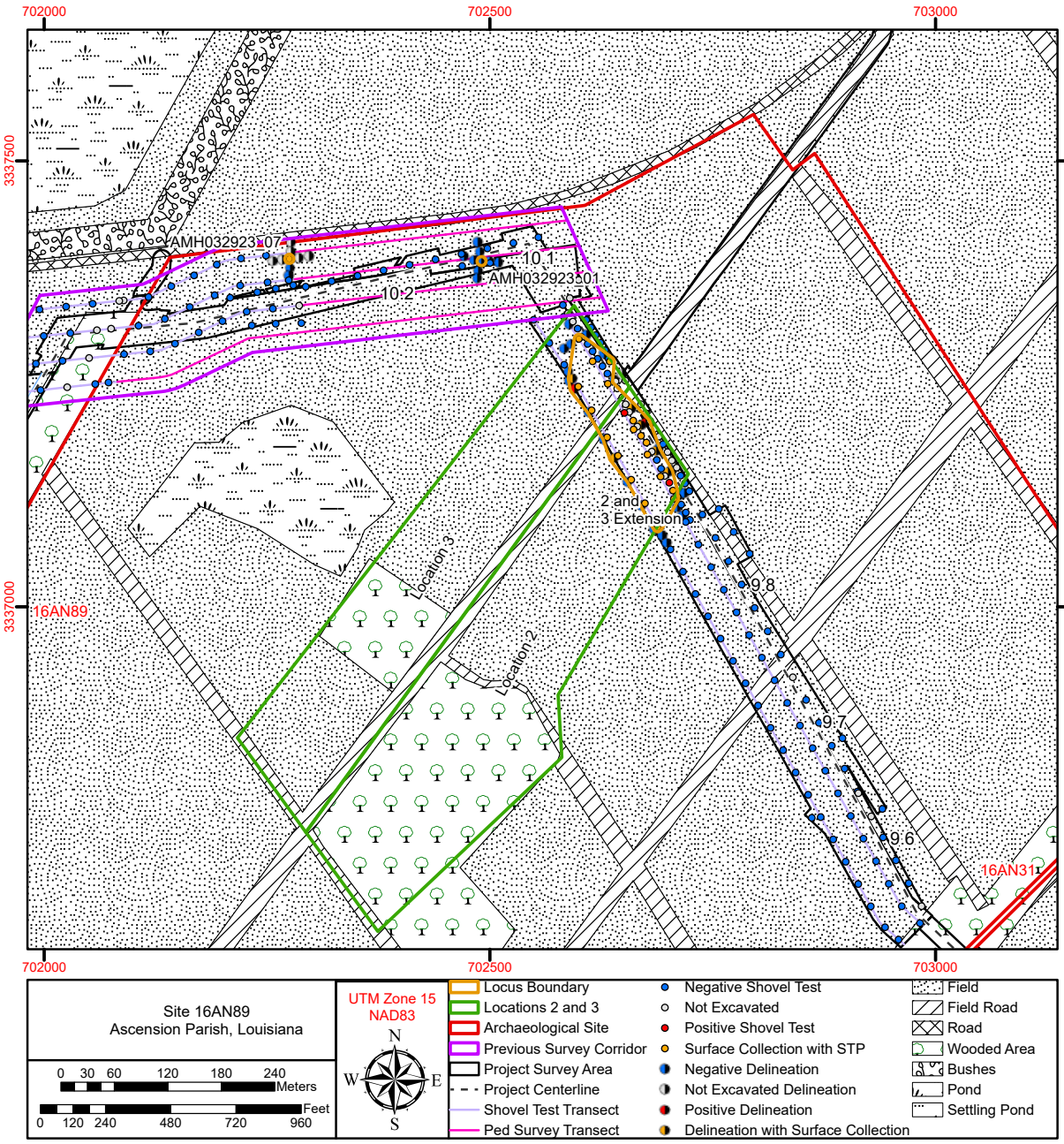

Figure 6.31 Planview map of Site 16AN89.

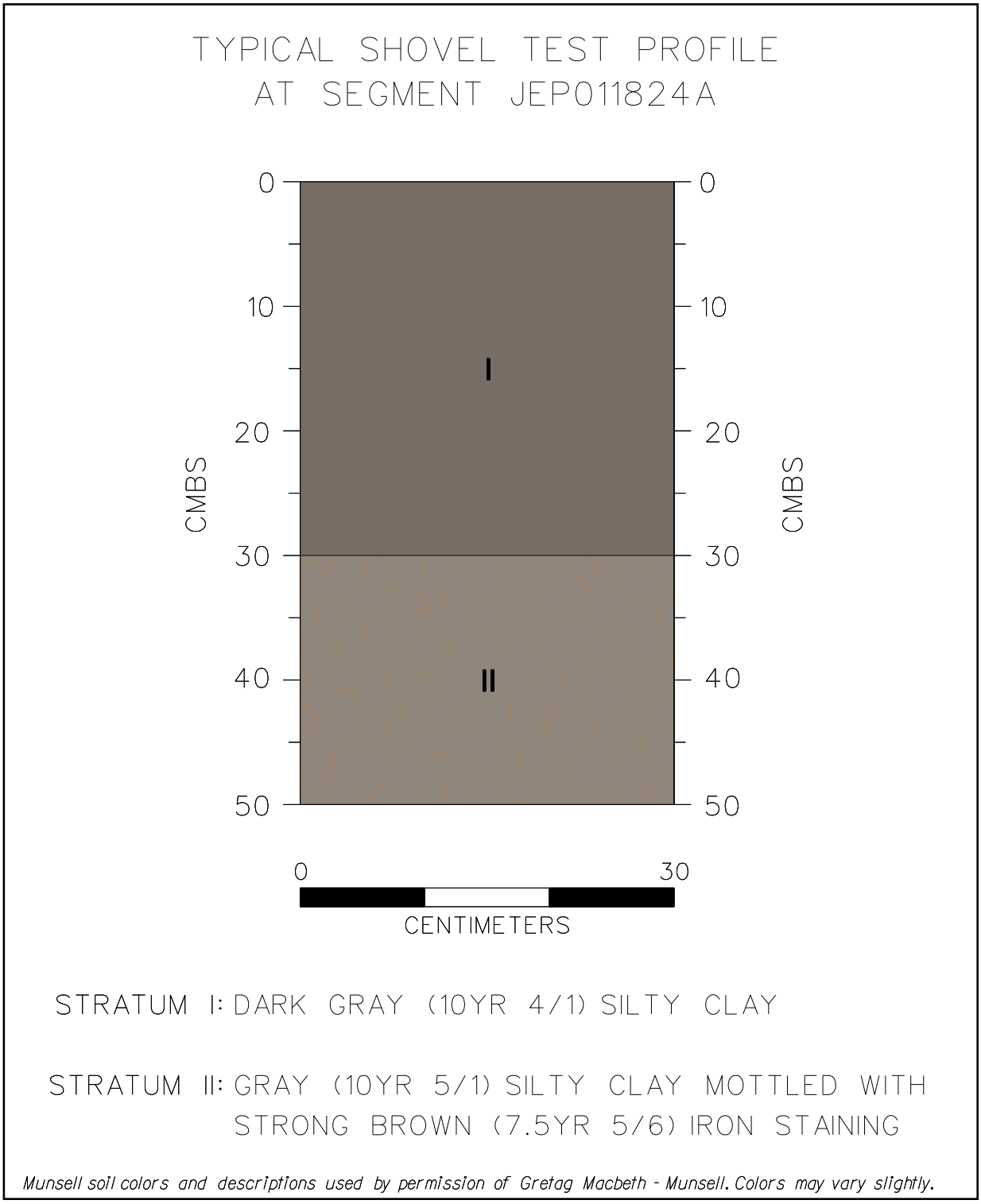

Figure 6.32 Profile of a typical shovel test excavated within Site 16AN89 (Segment JEP011824A).

Table 6.3 Summary of historic artifacts recovered from Site 16AN89, Location 2/3 Extension.

Stratum	Material Class	Material Category	Form	Manufacture/ Ware	Decorative Class	Additional Description	Count
Surface	Ceramic	Earthenware	Container	Creamware	Plain/ Undecorated	n/a	1
				Ironstone/ White Granite	Decal	n/a	2
					Indeterminate	n/a	1
					Molded	molded lines along rim	1
					Plain/ Undecorated	Davenport maker's mark	1
						n/a	29
				Pearlware	Edge Decorated	n/a	1
					Hand Painted	n/a	1
					Indeterminate	n/a	1
					Plain/ Undecorated	UID cartouche-style maker's mark	1
						UID impressed maker's mark	1
						n/a	23
					Shell Edge	n/a	1
					Transfer Printed	n/a	2
				Refined, White-Bodied	Plain/ Undecorated	n/a	4
				Whiteware	Annular (Unspecified)	black, green, and white bands	1
						brown and blue bands	1
					Banded (Annular)	London shape	2
						n/a	1
					Decal	floral decal design	1
					Flow Printed	n/a	1
					Hand Painted	n/a	6
					Molded	beaded molding	1
						n/a	1
					Plain/ Undecorated	UID maker's mark	1
						very small fragment	1
						n/a	91
					Shell Edge	n/a	1
					Sponge/ Spatter	n/a	1
					Transfer Printed	2 sherds possibly from same vessel	4
						n/a	2
					Cut Sponge	floral design	1
						n/a	2
				Yellowware	Banded (Annular)	pink and blue bands	1
					Molded	n/a	1
			Cup	Whiteware	Hand Painted	cup handle	1
			Unspecified Hollow Vessel	Ironstone/ White Granite	Molded	paneled molding	1
					Plain/ Undecorated	n/a	6
				Pearlware	Banded (Annular)	n/a	1
				Red-Bodied/ Redware	Trailed Slip	n/a	1
				Refined, White-Bodied	Plain/ Undecorated	n/a	1

Table 6.3, continued

Stratum	Material Class	Material Category	Form	Manufacture/ Ware	Decorative Class	Additional Description	Count
Surface	Ceramic	Earthenware	Unspecified Hollow Vessel	Whiteware	Banded (Annular)	n/a	2
					Flow Printed	n/a	1
					Molded	n/a	2
					Plain/ Undecorated	n/a	1
				Yellowware	Banded (Annular)	blue and pink bands; possibly same vessel as FS# 01-25	1
						yellow and blue bands	1
		Porcelain	Button	Prosser	Plain/ Undecorated	4-holed	2
			Container	Hard-paste	Decal	n/a	1
					Hand Painted	shares similarities with Kraak porcelain (?)	1
					Molded	n/a	1
					Plain/ Undecorated	n/a	15
			Cup	Hard-paste	Plain/ Undecorated	child's tea set cup	1
			Doll	Hard-paste	Plain/ Undecorated	doll leg	1
		Stoneware	Container	Buff-Bodied	Plain/ Undecorated	blue band runs through middle fo paste; beige wash on interior	1
						UID glaze made from cobalt	2
						n/a	1
				Porcelaneous Stoneware	Indeterminate	n/a	1
					Plain/ Undecorated	n/a	3
			Unspecified Hollow Vessel	Buff-Bodied	Plain/ Undecorated	possibly same vessel as FS# 01-35	1
				Porcelaneous Stoneware	Banded (Annular)	blue and black bands	1
						possibly sponged as well (?)	1
					Molded	n/a	1
	Glass	Amber	Bottle	Indeterminate	Plain/ Undecorated	flared finish	1
				Molded (Mouth-Blown/ Machine)	Plain/ Undecorated	n/a	1
			Container	Indeterminate	Embossed (Lettering)	embossment reads "…S…"	1
						embossment reads, "…ET…"; possible Dr. Hostetter's bitters	1
					Plain/ Undecorated	UID finish type	1
						n/a	17
				Molded (Mouth-Blown/ Machine)	Plain/ Undecorated	n/a	2
		Aqua	Bottle	Indeterminate	Plain/ Undecorated	UID finish type	2
						n/a	2
			Bottle Stopper	Molded (Mouth-Blown/ Machine)	Embossed (Lettering)	Lea & Perrins Sauce stopper	1
			Aqua	Indeterminate	Applied Color Label	deteriorated ACL; reads, "REG…//6…"	1
					Embossed (Lettering)	embossment reads, "…G…"	1
						n/a	1
					Plain/ Undecorated	very small fragment	1

EXHIBIT E

Table 6.3, continued

Stratum	Material Class	Material Category	Form	Manufacture/ Ware	Decorative Class	Additional Description	Count
Surface	Glass	Aqua	Aqua	Indeterminate	Plain/ Undecorated	n/a	26
				Molded (Mouth-Blown/ Machine)	Molded	ribbed design	1
					Plain/ Undecorated	n/a	3
			Indeterminate	Indeterminate	Plain/ Undecorated	n/a	1
		Cobalt Blue	Container	Indeterminate	Plain/ Undecorated	n/a	6
				Molded (Mouth-Blown/ Machine)	Plain/ Undecorated	basal embossment reads, "…S // …3 // …UB"	1
						basal embossment reads, "…va…"; possible Vick's Vapo Rub jar	1
				Press Molded	Pressed Glass	leaf and stipple design	1
			Jar	Molded (Mouth-Blown/ Machine)	Plain/ Undecorated	basal embossments reads Vick's VapoRub jars; separate vessels	2
		Colorless	Bottle	Machine Made	Plain/ Undecorated	basal embossment reads, "2-9…"; stippling on base	1
						machine-made prescription finish; basal embossment reads, "(arch) TCW CO// 15 04// USA (inverted arch)"	1
			Container	Indeterminate	Plain/ Undecorated	n/a	15
				Machine Made	Plain/ Undecorated	embossed and stippled; embossment reads either "9" or "6"	1
						machine-made UID threaded finish	2
						n/a	1
				Molded (Mouth-Blown/ Machine)	Embossed (Lettering)	n/a	1
					Molded	bubble design	1
					Plain/ Undecorated	basal embossment reads "…2…"	1
						basal embossment reads, "…2…//65-6…"	1
			Indeterminate	Indeterminate	Plain/ Undecorated	very small shard	1
				Molded (Mouth-Blown/ Machine)	Molded	n/a	1
			Jar	Machine Made	Plain/ Undecorated	Machine-Made Large Mouth External Threaded Finish	1
			Unspecified Flat Vessel	Molded (Mouth-Blown/ Machine)	Molded	fluted glass	1
		Green	Container	Indeterminate	Plain/ Undecorated	n/a	4
		Milk	Container	Indeterminate	Plain/ Undecorated	n/a	10
				Machine Made	Molded	n/a	1
				Molded (Mouth-Blown/ Machine)	Molded	molded lines along body	1
						Ribbed	1
						ribbed molding	2
						n/a	3

EXHIBIT E

Table 6.3, continued

Stratum	Material Class	Material Category	Form	Manufacture/ Ware	Decorative Class	Additional Description	Count
Surface	Glass	Milk	Jar	Machine Made	Molded	indeterminate basal embossing; mends	1
						possibly same vessel as FS# 01-35	2
				Molded (Mouth-Blown/ Machine)	Plain/ Undecorated	n/a	1
			Lid	Machine Made	Embossed (Lettering)	embossment reads, "CAP"	1
			Unspecified Hollow Vessel	Molded (Mouth-Blown/ Machine)	Molded	n/a	2
		Olive	Bottle	Indeterminate	Plain/ Undecorated	applied grooved ring finish	1
						applied mineral finish	1
						basal embossment reads "5"	1
						champagne finish, indeterminate manufacture	1
						n/a	5
			Container	Indeterminate	Plain/ Undecorated	n/a	13
		Red	Jewelry	Indeterminate	Plain/ Undecorated	glass stone with metal casing; possible jewelry or button (?)	1
		Selenium/ Arsenic (Straw Tint)	Bottle	Molded (Mouth-Blown/ Machine)	Plain/ Undecorated	n/a	1
			Container	Indeterminate	Plain/ Undecorated	n/a	1
		Solarized (Manganese)	Bottle	Indeterminate	Plain/ Undecorated	wide patent finish, indeterminate manufacture	1
				Machine Made	Plain/ Undecorated	machine-made brandy finish	1
				Molded (Mouth-Blown/ Machine)	Plain/ Undecorated	flask-style base	1
						improved tooled straight brandy finish	1
						tooled indeterminate finish	1
			Container	Indeterminate	Embossed (Design)	n/a	1
					Plain/ Undecorated	n/a	26
				Molded (Mouth-Blown/ Machine)	Embossed (Lettering)	n/a	2
					Molded	ribbed molding	1
						n/a	3
					Plain/ Undecorated	possible post-bottom or 2-piece mold vessel; basal embossment is a possible "v"	1
						n/a	4
				Post Bottom Mold	Plain/ Undecorated	n/a	1
				Press Molded	Pressed Glass	n/a	1
			Indeterminate	Indeterminate	Plain/ Undecorated	n/a	3
			Stemware	Molded (Mouth-Blown/ Machine)	Plain/ Undecorated	n/a	2

EXHIBIT E

Table 6.3, continued

Stratum	Material Class	Material Category	Form	Manufacture/ Ware	Decorative Class	Additional Description	Count
Surface	Glass	Solarized (Manganese) Tinted Milk	Tumbler/ Drinking Glass	Molded (Mouth-Blown/ Machine)	Plain/ Undecorated	n/a	1
			Container	Indeterminate	Plain/ Undecorated	blue milk glass	2
				Molded (Mouth-Blown/ Machine)	Molded	lavender milk glass	1
						n/a	1
	Metal	Ferrous	Horseshoe	Undetermined	n/a	n/a	1
			Indeterminate	Indeterminate	n/a	possible hinge or handle	1
	Organic	Shell	Button	Indeterminate	Plain/ Undecorated	1 button missing part of sew-through holes - looks like smiley face	2
	Stone/ Mineral	Graphite	Rod	Indeterminate	n/a	possible battery rod (?)	1
I	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated	n/a	2
		Stoneware	Container	Porcelaneous Stoneware	Plain/ Undecorated	n/a	1
Grand Total							**465**

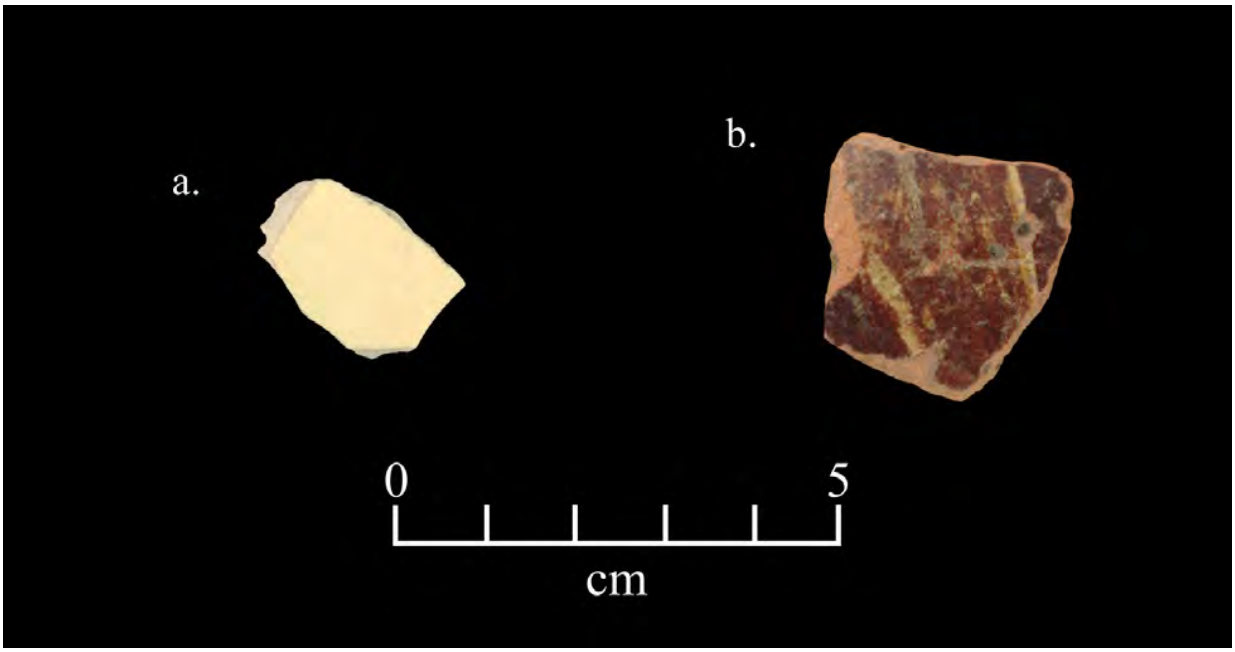

Figure 6.33 **Selected ceramic artifacts from Site 16AN89: (a) plain creamware base sherd, FS# 01-60; (b) slip-trailed redware body sherd, FS# 01-66.**

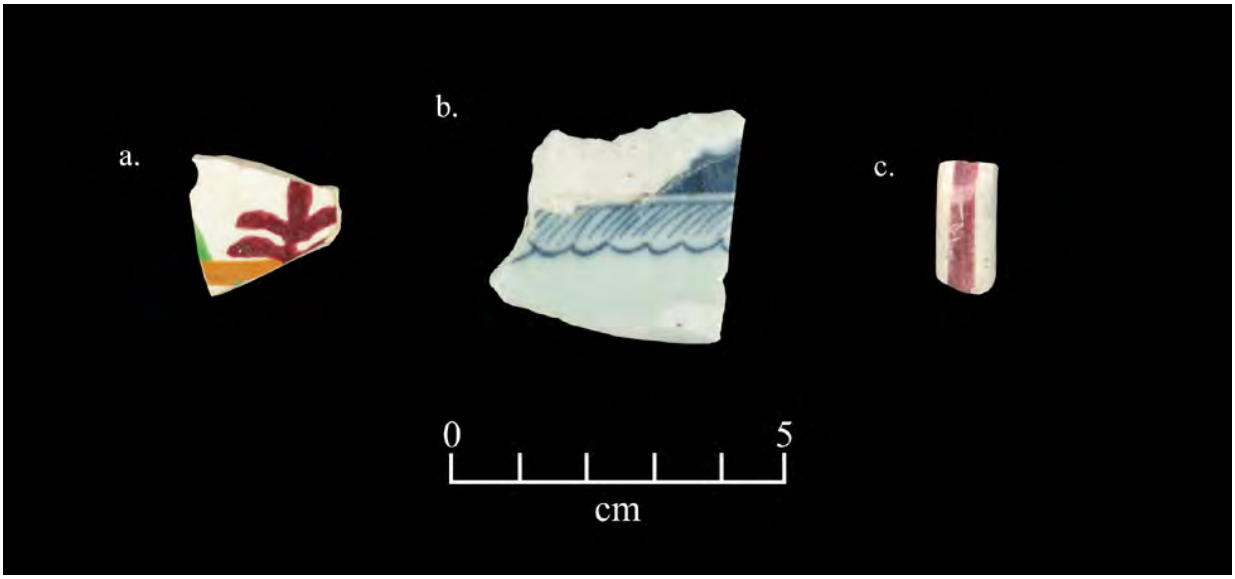

Figure 6.34 **Selected ceramic artifacts from Site 16AN89: (a) polychrome hand painted whiteware body sherd, FS# 01-33; (b) blue hand painted hard paste porcelain body sherd, FS# 01-38; (c) red hand painted whiteware cup handle, FS# 01-25.**

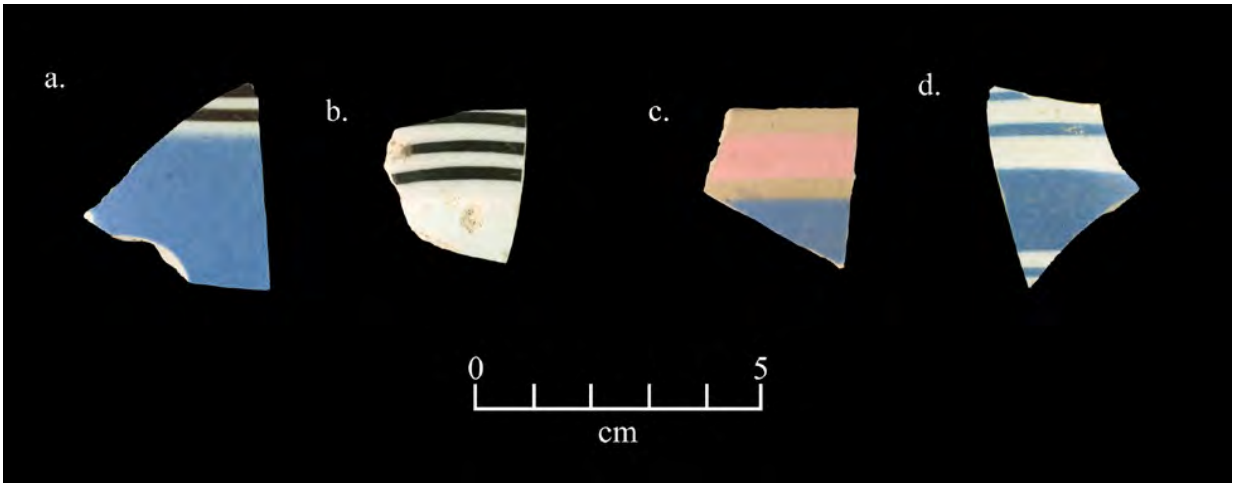

Figure 6.35 **Selected ceramic artifacts from Site 16AN89: (a) annular (banded) porcelaneous stoneware body sherd, FS# 01-26; (b) annular (banded) whiteware body sherd, FS# 01-24; (c) annular (banded) yellowware body sherd, FS# 01-25; (d) annular (banded) whiteware body sherd, FS# 01-24.**

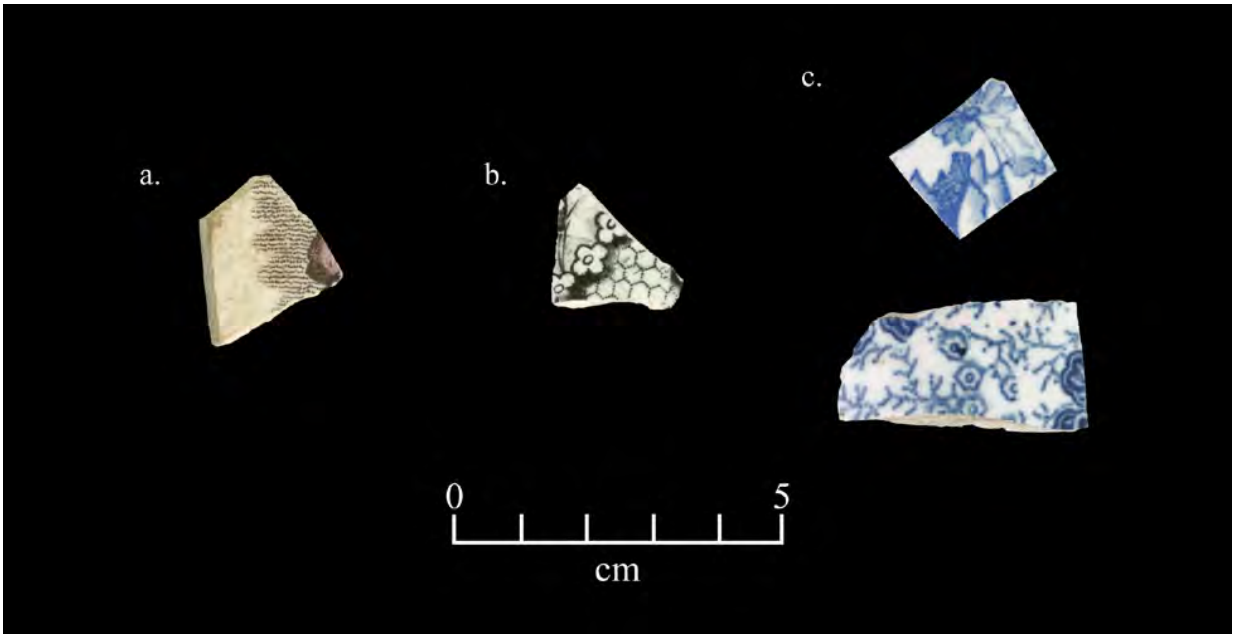

Figure 6.36 **Selected ceramic artifacts from Site 16AN89: (a) transfer printed whiteware base sherd, FS# 01-24; (b) black transfer printed whiteware body sherd, FS# 01-35; (c) blue transfer printed whiteware body sherds, FS# 01-35.**

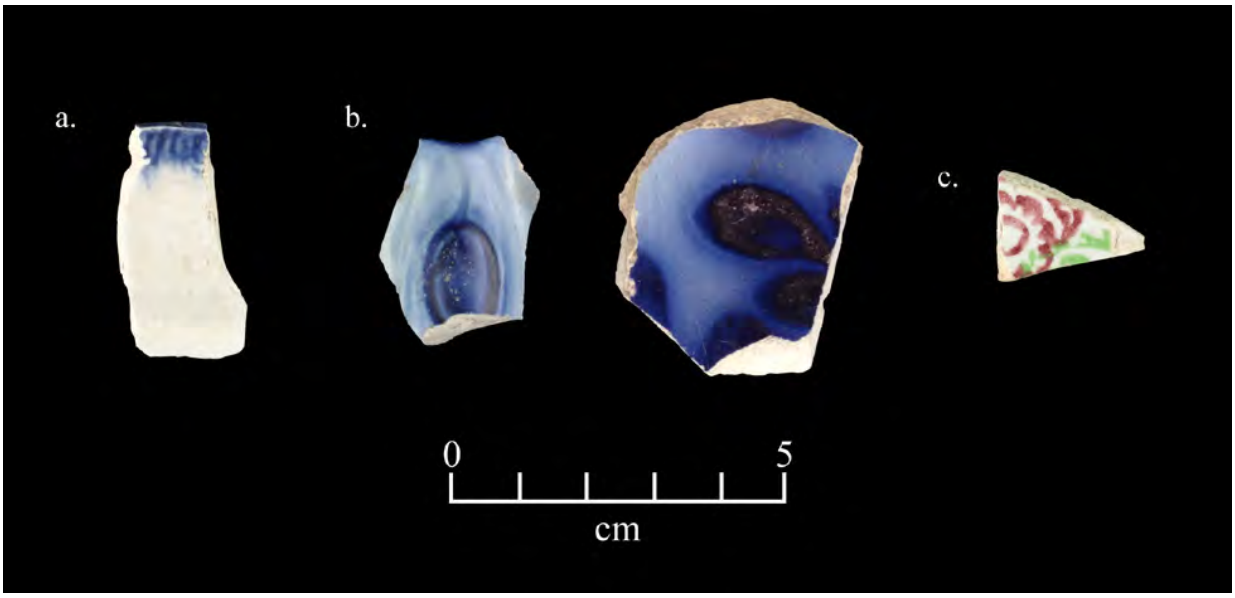

Figure 6.37 **Selected ceramic artifacts from Site 16AN89: (a) blue shell edge pearlware rim sherd, FS# 01-26; (b) blue flow printed whiteware handle and body sherds (FS# 01-35); (c) cut sponge whiteware body sherd, FS# 01-59.**

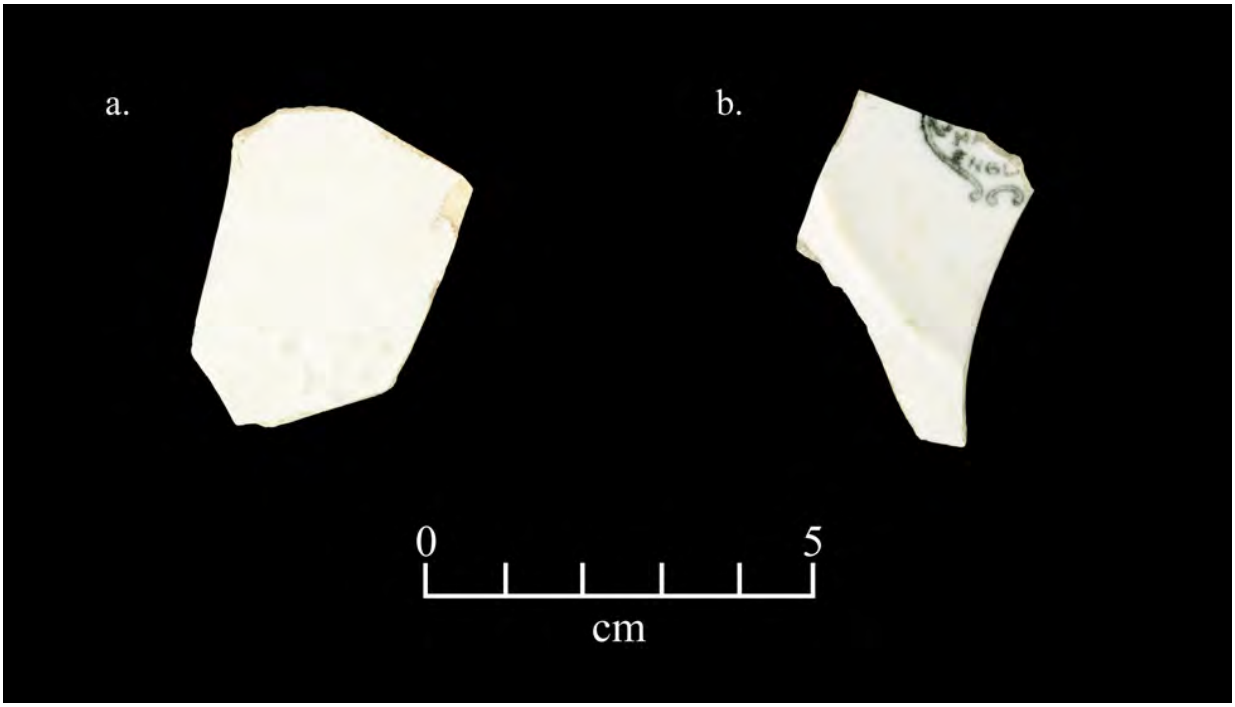

Figure 6.38 **Selected ceramic artifacts from Site 16AN89: (a) ironstone base sherd with Davenport maker's mark, FS# 01-23; (b) pearlware base sherd with unidentified maker's mark, FS# 01-35.**

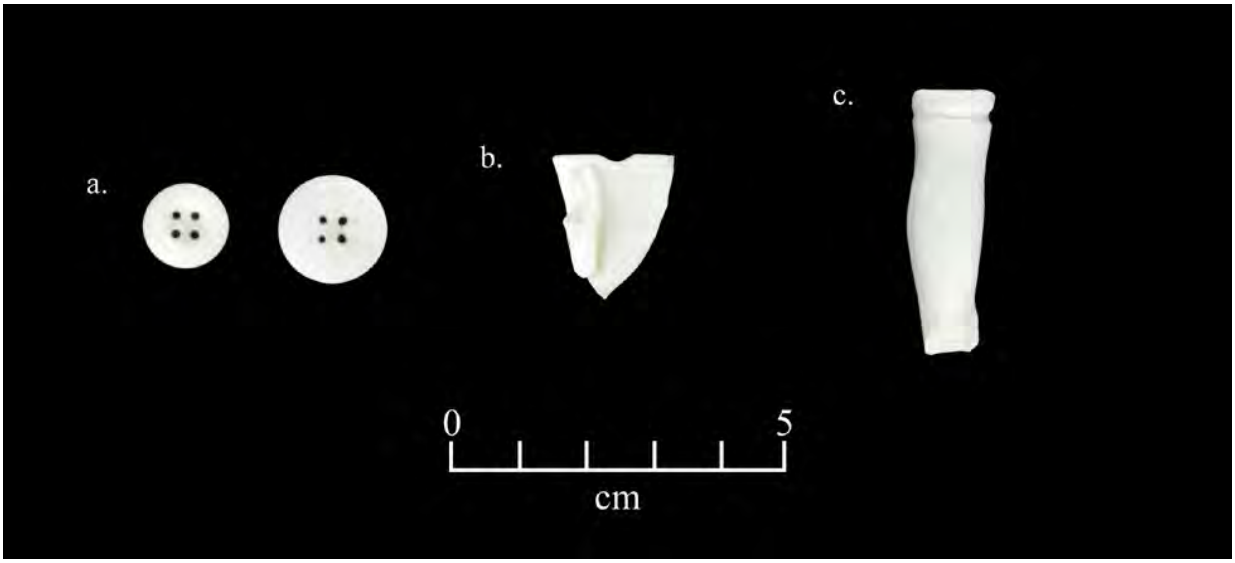

Figure 6.39 **Selected personal artifacts from Site 16AN89: (a) complete 4-hole Prosser buttons, FS# 01-35; (b) hard paste porcelain child's tea cup fragment, FS# 01-25; (c) hard paste porcelain doll leg fragment, FS# 01-28.**

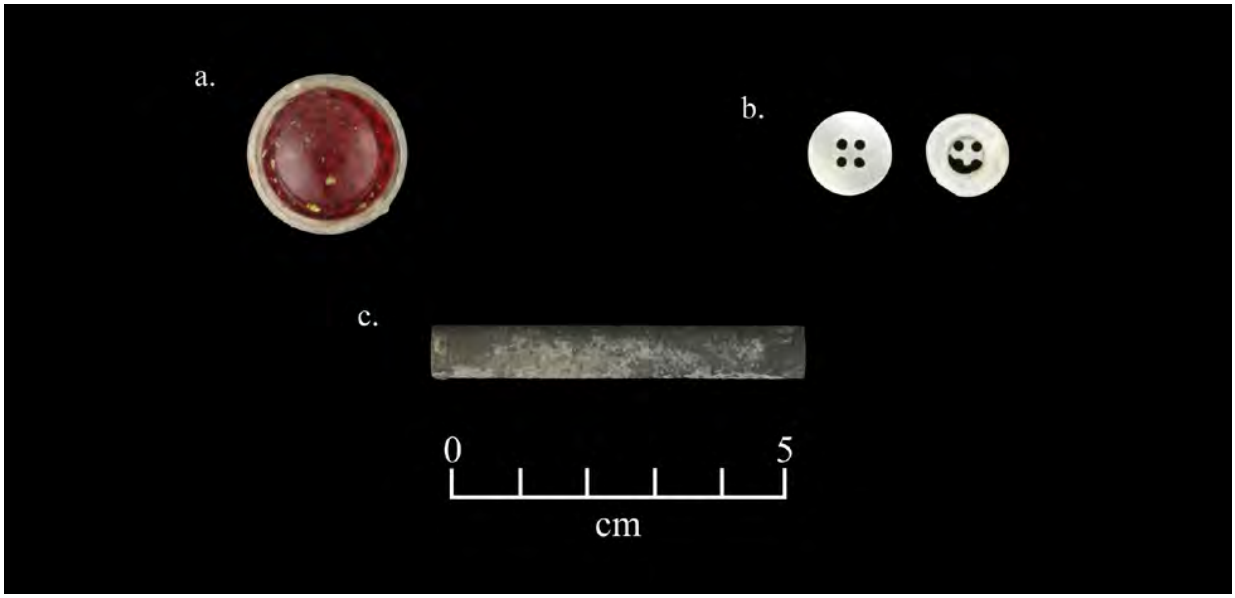

Figure 6.40 **Selected personal artifacts from Site 16AN89: (a) red glass stone with metal casing, FS# 01-27; (b) complete 4-hole shell buttons, FS# 01-26; (c) graphite rod fragment, FS# 01-26.**

also were identified. These glass containers were further categorized as amber (n = 24), aqua (n = 40), cobalt blue (n = 11), colorless (n = 29), green (n = 4), milk (n = 25), olive (n = 9), red (n = 1), selenium/arsenic (n = 2; 1915-mid twentieth century; Lindsey 2023; Lockhart 2006:53-54), manganese (n = 51; 1870-1920; Lindsey 2023; Lockhart 2006:52, 54), and tinted milk (n = 4). A total of 13 glass artifacts were machine made (ca. 1903+; Lindsey 2023; Miller et al. 2000:8), 2 were press molded (ca. late 1820s+; Jones 1971:160-174; Jones and Sullivan 1989:34-35), 1 was post-bottom molded (1825-1910s; Lindsey 2023; Miller et al. 2000:8), and 48 were of machine made or molded manufacture. Temporally diagnostic glass artifacts include a complete machine made colorless glass bottle manufactured by T.C. Wheaton Glass Company (1938-1970; Lockhart et. al 2019:7-8; Figure 6.41.a), an aqua glass Lea & Perrins Worcestershire sauce bottle stopper (ca. 1840s-1950s; Australasian Society for Historical Archaeology 2020; Figure 6.41.b), a possible amber glass Dr. Hostetter's stomach bitters bottle fragment (1853-twentieth century; California Department of Parks and Recreation 2023; Figure 6.40.c), and a cobalt blue glass Vicks VapoRub jar (ca. twentieth century; Whitten 2023; Figure 6.41.d). Metal artifacts from the site were limited to a ferrous horseshoe and a ferrous indeterminate hardware fragment. Artifacts produced of other materials consisted of 2 shell buttons (Figure 6.40.b) and a graphite battery rod (Figure 6.40.c).

The locus recorded within survey Segment JEP061423A can be characterized as a large scatter of historic domestic artifacts that was dated from the late eighteenth through early twentieth centuries and associated with the historic occupation of the Orange Grove Plantation. Because this locus was recorded just east of Locations 2 and 3 of Site 16AN89 as described by Shuman et al. (2014) it can be considered as an extension of those loci, and therefore was designated as the *Location 2/3 Extension* of Site 16AN89. Although only three artifacts were recovered from below the surface and none from an undisturbed depositional context, the possibility remains that undisturbed deposits and/or cultural features may exist below the plowzone. In order to avoid an adverse impact to this unassessed archaeological resource, the project design was modified and most of the Location 2/3 Extension will be avoided by installation of the pipeline by HDD. The entry point for this HDD will be within a workspace located south of the locus near M.P. 9.85 while the exit point of the HDD will be situated within

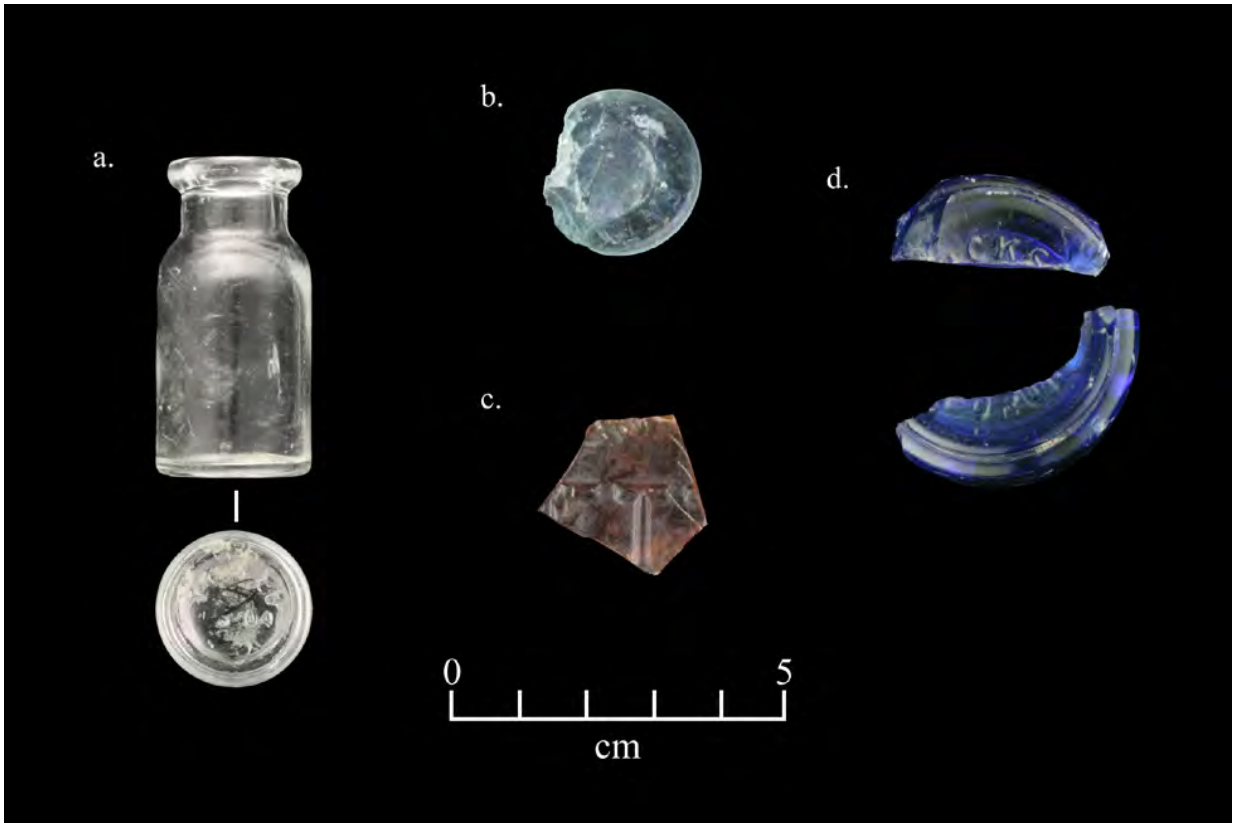

Figure 6.41 **Selected glass artifacts from Site 16AN89: (a) complete machine made colorless bottle with T.C. Wheaton Glass Company maker's mark, FS# 01-26; (b) aqua glass Lea & Perrins bottle stopper fragment, FS# 01-35; (c) embossed amber glass body fragment, FS# 01-22; (d) cobalt blue glass Vick's VapoRub jar fragments, FS# 01-27.**

another workspace located north of the locus near M.P. 10.05. Access between the two HDD workspaces will be via a 10 m (32.8 ft) wide access road within the ROW and through a portion of the Location 2/3 Extension. This access corridor will be used for vehicle access only and will be protected by matting to avoid rutting while the access corridor is in use. Given that most of the Location 2/3 Extension will be avoided by HDD and the 10 m (98.4 ft) wide access corridor will be protected by matting, no adverse impact to Site 16AN89 is anticipated and no additional work within the Location 2/3 Extension of Site 16AN89 is recommended.

Segment AMH032923A (M.P. 10.03 to 10.45)

Segment AMH032923A was a ca. 628 m (2060.4 ft) long segment of proposed pipeline ROW that began at the north end of Segment JEP061423A near M.P. 10.03 and extended west through fallow agricultural fields to its endpoint near. M.P. 10.45 (Figures 6.1 [Sheets 19, 20], 6.42; Table 6.1). This segment originally was investigated for a different and unrelated project that has since been cancelled and the relevant results are incorporated herein. The ROW that was examined for the previous project measured 125 m (410.1 ft) in width, which was sufficient to encompass within it all of the workspace required for the OxyChem Pipeline project in this location. At the east end of the segment was a dirt farm road and associated roadside ditches, while additional drainage ditches and farm roads separating agricultural fields occurred near M.P. 10.27 and 10.38. Topography was described as nearly level throughout. Vegetation within portions of the segment consisted of a mix of moderately tall grasses and weeds, while in other areas vegetation primarily consisted of secondary regrowth of soybean plants. Soils mapped in the vicinity con-

Figure 6.42 Overview photo of Segment AMH032923A, facing east. Photo taken on May 8, 2023.

sisted of Commerce silty clay loam (Cm), Commerce silt loam, 0 to 1 percent slopes (Co), and Schriever clay, 0 to 1 percent slopes, rarely flooded (Sn) (Figure 2.1, Table 2.1).

Most of the area traversed by Segment AMH032923A – from the beginning of the segment to the ditch and farm road at M.P. 10.38 – fell within the reported boundaries of Site 16AN89; furthermore, most of this area from the beginning of the segment to M.P. 10.27 had been investigated previously by Shuman and Taylor (2012a), and no cultural resources were recorded as a result. Therefore, the field survey from M.P. 10.03 to 10.27 initially was investigated by pedestrian survey only.

During this pedestrian survey two surface finds of historic artifacts were identified. The first was a whiteware ceramic rim sherd with molded floral design that was recovered near M.P. 10.14; this find was designated as Locus AMH032923A-01 (Figure 6.43). A total of nine shovel tests were excavated to delineate around the find spot, with the first designated as datum and placed at the location of the surface find, and the remaining eight at 10 m (32.8 ft) intervals in each of the four cardinal directions around datum. A typical shovel test excavated within this locus extended to a depth of 50 cmbs (19.7 inbs) and exhibited two strata in profile (Figure 6.44). Stratum I was a deposit of dark grayish brown (10YR 4/2) silty clay that extended from the surface to a depth of 30 cmbs (11.8 inbs). Below Stratum I was Stratum II, a brown (10YR 5/3) silty clay that extended from 30 to 50 cmbs (11.8 to 19.7 inbs). No additional cultural materials were recovered, and no evidence for undisturbed cultural deposits or features was identified within Locus AMH032923A-01 of Site 16AN89; no additional work is recommended.

Figure 6.43 Overview photo of Locus AMH032923-01, facing east. Photo taken on May 8, 2023.

EXHIBIT E

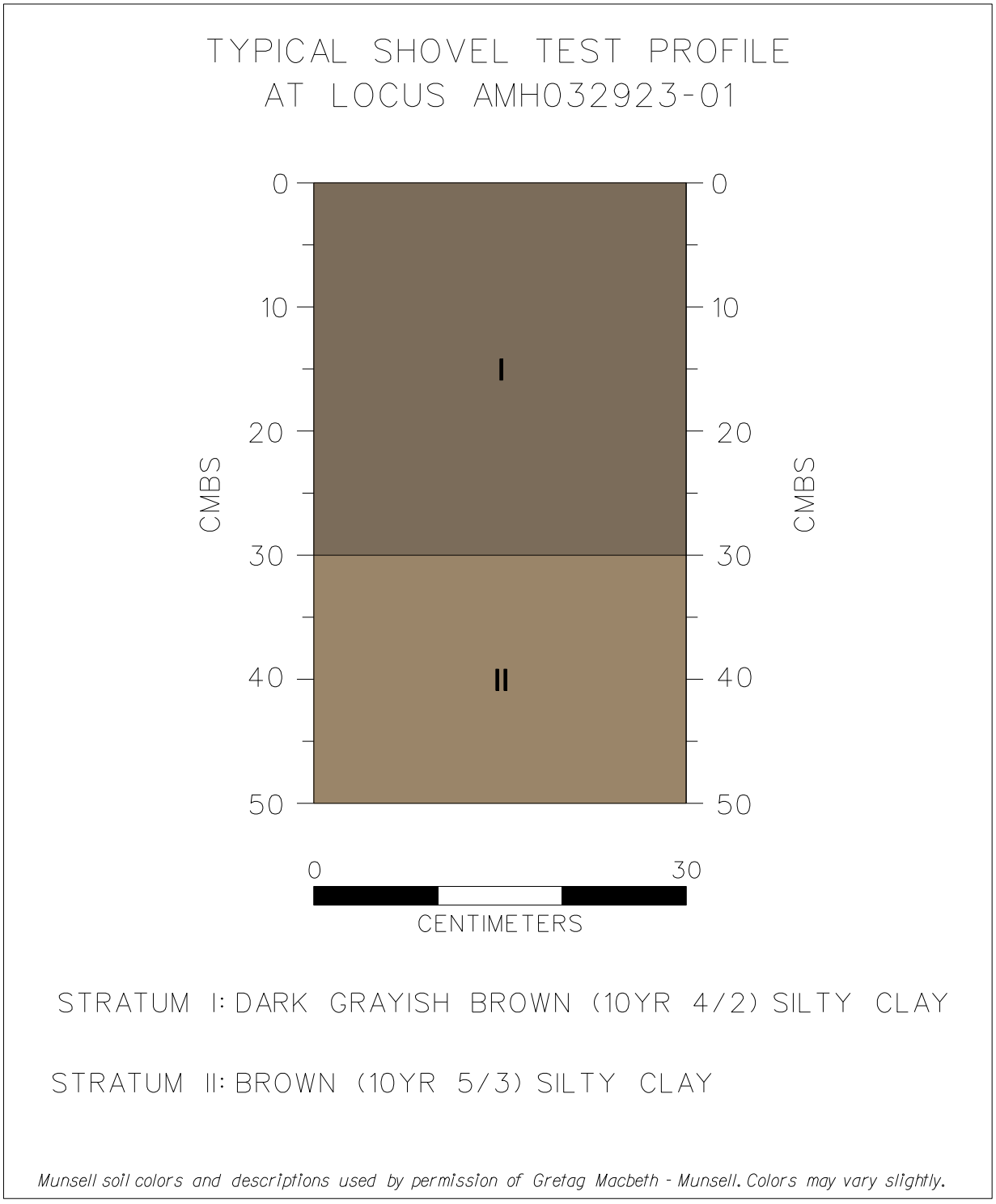

Figure 6.44 Profile of a typical shovel test excavated within Locus AMH032923-01 of Site 16AN89.

The second surface find was a whiteware ceramic sherd with decal decoration near M.P. 10.27, and this find was designated as Locus AMH032923A-07 (Figure 6.45). One shovel test was excavated at the location of the surface find and designated as datum, and another three shovel tests were excavated at 10 m (32.8 ft) intervals in a single ray extending south of datum. No shovel tests were excavated to the north, west or east of this find due to the presence of ditches and buried utilities. A typical shovel test excavated within this locus extended to a depth of 50 cmbs (19.7 inbs) and exhibited a single stratum in profile (Figure 6.46). Stratum I (0 to 50 cmbs [0 to 19.7 inbs]) was a deposit of dark gray (10YR 4/1) silty clay. No additional cultural materials were recovered, and no evidence for undisturbed cultural deposits or features was identified in this location; no additional work within Locus AMH032923A-01 of Site 16AN89 is recommended.

In addition to the shovel tests excavated to delineate around Loci AMH032923A-01 and AMH032923A-07, another 13 shovel tests were excavated within the portion of Segment AMH032923A that already had been investigated by Shuman and Taylor (2012a) as due diligence, but none of these shovel tests produced any cultural materials or evidence for the presence of undisturbed cultural deposits or features.

Beginning at M.P. 10.27 and extending west to the end of the segment, the final ca. 290 m (951.4 ft) of Segment AMH032923A had not been investigated previously; this part of the project ROW was investigated by pedestrian survey supplemented by shovel testing at 30 m (98.4 ft) intervals along four transects spaced 30 m (98.4 ft) apart. The first 177 m (580 ft) of this segment, from M.P. 10.27 to 10.38, fell within the reported boundaries of Site 16AN89 while the remaining ca. 113 m (370.7 ft) occurred outside this site

Figure 6.45 Overview photo of Locus AMH032923-07, facing south. Photo taken on May 16, 2023.

EXHIBIT E

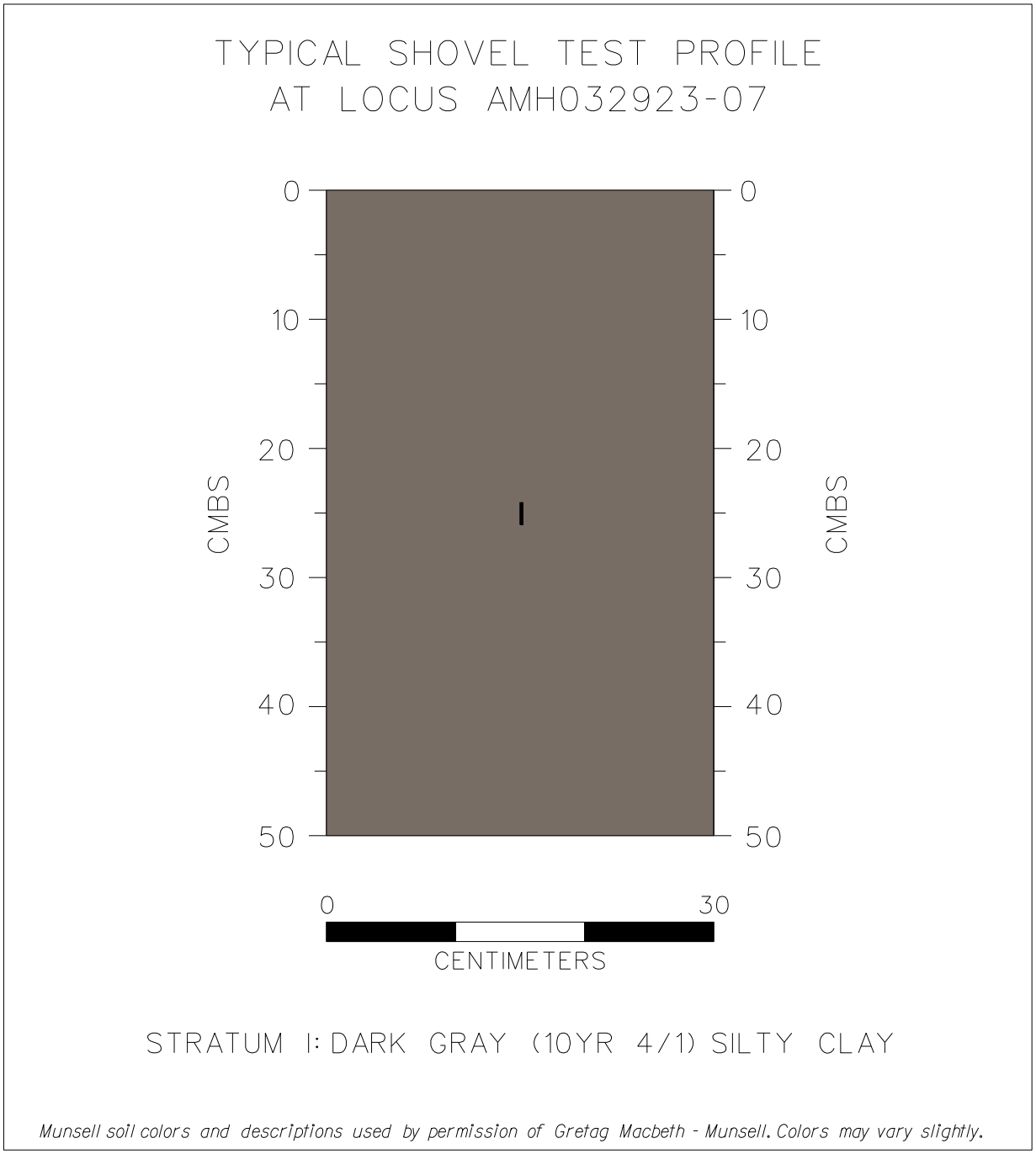

Figure 6.46 Profile of a typical shovel test excavated within Locus AMH032923-07 of Site 16AN89.

boundary. A total of 14 transect shovel tests were excavated within this portion of Segment AMH032923A, with 3 planned shovel tests not excavated due to the presence of ditches and farm roads. In addition, during this survey two surface finds of three historic artifacts was identified near M.P. 10.41 and outside of the limits of Site 16AN89. Because these finds occurred within 30 m (98.4 ft) of one another they were combined into a single locus and designated as Locus AMH032923A-02 (Figure 6.47). The artifacts recovered consisted of 1 shard of aqua bottle glass, 1 shard of colorless bottle glass from an Owens-type machine-made bottle, and 1 horseshoe. A total of 15 shovel tests were excavated at 10 m (32.8 ft) intervals around these surface finds. A typical shovel test was excavated to a depth of 50 cmbs (19.7 inbs) and exhibited two strata in profile (Figure 6.48). Stratum I was described as a deposit of dark grayish brown (10YR 4/2) silty clay that originated at the surface and extended to a depth of 20 cmbs (7.9 inbs). Below Stratum I was Stratum II, a deposit of brown (10YR 5/3) silty clay mottled with reddish brown (7.5YR 6/6) iron staining. No additional artifacts were recovered from any of the shovel tests excavated around Locus AMH032923A-02, and no evidence for the presence of undisturbed cultural deposits or features was in the vicinity of this locus. Furthermore, Locus AMH032923A-02 does not meet the standards for recordation as an archaeological site because fewer than 5 historic artifacts were recovered, and no additional work is recommended.

Segment JEP062123A (M.P. 10.45 to 11.39)

Segment JEP062123A was a ca. 1,513 m (4,963.9 ft) long portion of the proposed project ROW that originated near M.P. 10.45 at the west end of Segment AMH032923A, extended

Figure 6.47 Overview photo of Locus AMH032923-02, facing west. Photo taken on March 29, 2023.

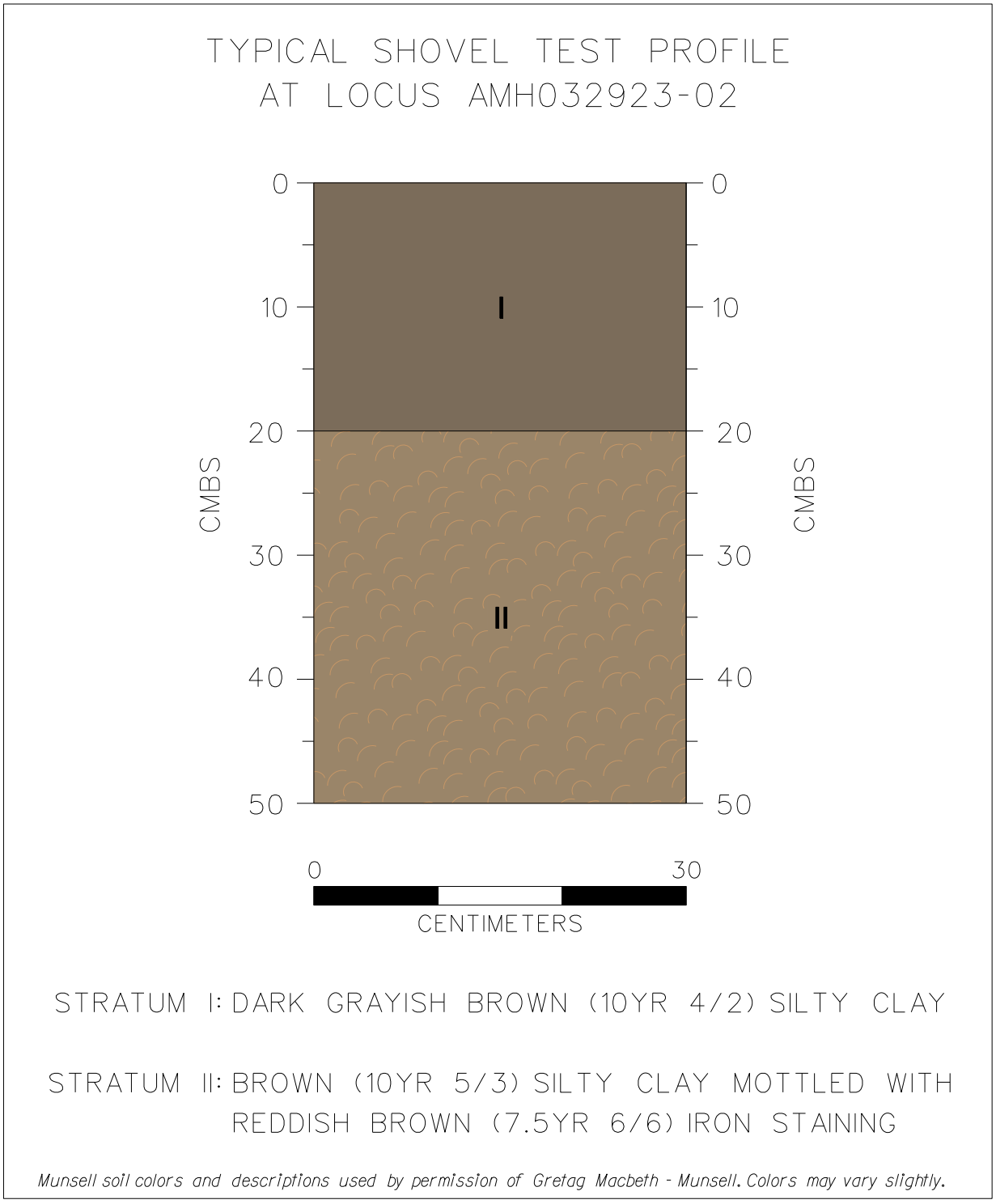

Figure 6.48 Profile of a typical shovel test excavated within Locus AMH032923-02.

south-southwest alongside an existing farm road for about 655 m (2,149 ft) to M.P. 10.86, then turned west-northwest and continued along the north edge of another farm road for the remaining ca. 858 m (2815 ft) to the west end of the segment near M.P. 11.39 (Figures 6.1 [Sheets 20, 21], 6.49; Table 6.1). This 50 m (194 ft) wide segment traversed several active sugarcane fields planted in immature cane and crossed dirt farm roads at M.P. 10.91 and 11.12, as well as an existing paved road (i.e., Access Road AR-10) at M.P. 11.38. The segment was surveyed as a reroute to avoid Site 16AN168, which is described later in this chapter. Vegetation consisted of immature sugarcane, with narrow strips of grasses and weeds at the boundaries between fields and along ditches and farm roads. Topography was described as nearly level throughout. Soils mapped in the vicinity consisted of Commerce silty clay loam (Cm), Commerce silt loam, 0 to 1 percent slopes (Co), and Schriever clay, 0 to 1 percent slopes, rarely flooded (Sn) (Figure 2.1, Table 2.1).

Due to its proximity to Site 16AN168 near the west and of this segment, Segment JEP062123A was judged to have a high probability for containing cultural resources. The field investigation consisted of pedestrian survey supplemented by shovel testing at 30 m (98.4 ft) intervals along two transects spaced 30 m (98.4 ft) apart. A total of 96 shovel tests were excavated within this segment, with 6 planned shovel tests not excavated due to the presence of ditches and farm roads. A typical shovel test was excavated to a depth of 50 cmbs (19.7 inbs) and exhibited a single stratum in profile (Figure 6.50). Stratum I (0 to 50 cmbs [0 to 19.7 inbs]) was a layer of gray (10YR 6/1) clay. Multiple shovel tests within this segment encountered saturated soils, and the excavations of some shovel tests were terminated early due to the influx of groundwater. No artifacts were recovered from any of the shovel tests, and no evidence for undisturbed cultural deposits or features was identified anywhere within Segment JEP062123A; no additional work is recommended.

Segment JEP062123B (Offline)

Segment JEP062123B was a 415 m (1,361.5 ft) long segment of 50 m (164 ft) wide project ROW that was proposed as an optional route for the avoidance of Site 16AN168, described below (Figures 6.1 [Sheet 21], 6.51; Table 6.1).

Figure 6.49 Overview photo of Segment JEP062123A, facing southwest. Photo taken on June 29, 2023.

EXHIBIT E

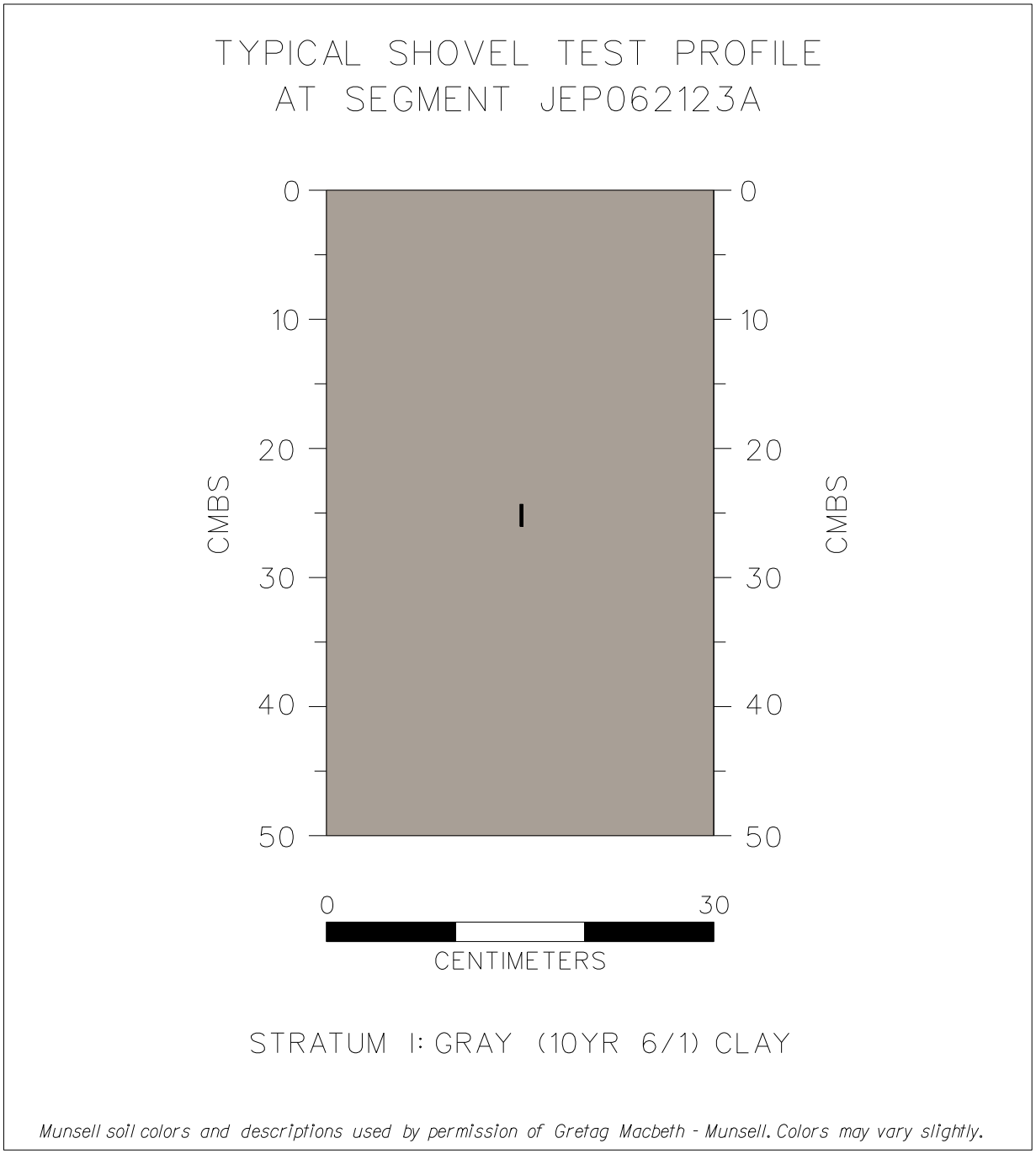

Figure 6.50 Profile of a typical shovel test excavated within Segment JEP062123A.

Figure 6.51 Overview photo of large pipes across Segment JEP062123B, facing northwest. Photo taken June 26, 2023.

This segment originated near M.P. 11.12 and extended north-northeast along the east side of an existing gravel road, traversing active sugarcane fields. Vegetation consisted of immature sugarcane, with a stand of tall weeds and immature trees at the southern end of the segment. Topography was described as nearly level throughout. Soils mapped in the vicinity consisted of Commerce silty clay loam (Cm), and Commerce silt loam, 0 to 1 percent slopes (Co) (Figure 2.1, Table 2.1).

Segment JEP062123B was determined to have a high probability for containing cultural; resources due to its proximity to Site 16AN168. The field investigation consisted of pedestrian survey supplemented by shovel testing at 30 m (98.4 ft) intervals along two transects spaced 30 m (98.4 ft) apart. A total of 30 shovel tests were excavated within this segment. A typical shovel test was excavated to a depth of 50 cmbs (19.7 inbs) and exhibited two strata in profile (Figure 6.52). Stratum I was a deposit of dark grayish brown (10YR 4/2) clay that originated at the surface and extended to a depth of 30 cmbs (11.8 inbs). Stratum II was a deposit of gray (10YR 6/1) clay mottled with strong brown (7.5YR 5/6) clay. with shovel testing at 30 m (98.4 ft) intervals along two transects spaced 30 m (98.4 ft) apart, with additional shovel tests excavated required to provide complete survey coverage within the extra workspaces. Although the field investigation of this segment was completed it will not be utilized during construction; no additional work within Segment JEP062123B is recommended.

Segment JEP061323A (Offline)

Segment JEP061323A was a 335 m (1,099.1 ft) long segment of once-proposed pipeline ROW that was surveyed and subsequently was removed from the project (Figures 6.1 [Sheet 21], 6.53; Table 6.1). This segment, which measured 50 m (164 ft) in width, originated from an existing paved road (Access Road AR-10, described below) and extended north and east through a mostly open field bordered by lines of mature oak trees, ending at a gravel farm road. Besides trees, vegetation within this nearly level parcel mostly consisted of unmaintained lawn. Also located within the parcel were several transmission lines as well as the remains of an open-sided barn with corrugated metal roof. Soils mapped in the vicinity consisted of Commerce silty clay loam (Cm),

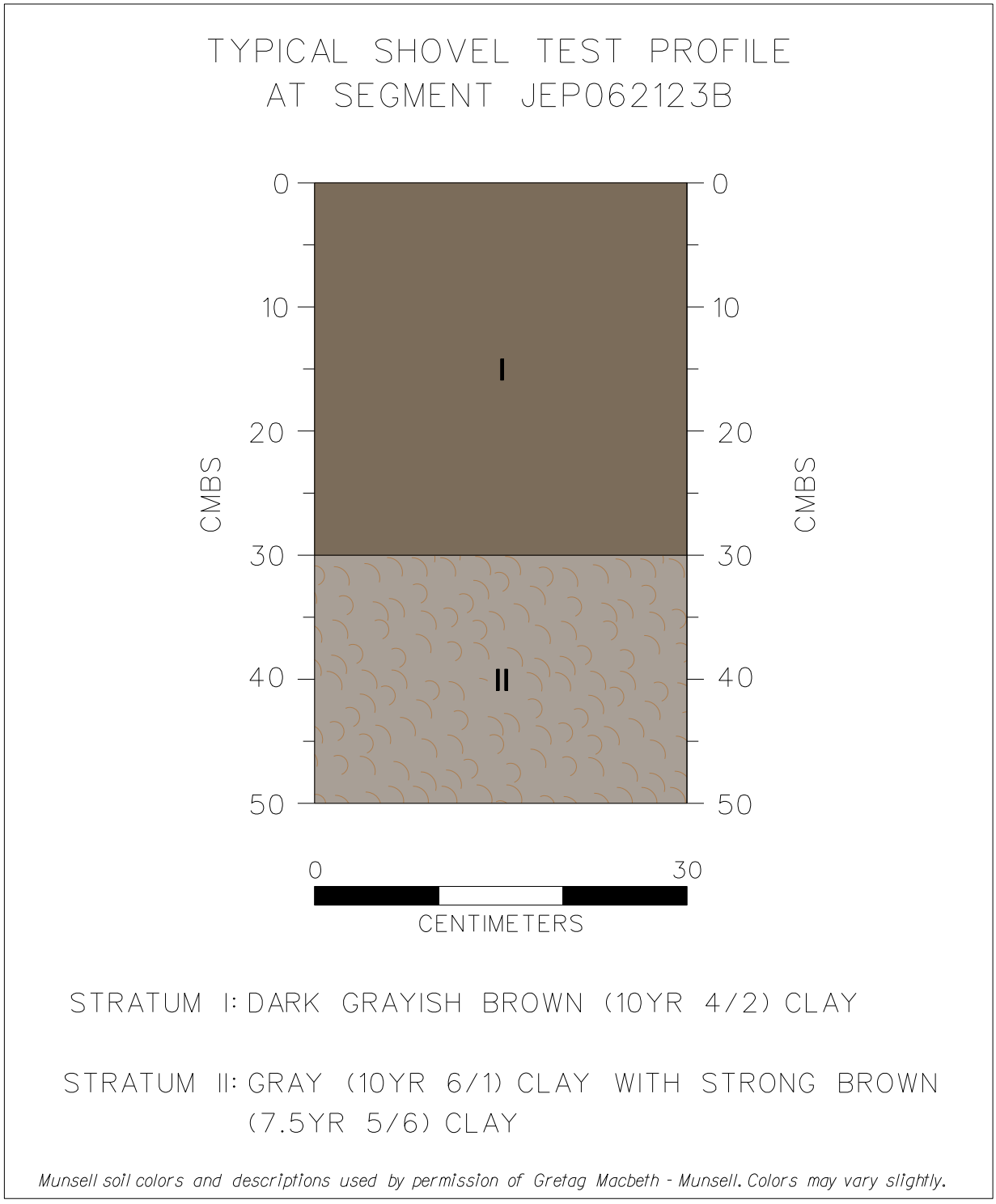

Figure 6.52 Profile of a typical shovel test excavated within Segment JEP062123B.

Figure 6.53 Overview photo of Segment JEP061323A and Site 16AN168, facing east. Photo taken on June 13, 2023.

and Commerce silt loam, 0 to 1 percent slopes (Co) (Figure 2.1, Table 2.1).

As described in Chapter III and illustrated in Figures 3.9 and 3.10, Segment JEP061323A extended near to or through an area that once contained buildings associated with the Conway Plantation. Previous work for another project that subsequently has been cancelled identified a large scatter of historic artifacts within the agricultural fields located both south and east of this parcel. Therefore, Segment JEP061323A was judged to have a high probability for containing cultural resources and was investigated by pedestrian survey supplemented by shovel testing at 30 m (98.4 ft) intervals along two transects spaced 30 m (98.4 ft) apart. A total of 25 shovel tests were excavated within this segment, and of those ten produced cultural materials and another two were in locations where artifacts were recovered from the surface. These findings were recorded as Site 16AN168, described below. After that site was recorded, the proposed pipeline ROW was rerouted to avoid this site and Segment JEP061323A was removed from the project area. Because Segment JEP061323A will not be utilized during the construction of the OxyChem Pipeline project, no additional work is recommended.

Site 16AN168 (Locus JEP061323-01)

As described in Chapter III, the Conway Plantation (Site 16AN168) once was part of the original Houmas Land Claim and was obtained by the Conway family during the late eighteenth century. The Conway Plantation was a producer of sugarcane that began operation in earnest sometime in the early nineteenth century. The Conway Plantation, as well as several adjacent plantations, were subsumed into the Houmas Plantations, owned by John Burnside, which included the largest populations of enslaved persons in Ascension Parish.

As described above, Site 16AN168 was recorded as a result of the field investigations within Segment JEP061323A (Figures 6.1 [Sheet 21], 6.53 through 6.55). All 25 shovel tests excavated within this segment fell within the boundaries of this newly recorded site, and of those 10 produced cultural materials and another two were in locations where artifacts were recovered from the surface. After the initial positive shovel tests were recorded, no additional shovel tests were excavated

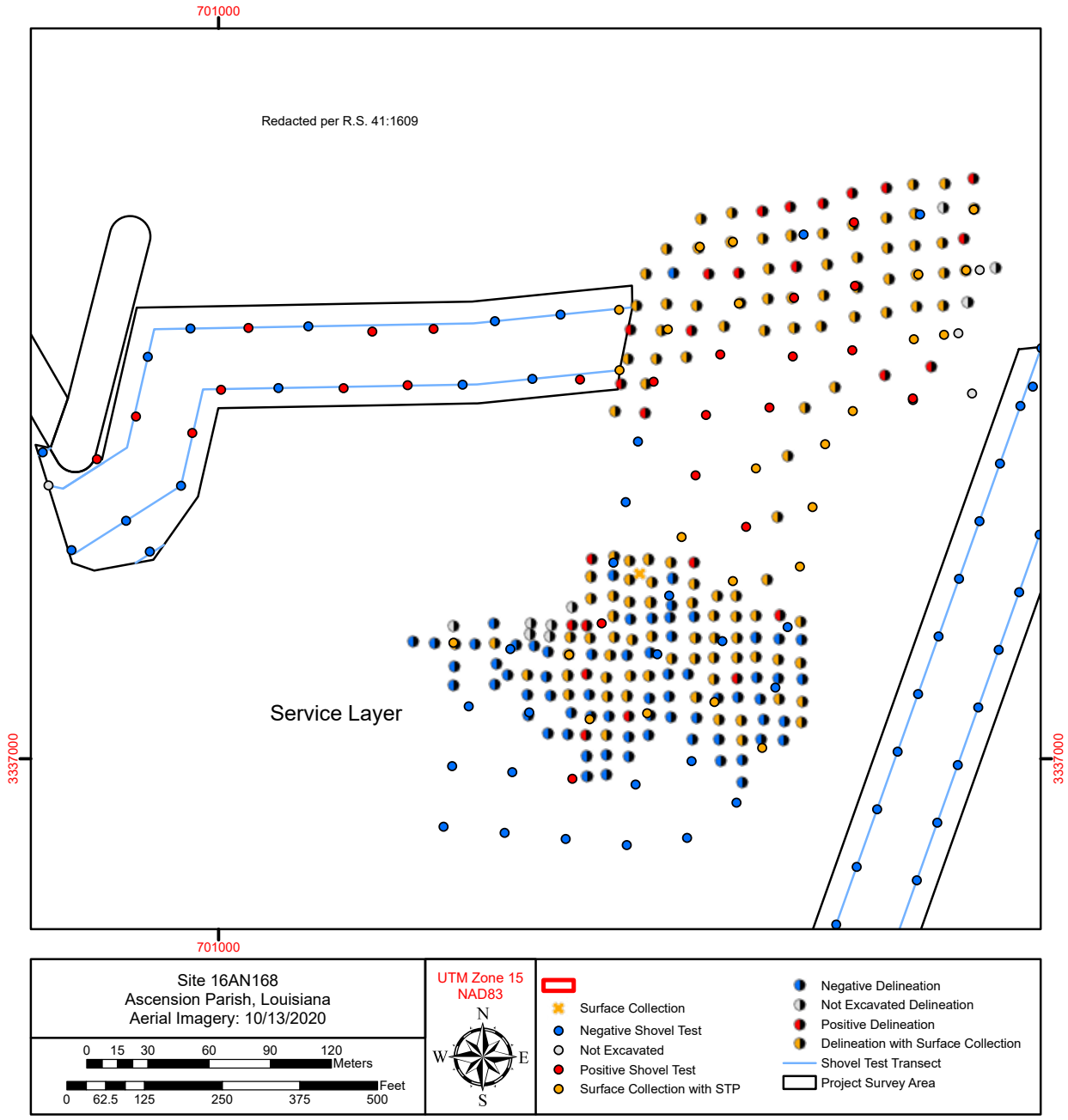

Figure 6.54 **Aerial photo of Site 16AN168 overlaid with the locations of all transects and shovel tests excavated within the site area.**

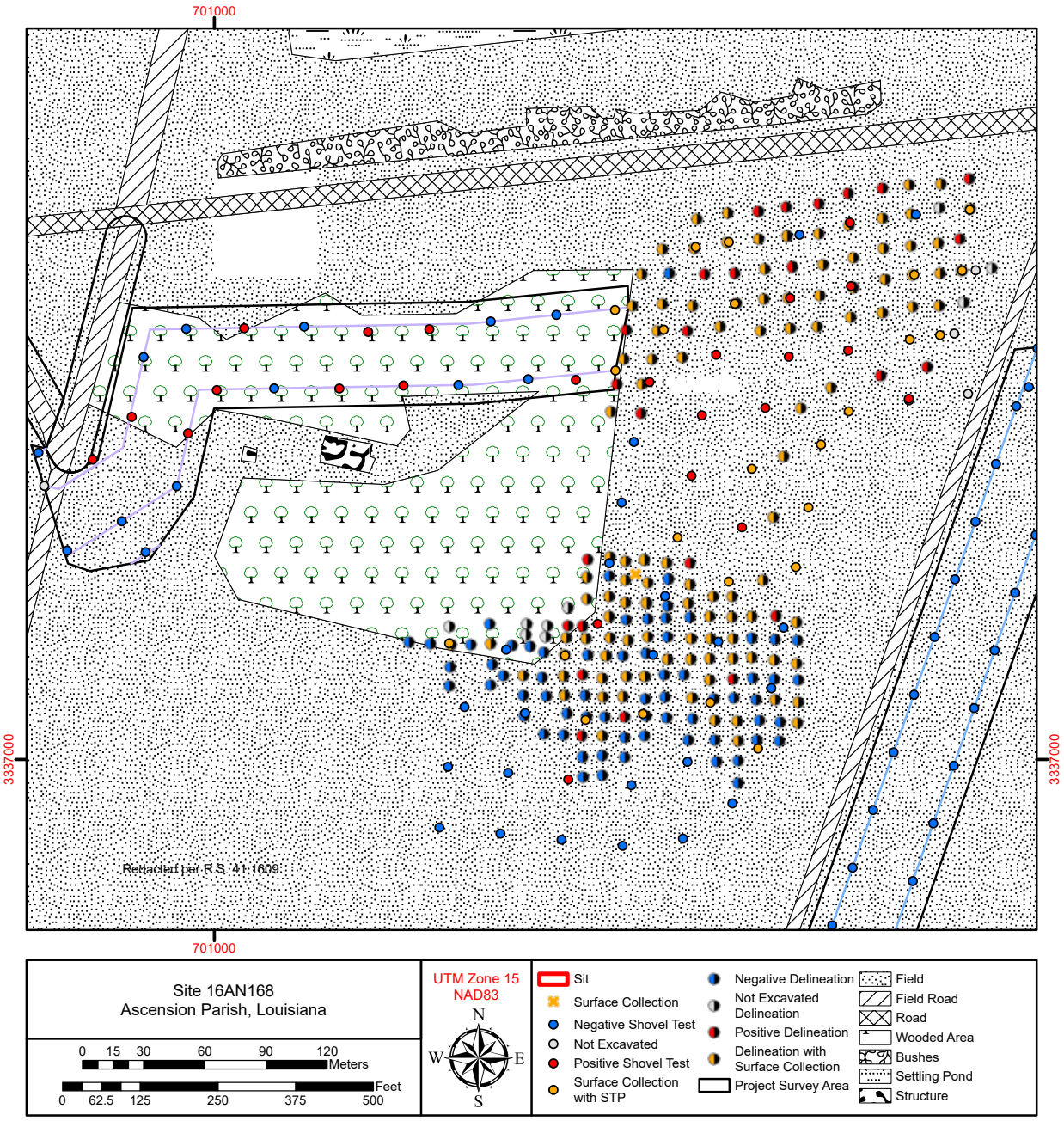

Figure 6.55 Planview map of Site.

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to delineate further around this discovery because the site will be avoided. A typical shovel test excavated within Segment JEP061323A was extended to a depth of 50 cmbs (19.7 inbs) and exhibited two strata in profile (Figure 6.56). Stratum I (0 to 30 cmbs [0 to 11.8 inbs]) was a dark grayish brown (10YR 4/2) clay; it overlay Stratum II (30 to 50 cmbs [11.8 to 19.7 inbs]), a light brownish gray (10YR 6/2) clay.

A total of 75 artifacts and 19 faunal specimens were recovered from Site 16AN168, and of these 23 historic artifacts were recovered from the surface, 32 historic artifacts and all 19 faunal specimens were recovered from Stratum I, and 20 historic artifacts were recovered from Stratum II (Tables 6.4, 6.5). Sorted further the historic artifacts consisted of 29 historic ceramic sherds, 21 glass shards, 22 ferrous metal fragments, 1 complete shell button, 1 concrete fragment, and 1 chert flake. The historic ceramics consisted of 24 ceramic vessel sherds and five personal items. Vessel ware types consisted of pearlware (n = 12), hard-paste porcelain (n = 3), whiteware (n = 4), yellowware (n = 1), porcelaneous stoneware (n = 3), and untyped refined white earthenware (n = 1). The majority of these artifacts were undecorated (n = 18). Decorative techniques consisted of annular banded (n = 2; 1782-1840; Miller et al. 2000:12-13; Figure 6.57.a), hand painted (n = 1; 1829-1920; DAACS 2018b:16; Miller 1991:8; Miller et al. 2000:13; Figure 6.57.b), and molded (n = 3). Ceramic artifacts not included in the kitchen/household wares category included one bisque porcelain doll fragment (Figure 6.58) and four complete Prosser buttons (Figure 6.59.a).

Glass artifacts recovered from Site 16AN168 represented a variety of glass types including aqua (n = 12), colorless (n = 4), olive (n = 3), and manganese (n = 2), all with indeterminate vessel forms. Manganese glass shards obtained at this site were the most temporally diagnostic with a date range of ca. 1870 to 1920 (Lindsey 2023; Lockhart 2006:52, 54; Figure 6.60). Two shards of aqua glass recovered from the site could possibly be safety glass due to the presence of crackling (1915-present; Miller et al. 2000:9).

The metal artifacts recovered from the site consisted of 15 nails (9 wire and 6 cut), 1 possible wrench handle, and 1 fence staple. Other artifacts included one complete shell button (Figure 6.59.b), 1 concrete fragment, and one chert flake that may have represented crushed gravel rather than a prehistoric artifact. Finally, the faunal materials were limited to 17 unidentified bird bone fragments, and 2 partially burned, unidentified mammal bones.

Site 16AN168 can be characterized as a historic archaeological site associated with the Conway Plantation. Although only a small portion of the site was investigated, it is apparent that the site may contain undisturbed cultural deposits. After Site 16AN168 was identified within the proposed pipeline ROW, the project was redesigned to avoid this site and Segment JEP061323A was removed from the project area. Because Segment JEP061323A will not be utilized during the construction of the OxyChem Pipeline project, no additional work within Site 16AN168 is recommended. Should project plans change that would necessitate construction activities within the limits of this site, additional testing is recommended.

Segment JEP060523A (M.P. 11.39 to 12.35)

Segment JEP060523A was a ca. 1,545 m (5,036.1 ft) long segment of 50 m (164 ft) long proposed pipeline ROW that extended from M.P. 11.39 to 12.35 (Figures 6.1 [Sheets 21, 22], 6.61; Table 6.1). This segment originated at the west end of Segment JEP062123A and extended south-southwest for approximately 1,143 m (3,749 ft) to a ca. 0.4 ha (1 ac) workspace for a PI change near M.P. 12.09. From there the segment turned west and continued for the remainder of its length to another ca. 0.4 ha (1 ac) expanded workspace for an HDD drill point near M.P. 12.31 before finally ending at LA-44 near M.P. 12.35. Between the beginning of the segment and M.P. 11.84 it traversed active agricultural fields planted in immature cane. Near M.P. 11.84 the segment entered a stand of secondary growth hardwood trees, emerging from this stand near M.P. 12.15 where it entered a grassy field and extended between an active railroad line and a gravel road to its point of termination. Topography was described as nearly level throughout. Soils recorded in the vicinity of the ROW consisted of Commerce silty clay loam (Cm), Con-

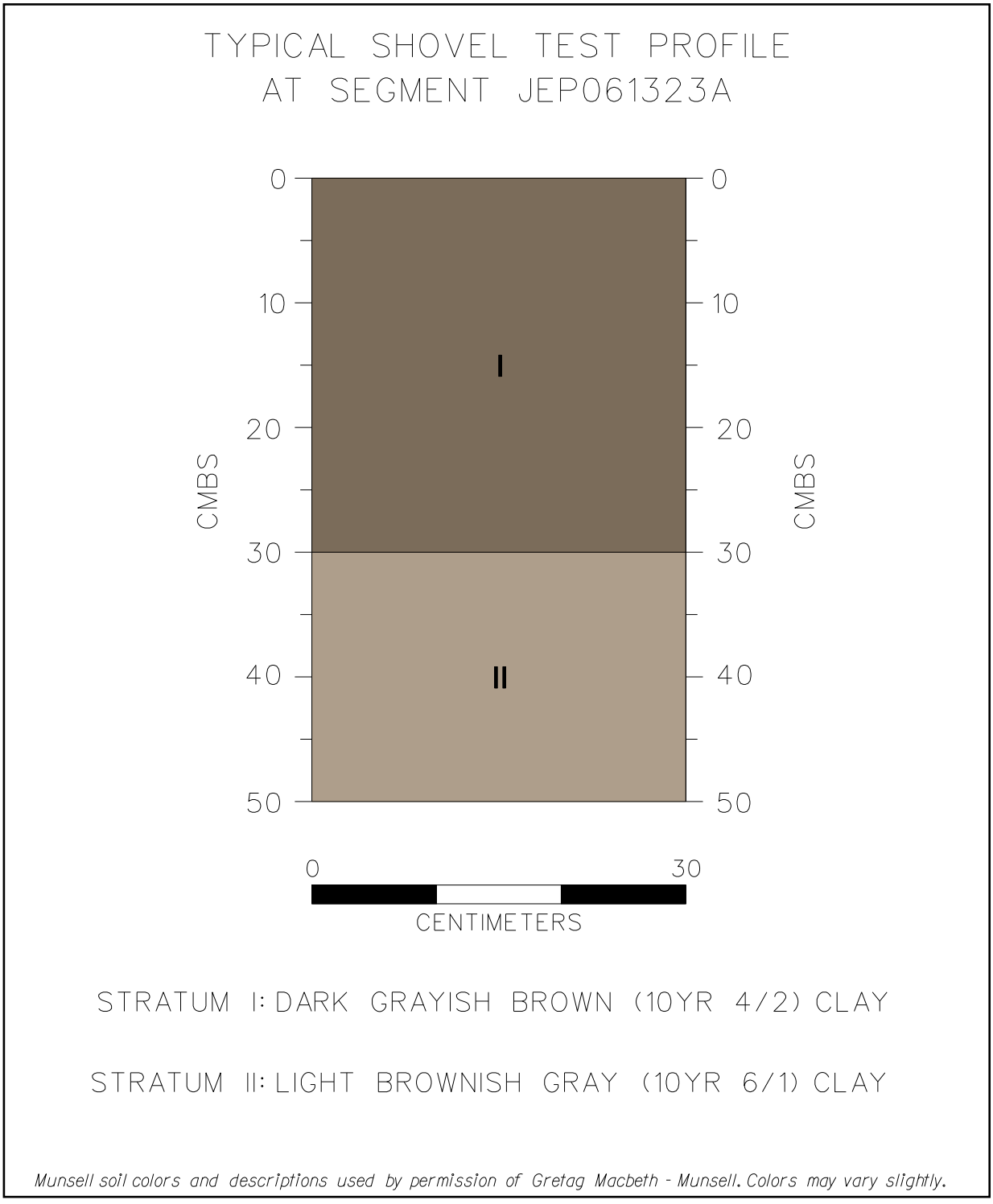

Figure 6.56 Profile of a typical shovel test excavated within Segment JEP061323A.

Table 6.4 Summary of historic artifacts recovered from Site 16AN168.

Stratum	Material Class	Material Category	Form	Manufacture/ Ware	Decorative Class	Additional Description	Count
Surface	Ceramic	Earthenware	Container	Pearlware	Molded	filigree design	1
					Plain/ Undecorated	n/a	5
				Whiteware	Plain/ Undecorated	n/a	2
		Porcelain	Container	Hard-paste	Plain/ Undecorated	n/a	2
		Stoneware	Container	Porcelaneous Stoneware	Plain/ Undecorated	n/a	2
			Unspecified Hollow Vessel	Porcelaneous Stoneware	Plain/ Undecorated	possible jar rim	1
	Glass	Aqua	Container	Indeterminate	Plain/ Undecorated	n/a	7
		Colorless	Container	Indeterminate	Plain/ Undecorated	n/a	1
				Molded (Mouth-Blown/ Machine)	Plain/ Undecorated	basal embossment reads, "…INE…"	1
		Solarized (Manganese)	Container	Molded (Mouth-Blown/ Machine)	Molded	n/a	1
I	Ceramic	Earthenware	Container	Pearlware	Plain/ Undecorated	n/a	4
				Refined, White-Bodied	Molded	blue glaze	1
				Whiteware	Hand Painted, underglaze	n/a	1
					Plain/ Undecorated	n/a	1
				Yellowware	Molded	n/a	1
			Unspecified Hollow Vessel	Pearlware	Banded (Annular)	2 sherds mend	1
						possibly same vessel as FS# 01-04	1
		Porcelain	Button	Prosser	Plain/ Undecorated	4-holed	1
	Glass	Aqua	Container	Indeterminate	Plain/ Undecorated	n/a	3
			Unspecified Flat Vessel	Indeterminate	Plain/ Undecorated	possible safety glass; cracks on one side of fragment	2
		Colorless	Container	Indeterminate	Plain/ Undecorated	n/a	2
		Olive	Container	Indeterminate	Plain/ Undecorated	n/a	2
				Molded (Mouth-Blown/ Machine)	Plain/ Undecorated	whittle marks along body	1
		Solarized (Manganese)	Container	Molded (Mouth-Blown/ Machine)	Embossed	both embossed lettering and design; embossment reads, "… ES…"	1
	Manufactured/ Synthetic	Concrete	Indeterminate	Indeterminate	Plain/ Undecorated	deteriorated paint on surface	1
	Metal	Ferrous	Indeterminate	Indeterminate	n/a	possible form of nail; large in size	1
						n/a	4
			Nail	Cut	n/a	n/a	1
				Wire	n/a	n/a	1
	Organic	Shell	Button	Indeterminate	Plain/ Undecorated	2-holed	1
	Stone/ Mineral	Chert	Flake	Indeterminate	n/a	possible flake or crushed gravel fragment, 0.72g	1
II	Ceramic	Porcelain	Button	Prosser	Plain/ Undecorated	n/a	3
			Container	Hard-paste	Plain/ Undecorated	n/a	1
			Doll	Unglazed (Bisque)	n/a	n/a	1
	Metal	Ferrous	Misc. Hand Tool	Unidentified	n/a	tool handle, possible wrench	1
			Nail	Cut	n/a	sheathing nail	1

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Table 6.4, continued

Stratum	Material Class	Material Category	Form	Manufacture/ Ware	Decorative Class	Additional Description	Count
II	Metal	Ferrous	Nail	Cut	n/a	n/a	4
				Wire	n/a	n/a	8
			Staple	n/a	n/a	fence staple	1
Grand Total							**75**

Table 6.5 Summary of faunal materials recovered from Site 16AN168.

Stratum	Common Name	Thermal Alteration	Count	Wt (g)
I	UID Bird	Unburned	17	11.12
	UID Mammal	Partial Burning	2	1.76
Grand Total			**19**	**12.88**

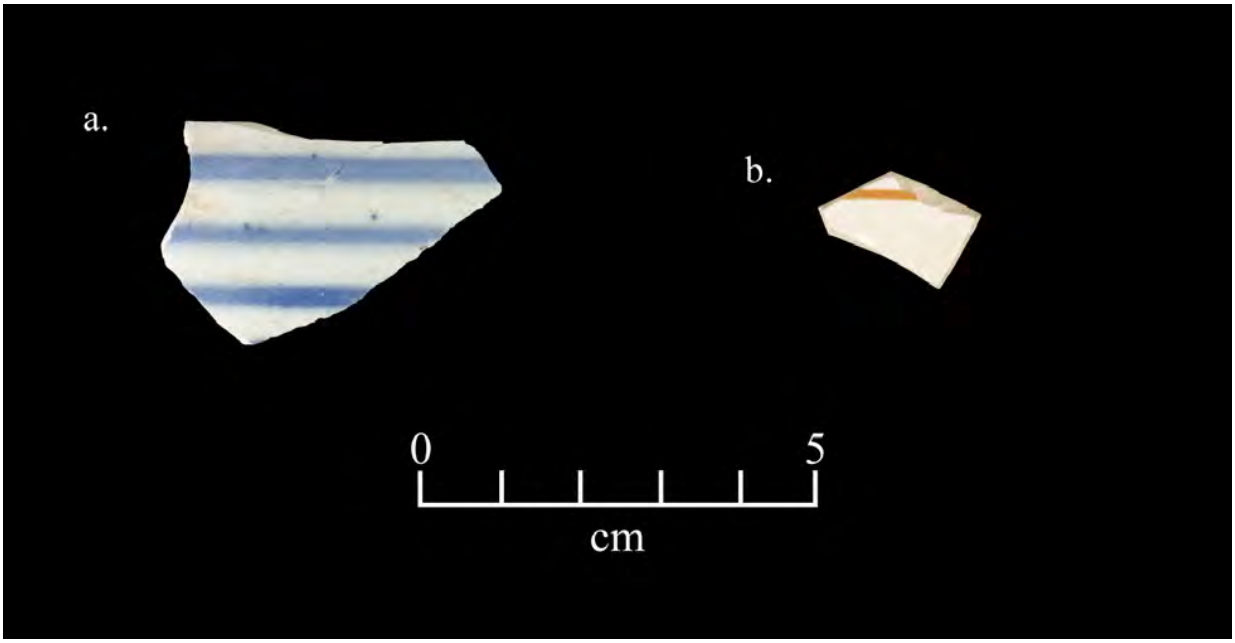

Figure 6.57 Selected historic ceramic artifacts recovered from Site 16AN168: (a) annular (banded) pearlware body sherd, FS# 01-04; (b) hand painted whiteware body sherd, FS# 01-08.

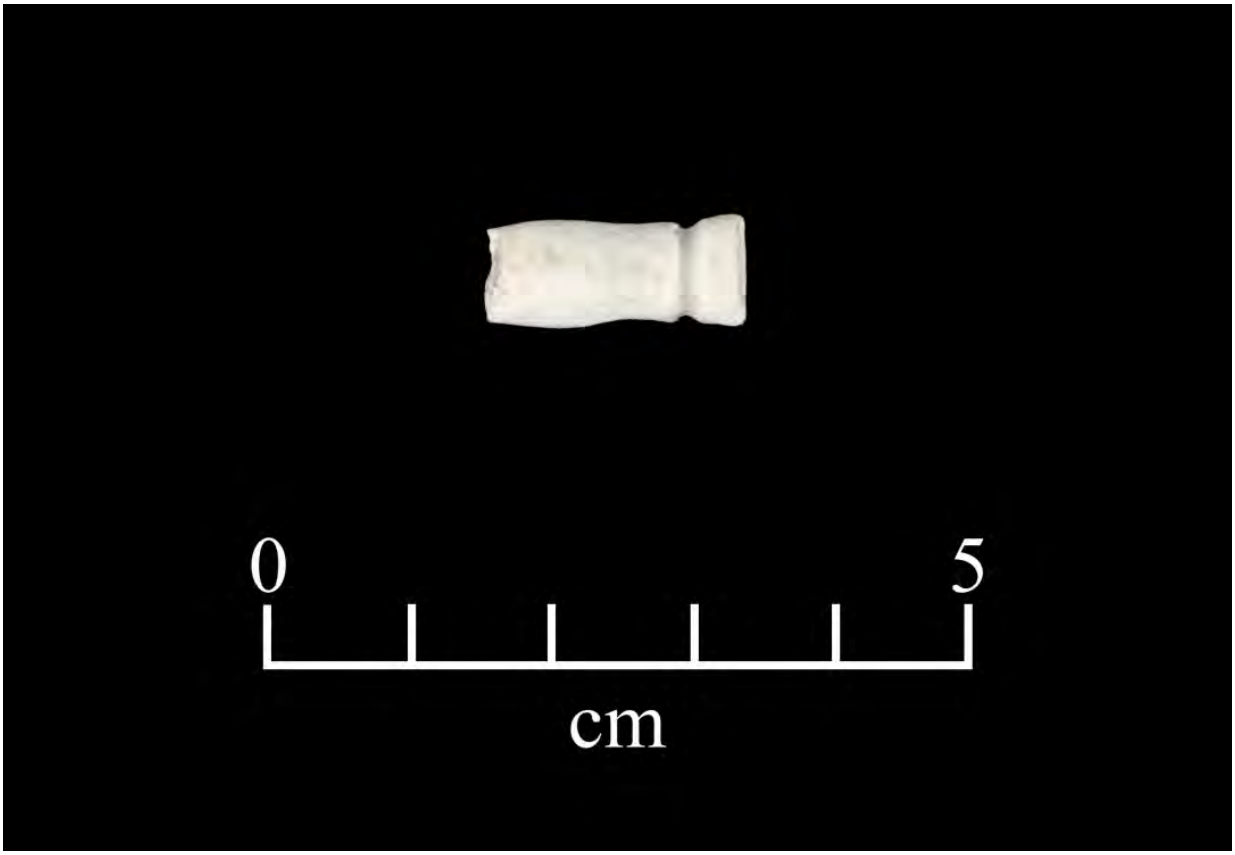

Figure 6.58 **Porcelain bisque doll part recovered from Site 16AN168, FS# 01-16.**

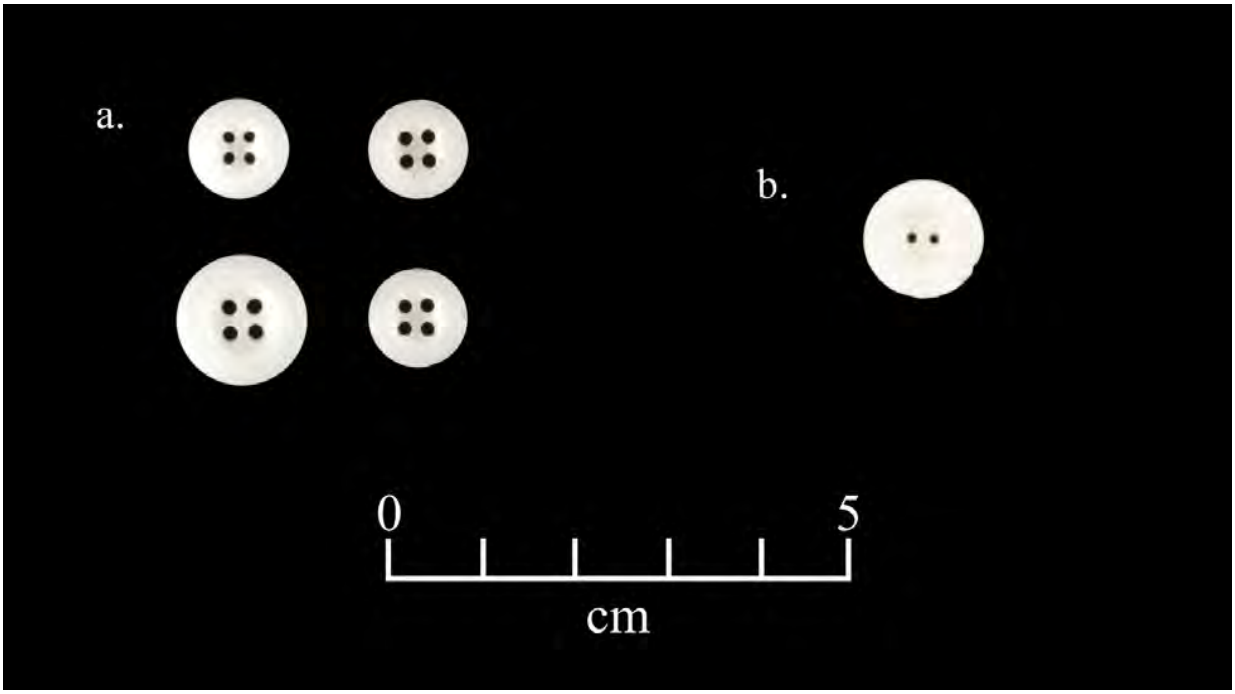

Figure 6.59 **Selected historic buttons recovered from Site 16AN168: (a) complete 4-hole Prosser buttons, FS#s 01-05 and 01-16; (b) complete 2-hole shell button, FS# 01-05.**

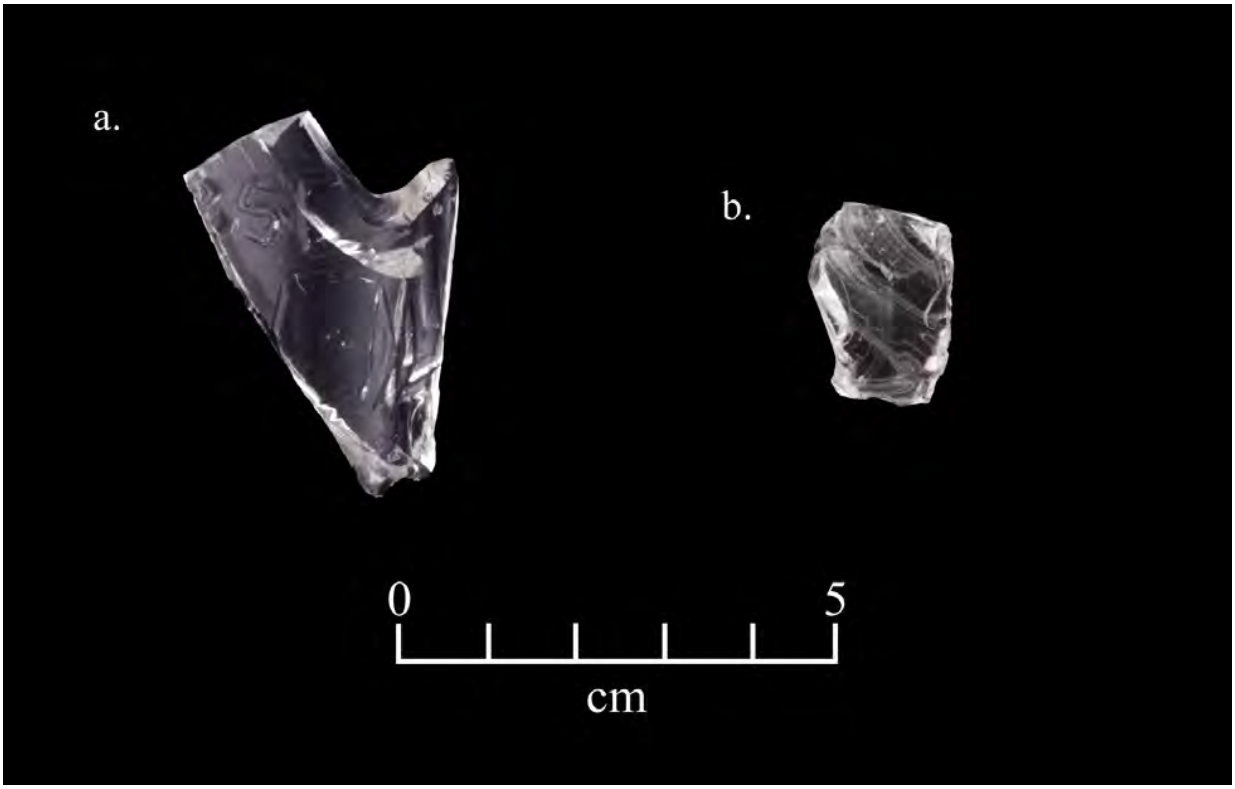

Figure 6.60 **Selected glass artifacts from Site 16AN168: (a) embossed manganese glass body fragment, FS# 01-07; (b) molded manganese glass body fragment, FS# 01-12.**

Figure 6.61 **Overview photo of Segment JEP060523A, facing northwest. Photo taken on June 5, 2023.**

vent silt loam, 0 to 1 percent slopes (Co, Cs) (Figure 2.1, Table 2.1).

Segment JEP060523A was judged to have a high probability for containing cultural resources due to its proximity to Site 16AN168 near its north end and its proximity to Site 16AN60 and its positioning at an elevation above the 10 ft contour line near its southern end (Figure 1.2). The field investigation consisted of pedestrian survey supplemented with shovel testing at 30 m (98.4 ft) intervals along two transects spaced 30 m (98.4 ft) apart, with additional shovel tests excavated where required to provide complete survey coverage within the extra workspaces. A total of 124 transect shovel tests were excavated within this segment, with 11 planned shovel tests not excavated due to the presence of ditches, farm roads and other obstructions. A typical shovel test excavated within Segment JEP060523A extended to a depth of 50 cmbs (19.7 inbs) and exhibited two strata in profile (Figure 6.62). Stratum I (0 to 10 cmbs [0 to 3.9 inbs]) was a deposit of dark gray (10YR 4/1) clay. Below Stratum I was Stratum II (10 to 50 cmbs [3.9 to 19.7 inbs]), a gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) clay. A single archaeological site was identified during the survey of this segment between M.P. 11.65 and 11.74, which was designated as Site 16AN169 and is described below. With the exception of this single discovery, no evidence for undisturbed cultural deposits or features was identified within Segment JEP060523A, and no additional work is recommended.

Site 16AN169 (Locus JEP061223-01)

Site 16AN169 was a newly-recorded historic archaeological site identified within Segment JEP060523A between M.P. 11.65 and 11.74 (Figures 6.1 [Sheet 22], 6.63-6.65; Table 6.2). The site was situated approximately 1.1 km (0.7 mi) north of the east bank of the Mississippi River and 540 m (1,771 ft) east of LA-44, and within an active agricultural field planted in immature sugarcane. Slope throughout the area was described as nearly level. A dirt two-track and associated irrigation ditch was located along the west side of the site, while a small wooded area was situated to the south. Soils recorded in the vicinity of the site consisted of Commerce silty clay loam (Cm) and Convent silt loam, 0 to 1 percent slopes (Cs) (Figure 2.1, Table 2.1).

Site 16AN169 originally was identified as a scatter of crushed concrete, ceramic tile, and historic domestic refuse that was identified on the surface of the cane field at three shovel test locations. Following this initial discovery, the locus was delineated by the excavations of additional shovel tests at 10 m (32.8 ft) intervals around each of the three surface finds. Between the original transect survey and the subsequent delineation efforts, a total of 61 shovel tests were excavated in the vicinity of the site and of those, two were positive for subsurface artifacts; furthermore, a total of 10 shovel test locations produced artifacts that were recovered from the surface. The area of the surface scatter measured approximately 130 m (426.5 ft) in length and 35 m (114.8 ft) in width, although a positive delineation shovel test located along the eastern boundary of the proposed corridor could not be fully delineated without extending outside of the project area and the site may extend further to the east.

A typical shovel test excavated within Site 16AN169 extended to a maximum depth of 50 cmbs (19.7 inbs) and exhibited two strata in profile (Figure 6.66). Stratum I, a dark gray (10YR 4/1) compact clay mottled with strong brown (7.5YR 5/8) clay, extended from the surface to a depth of 20 cmbs (7.9 inbs). Stratum II, a gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/8) clay, extended from the base of Stratum I to the base of the excavation at 50 cmbs (19.7 inbs). Within this profile, Stratum I represented the modern plowzone (i.e., the Aphoriszon) while Stratum II was subsoil. Only two shovel tests produced artifacts from below the surface, the first a fragment of ceramic tile and the second a square-shanked nail, and in both instances the artifacts were recovered from Stratum I and at depths between 0 and 20 cmbs (0 and 7.9 inbs). A small amount of brick fragments also were observed within a few of the shovel tests, but these materials were not collected.

The surface scatter within Site 16AN169 primarily consisted of fragments of crushed concrete with some brick; these materials were not collected. A total of 31 artifacts were recovered from Site 16AN169, which included 29 artifacts recovered

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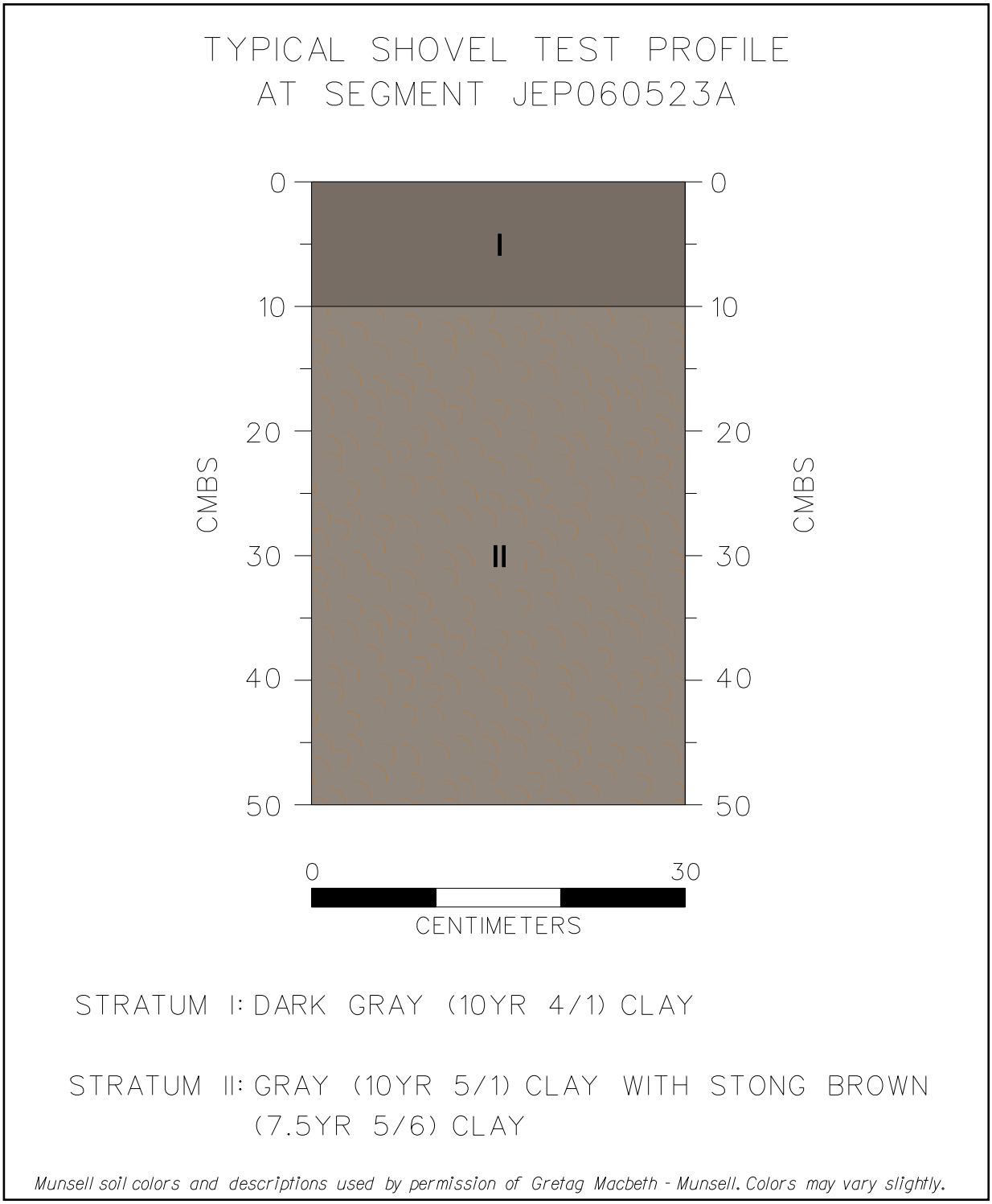

Figure 6.62 Profile of a typical shovel test excavated within Segment JEP060523A.

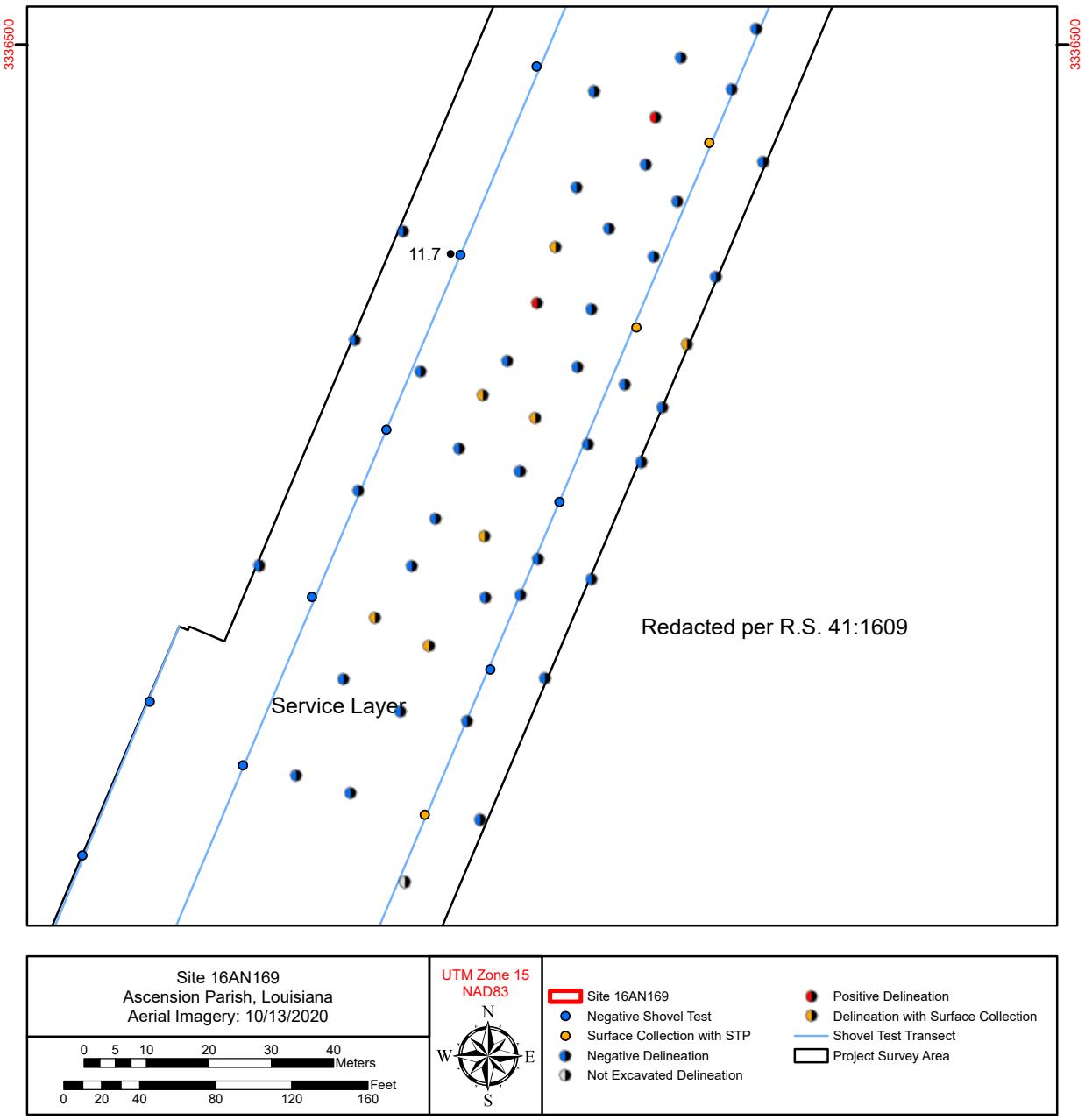

Figure 6.63 **Aerial photo of Site 16AN169 overlaid with the locations of all transects and shovel tests excavated within the site area.**

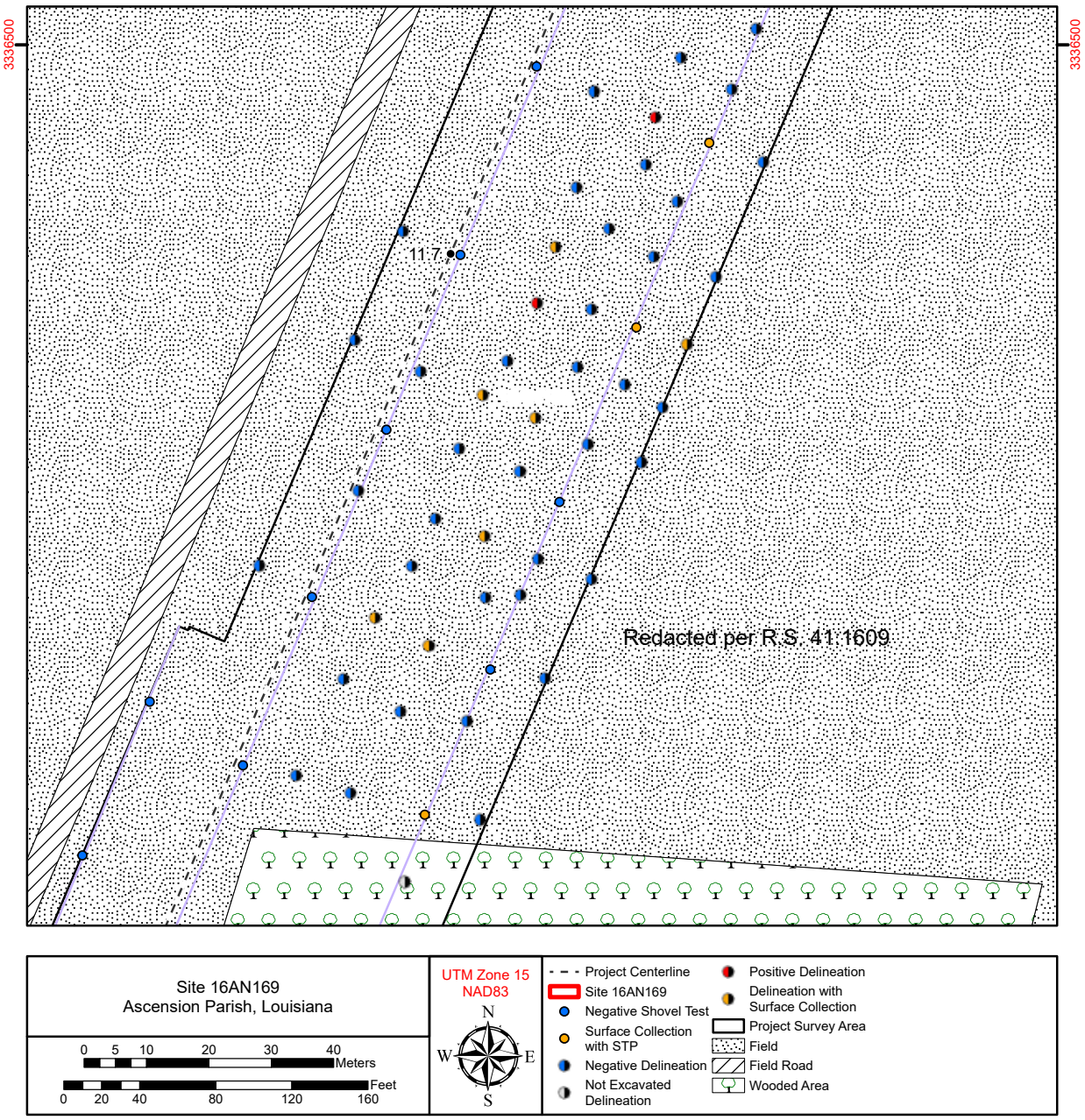

Figure 6.64 Planview map of Site 16AN169.

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Figure 6.65 Overview photo of Site 16AN169, facing north. Photo taken on June 12, 2023.

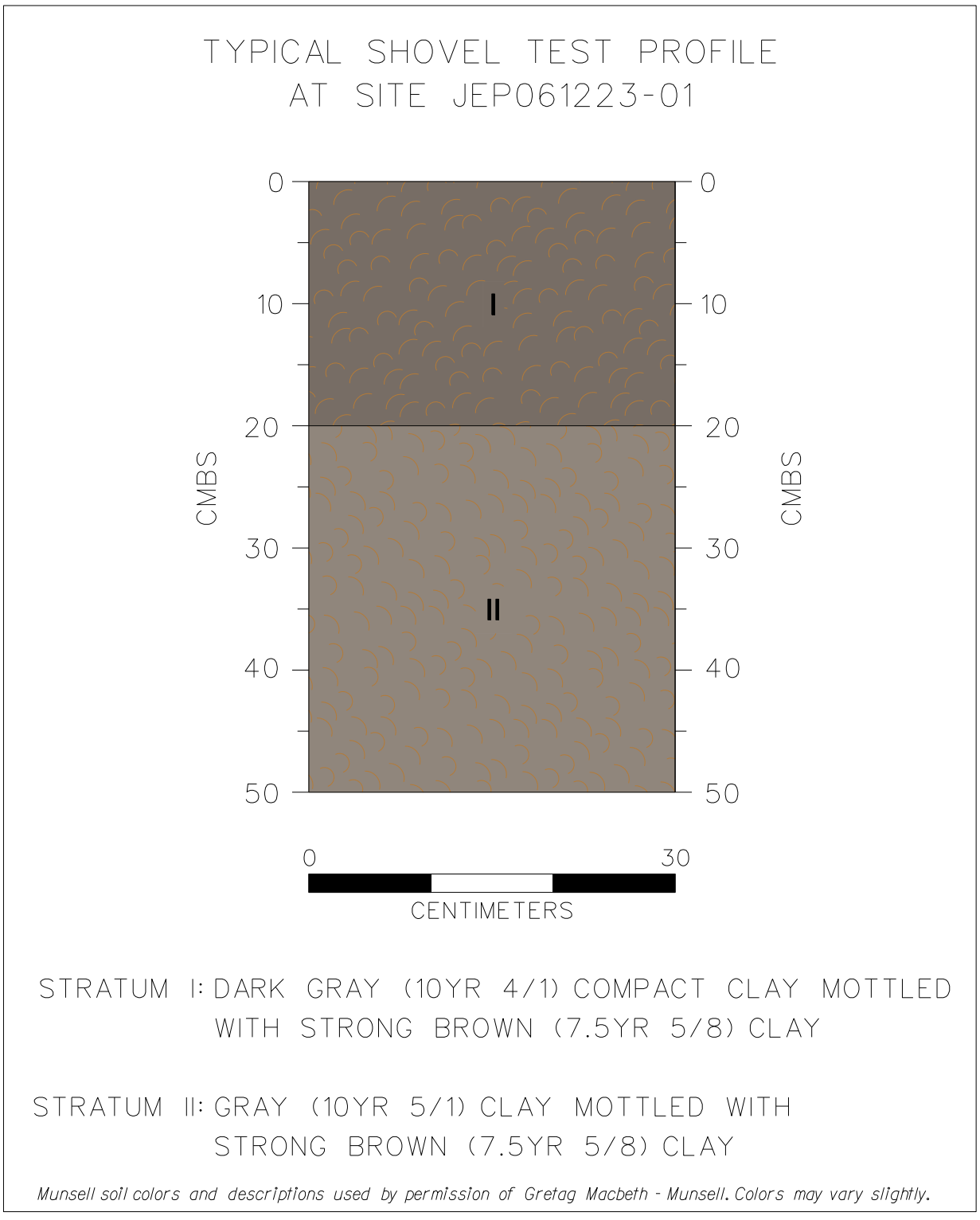

Figure 6.66 Profile of a typical shovel test excavated within Site 16AN169.

from the surface scatter as well as the two artifacts recovered from within the plowzone (Table 6.6). These artifacts consisted of 5 glass shards, 23 fragments of buff-bodied architectural ceramic tile, 1 plastic fragment, and 1 nail fragment. The glass artifacts all were aqua in color and consisted of 1 machine made crown bottle finish (Figure 6.67), 3 shards of machine made or molded manufacture, and 2 shards of indeterminate manufacture. The machine made bottle fragment was dated from the twentieth century (Lindsey 2023; Miller et al. 2000:8), while the remaining artifacts were not temporally diagnostic.

Site 16AN169 can be described as a surface scatter and shallow subsurface deposit of historic or modern refuse that included one temporally diagnostic artifact that was dated from the twentieth century. Most of the materials represented architectural debris, particularly crushed concrete and ceramic tile. The site, which likely represented one or more episodes of refuse disposal, lacks both integrity and significance and therefore it is recommended as not eligible for listing on the National Register applying the applicable Criteria for Evaluation (36 CFR 60.4 [a-d]); no additional work within Site 16AN169 is recommended.

M.P. 12.35 to 12.84

Between M.P. 12.09 and 12.82, the pipeline will be installed by HDD in order to avoid residential and commercial buildings situated near the ROW (Figure 6.1 [Sheet 23]; Table 6.1). Furthermore, a portion of Site 16AN60 (Houmas Central Sugar Factory) was situated within the proposed Project corridor between M.P. 12.36 and 12.47 (Figure 4.1). Although workspaces will be required for construction between M.P. 12.09 and 12.33 and the investigation of those workspaces is described above (Segment JEP060523A), no construction activities are planned within that

Table 6.6 **Summary of historic artifacts recovered from Site 16AN169.**

Stratum	Material Class	Material Category	Form	Manufacture/ Ware	Decorative Class	Additional Description	Count
Surface	Ceramic	Architectural Ceramic	Tile	Buff-Bodied	Plain/ Undecorated	possible tin-enameled tile; one side of a fragment has deteriorated glaze	2
						same tile as FS# 01-01 and FS#01-02	2
						same tile as FS# 01-01, 01-02, and 01-41	1
						same tile as FS# 01-01, 01-02, and 01-41, etc.	10
						same tile as FS# 01-01; possible tin-enamaled tile	6
						seems like same tile from FS# 01-01 and FS# 01-02	1
	Glass	Aqua	Bottle	Machine Made	Plain/ Undecorated	machine-made crown finish	1
				Molded (Mouth-Blown/ Machine)	Plain/ Undecorated	basal embossment reads, "...GE..."; possibly same vessel as FS# 01-40	1
			Container	Indeterminate	Plain/ Undecorated	n/a	1
				Molded (Mouth-Blown/ Machine)	Plain/ Undecorated	basal embossment reads, "...BAT..."	1
						n/a	1
			Unspecified Flat Vessel	Indeterminate	Plain/ Undecorated	possible window glass	1
	Manufactured/ Synthetic	Misc. Plastic	Flat	Indeterminate	Plain/ Undecorated		1
I	Ceramic	Architectural Ceramic	Tile	Buff-Bodied	Plain/ Undecorated	same tile as FS# 01-01, 01-02, and 01-41, etc.	1
	Metal	Ferrous	Nail	Wrought or Cut	n/a	n/a	1
Grand Total							**31**

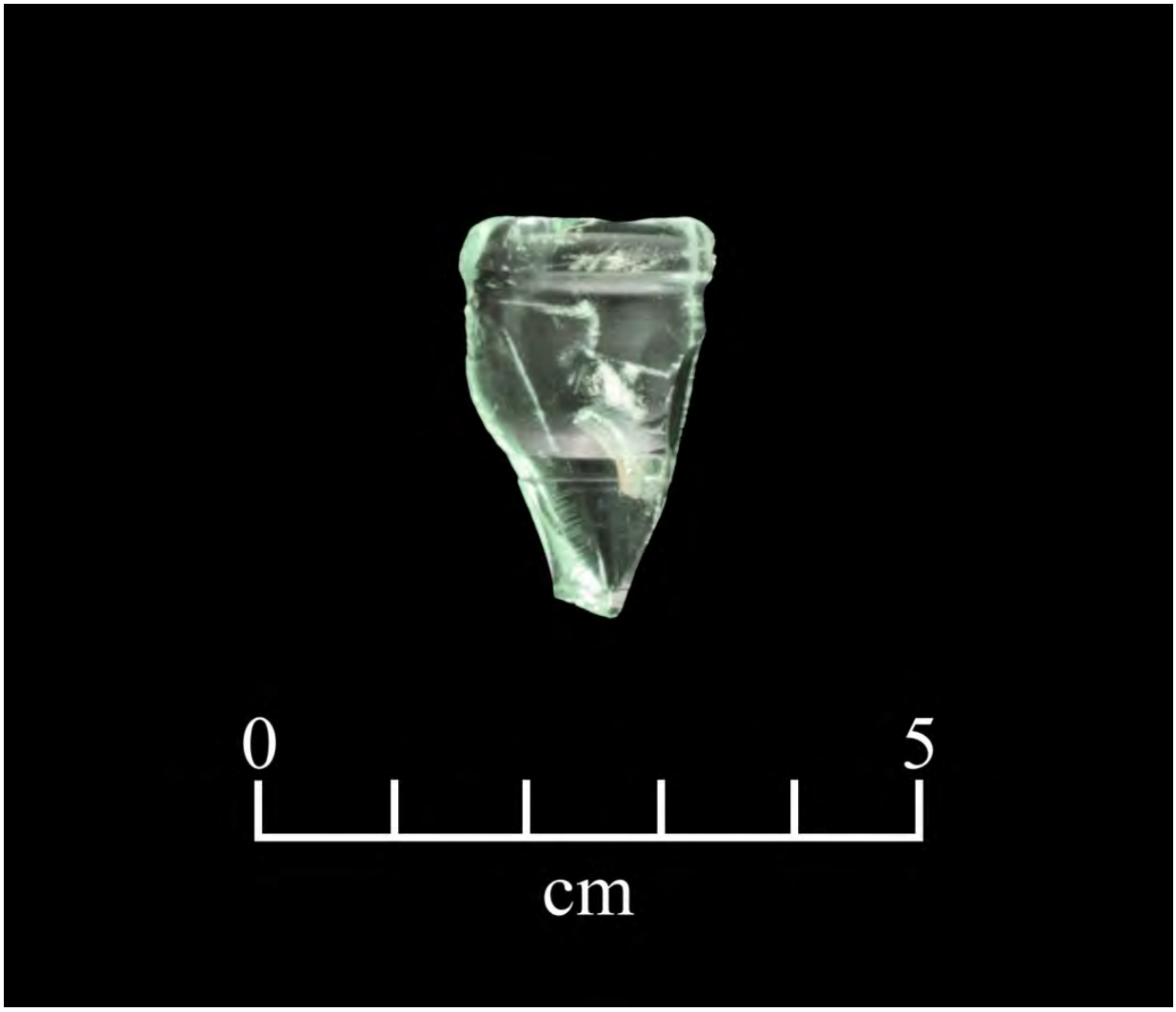

Figure 6.67 **Aqua glass bottle fragment from a machine-made bottle with a crown finish recovered from Site 16AN169, FS# 01-63.**

portion of the pipeline ROW that extends from LA 44 (M.P. 12.33) to the west end of the HDD at M.P. 12.82, with the exception of the horizontal drilling. Therefore, given that no ground disturbance will occur within that portion of the proposed Project corridor between M.P. 12.35 and 12.84, no investigation for the presence of cultural resources was completed and additional work is recommended.

Segment JEP060423B (M.P. 12.84 to 13.34)

Segment JEP060423B was a 1,545 m (5,068.9 ft) long segment of 50 m (164 ft) wide project ROW that originated at a ca. 0.08 ha (0.19 ac) HDD workspace near M.P. 12.84 and extended west-northwest following the north edge of an existing railroad berm to its endpoint near LA-22 (Figures 6.1 [Sheets 23, 24], 6.68; Table 6.1). Immediately south of the same railroad corridor was the Houmas House Estate and Gardens, an antebellum plantation home that was listed on the National Register of Historic Places in 1980 under Criteria A (History) and C (Architecture and Engineering) (NRHP# 80001694). For most of its length this segment ran through active agricultural fields planted in immature cane, while the final 200 m (656.2 ft) of the segment traversed an open field vegetated with low grasses and weeds. Topography was described as nearly level throughout. Soils recorded in the vicinity of

Figure 6.68 Overview photo of Segment JEP060423B, facing southeast. Photo taken on June 4, 2023.

the ROW consisted of Commerce silty clay loam (Cm) (Figure 2.1, Table 2.1).

Given its position above the 10 ft contour line and in close proximity to the Houmas House and Site 16AN60, Segment JEP060423B was judged to have a high probability for containing cultural resources. The field investigations within this segment consisted of pedestrian survey supplemented with shovel testing at 30 m (98.4 ft) intervals along two transects spaced 30 m (98.4 ft) apart, with additional shovel tests excavated where required to provide complete survey coverage within extra workspaces. A total of 56 shovel tests were excavated within this segment, with 2 planned shovel tests not excavated due to the presence of ditches. A typical shovel test excavated within this segment extended to a depth of 50 cmbs (19.7 inbs) and exhibited two strata in profile (Figure 6.69). Stratum I (0 to 35 cmbs [0 to 13.8 inbs]) was a deposit of grayish brown (10YR 5/2) clay loam; it overlay Stratum II 935 to 50 cmbs [13.8 to 19.7 inbs]), a layer of gray (10YR 6/1) clay mottled with strong brown (7.5YR 5/6) silty clay. No artifacts were recovered from any of the shovel tests, and no evidence for undisturbed cultural deposits or features was identified anywhere within Segment JEP060423B. Additionally, because the pipeline will be installed below grade and no above-ground facilities are planned within this location, and because there is a screen of mature trees lining both sides of the existing railroad corridor, the proposed project will have no permanent visual impact on the NRHP-listed Houmas House. No additional work within Segment JEP060423B is recommended.

Segment JEP060423A (Offline)

Segment JEP060423A was a once-proposed segment of pipeline ROW that was investigated for cultural resources but subsequently was abandoned; it was located within active sugarcane fields west of the Houmas House and south of the preferred ROW near M.P. 13.3 (Figures 6.1 [Sheet 24], 6.70; Table 6.1). Immediately north of this segment was an active railroad corridor, while about 200 m (656.2 ft) to the east was the Houmas House and 300 m (984.3 ft) to the south was the Mississippi River. Topography was described as nearly level through the area, while vegetation consisted of immature cane with a few hardwood trees at the boundaries between fields. Soils recorded in the vicinity of the ROW

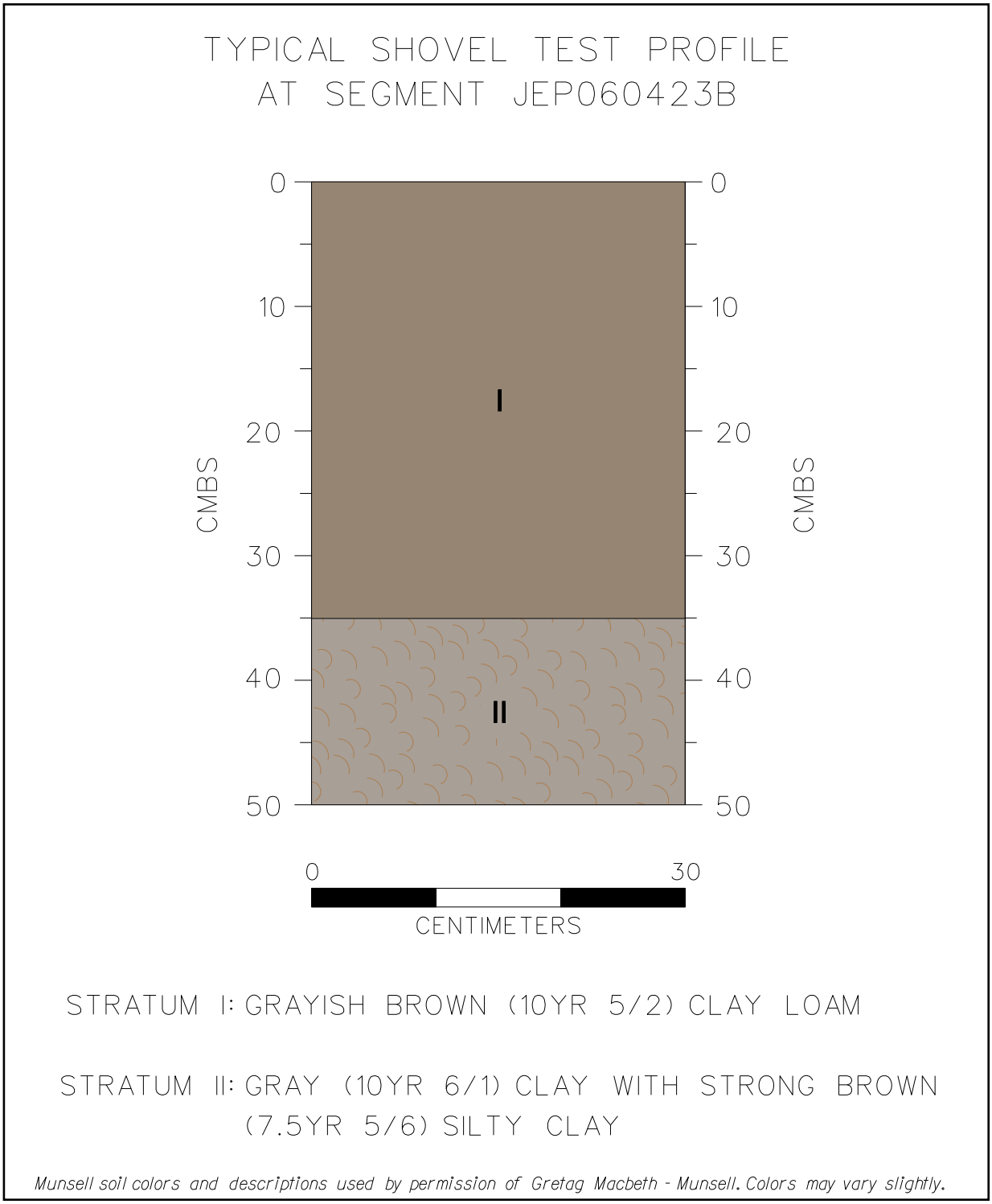

Figure 6.69 Profile of a typical shovel test excavated within Segment JEP060423B.

Figure 6.70 Overview photo of Segment JEP060423A, facing southeast. Photo taken on June 4, 2023.

consisted of Commerce silty clay loam (Cm) (Figure 2.1, Table 2.1).

Segment JEP060423A was judged to have a high probability for containing cultural resources due its position above the 10 ft contour line and in close proximity to the Houmas House and the Mississippi River. The segment was investigated by pedestrian survey supplemented with shovel testing at 30 m (98.4 ft) intervals along two transects spaced 30 m (98.4 ft) apart. A total of 15 shovel tests were excavated within this location, with one planned shovel test not excavated due to the presence of a ditch. A typical shovel test was extended to a depth of 50 cmbs (19.7 inbs) and exhibited two strata in profile (Figure 6.71). Stratum I was a dark grayish brown (10YR 4/2) silty clay that originated at the surface and extended to a depth of 20 cmbs (7.9 inbs). Below Stratum I was Stratum II, a gray (10YR 6/1) clay mottled with strong brown (7.5YR 5/6) silty clay. No artifacts were recovered from any of the shovel tests, and no evidence for undisturbed cultural deposits or features was identified anywhere within Segment JEP060423A. Given those results of the survey and the subsequent abandonment of this segment; no additional work is recommended.

XWS LAC021723B (M.P. 13.34 to 13.41)

Workspace XWS LAC021723B was a ca. 0.8 ha (2.0 ac) workspace on the south side of LA-22 that will be used as an entry point for HDD drilling beneath the highway Figures 6.1 [Sheet 24], 6.72; Table 6.1). This segment originally was investigated for a different and unrelated project that has since been cancelled and the results are incorporated herein. The workspace was situated within the proposed pipeline ROW between M.P. 13.34 and 13.41 and within a fallow field containing low grasses and weeds. Topography was described as nearly level through the area. Soils recorded in the vicinity of the ROW consisted of Commerce silty clay loam (Cm) (Figure 2.1, Table 2.1).

Workspace XWS LAC021723B was judged to have a high probability for containing cultural resources due to its location above the 10 ft contour line and within about 500 m (1,640.4 ft) of the Mississippi River (Figure 1.2). This workspace was investigated by pedestrian survey supplemented with shovel testing at 30 m (98.4 ft) intervals along four transects spaced 30 m (98.4 ft) apart. A total of 8 shovel tests were excavated within this workspace. A typical shovel test

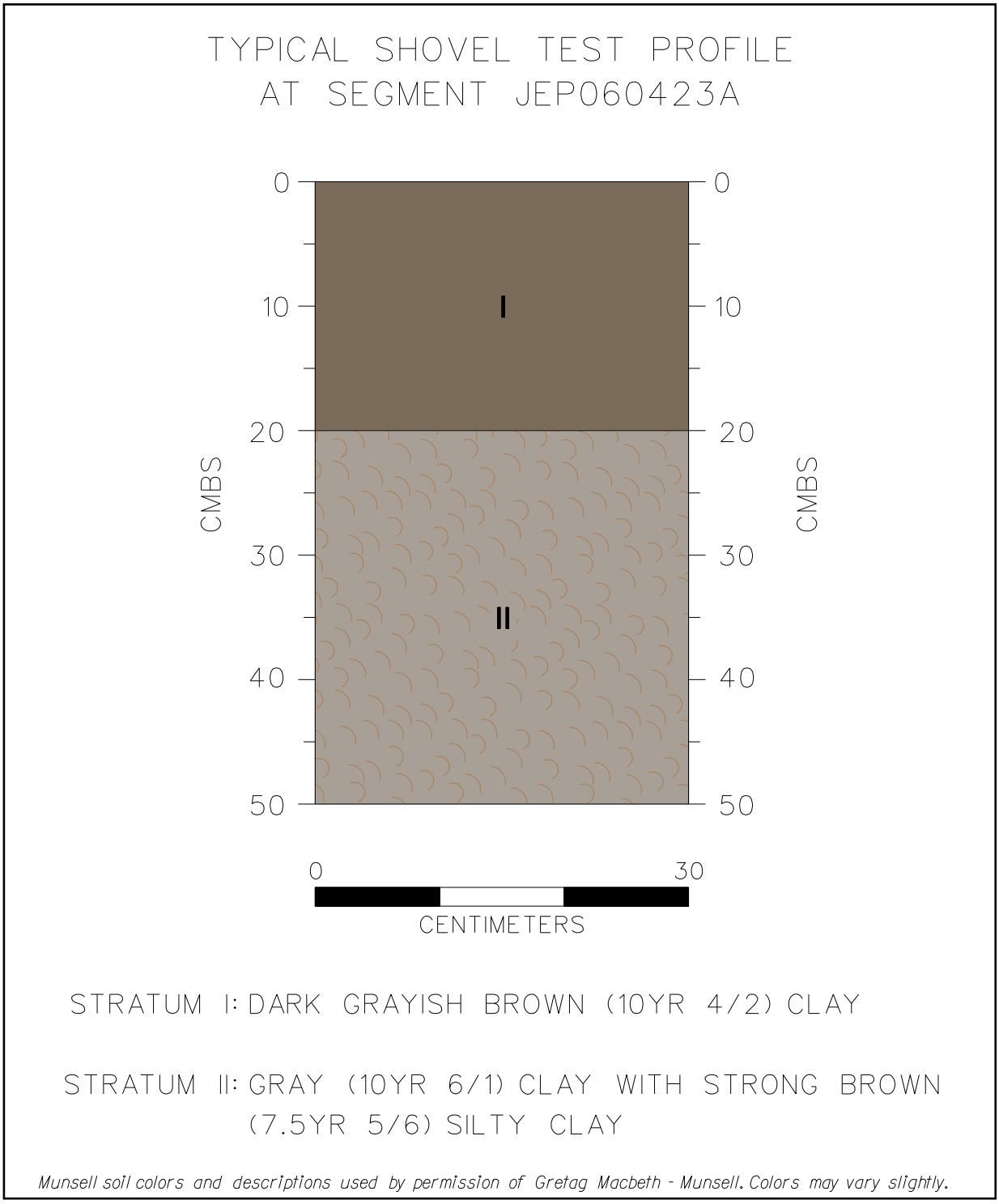

Figure 6.71 Profile of a typical shovel test excavated within Segment JEP060423A.

Figure 6.72 Overview photo of Workspace XWS LAC021723B, facing southwest. Photo taken on February 17, 2023.

was excavated to a depth of 30 cmbs (11.8 inbs) and exhibited a single stratum in profile (Figure 6.73). Stratum I was a deposit of gray (10YR 5/1) clay that extended from the surface to a depth of 30 cmbs (11.8 inbs). At 30 cmbs (11.8 inbs) was an impenetrable layer of compact soil with gravel that required the excavation to be discontinued. This same compact layer was encountered within all of the shovel tests excavated within the workspace, which presumably represented a fill that was associated with the construction of LA-22. No artifacts were recovered from any of the shovel tests, and no evidence for undisturbed cultural deposits or features was identified anywhere within Workspace XWS LAC021723B; therefore, no additional work is recommended.

M.P. 13.41 to 13.92

Between M.P. 13.41 and 13.92, the pipeline will be installed by HDD in order to cross LA 22 and avoid waterbodies situated within the ROW (Figure 6.1 [Sheets 24, 25]; Table 6.1). The HDD will extend from a ca. 0.8 ha (2.0 ac) HDD workspace on the south side of the highway (XWS LAC021723B, described above) and extend north for a distance of approximately 853 m (2798.5 ft) to a ca. 0.39 ha (0.96 ac) HDD workspace at the south end of Segment JEP071923A, described above. Access between the two HDD workspaces will utilize public roads and Access Road AR-01, and no construction activities with the exception of the horizontal drilling will occur within the Project corridor. Therefore, given that no ground disturbance will occur within that portion of the proposed Project corridor between M.P. 13.41 and 13.92, no investigation for the presence of cultural resources was completed and additional work is recommended.

Segment JEP071923A (M.P. 13.92 to 14.16)

Segment JEP071923A was a ca. 386 m (1,266.4 ft) long segment of 50 m (164 ft) wide proposed pipeline ROW that originated within a 0.39 ha (0.96 ac) HDD workspace at M.P. 13.92 and extended north-northwest to its endpoint near M.P. 14.16 (Figures 6.1 [Sheet 25], 6.74; Table 6.1). This segment was situated within an existing transmission corridor that ran parallel to a railroad line approximately 60 m (196.8 ft) to the west, and it traversed several fallow agricultural fields that were separated by narrow stands of secondary growth hardwoods. Vegetation

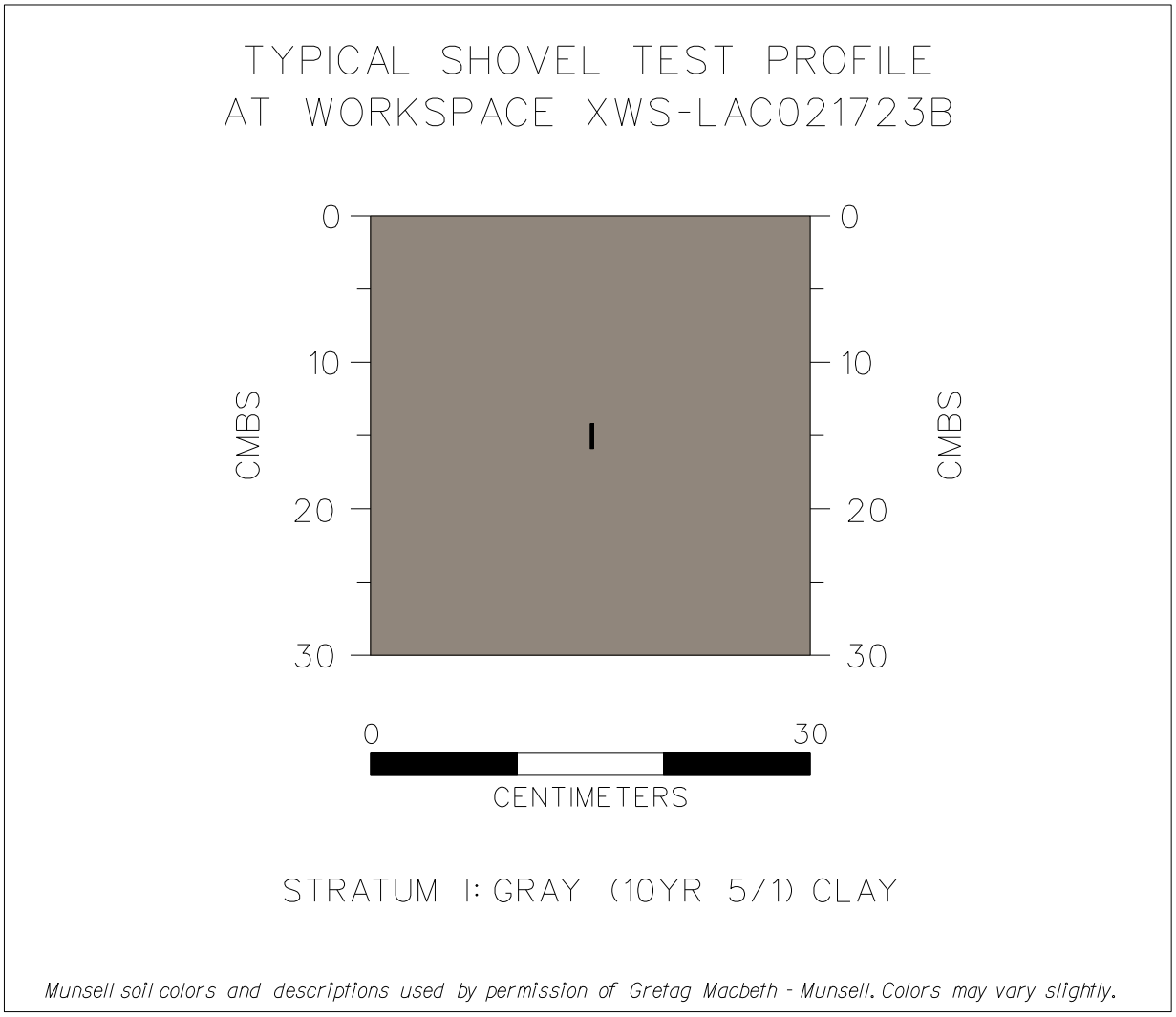

Figure 6.73 Profile of a typical shovel test excavated within Workspace XWS LAC021723B.

Figure 6.74 Overview photo of Segment JEP071923A, facing northeast. Photo taken on July 19, 2023.

within the fallow fields and between the hardwood stands consisted of low grasses and weeds. The segment also crossed an existing pipeline ROW near M.P. 14.1. Topography was described as nearly level through the area. Soils recorded in the vicinity of the ROW consisted of Schriever clay, 0 to 1 percent slopes, rarely flooded (Sn) (Figure 2.1, Table 2.1).

Due to its positioning above the 10 ft contour line as depicted on USGS quadrangle maps (Figure 2.1) and its proximity to Site 16AN34 (Riverton Plantation) located just west of the railroad line, Segment JEP071923A was judged to have a high probability for containing cultural resources. The segment was investigated by pedestrian survey supplemented with shovel testing at 30 m (98.4 ft) intervals along two transects spaced 30 m (98.4 ft) apart, with additional shovel tests placed judgmentally within the workspace at the southern end of the segment in order to provide complete survey coverage. A total of 31 shovel tests were excavated within this location. A typical shovel test was extended to a depth of 50 cmbs (19.7 inbs) and exhibited one stratum in profile (Figure 6.75). Stratum I (0 to 50 cmbs [0 to 19.7 inbs]) was described as a deposit of dark gray (10YR 4/1) clay. No artifacts were recovered from any of the shovel tests, and no evidence for undisturbed cultural deposits or features was identified anywhere within Segment JEP071923A. No additional work is recommended.

Segment JEP080123A (M.P. 14.16 to 14.57)

Segment JEP080123A was a ca. 547 m (1,794.6 ft) long segment of 50 m (164 ft) wide proposed pipeline ROW that originated at the north end of Segment JEP071923A near M.P. 14.16 and extended northwest to a ca. 0.56 ha (1.39 ac) HDD workspace within the ROW between M.P. 14.52 and 14.57 (Figures 6.1 [Sheets 25, 26], 6.76; Table 6.1). This segment was situated along and adjacent to an existing transmission corridor that ran parallel to a railroad line approximately 60 m (196.8 ft) to the west. The segment also crossed a ditch that ran perpendicular to the proposed pipeline near M.P. 14.25. Vegetation within the portion of the segment inside the transmission corridor consisted of low grasses and weeds, while east of the transmission corridor the segment ran through a secondary growth hardwood forest. Topography was described as nearly level through the segment. Soils recorded

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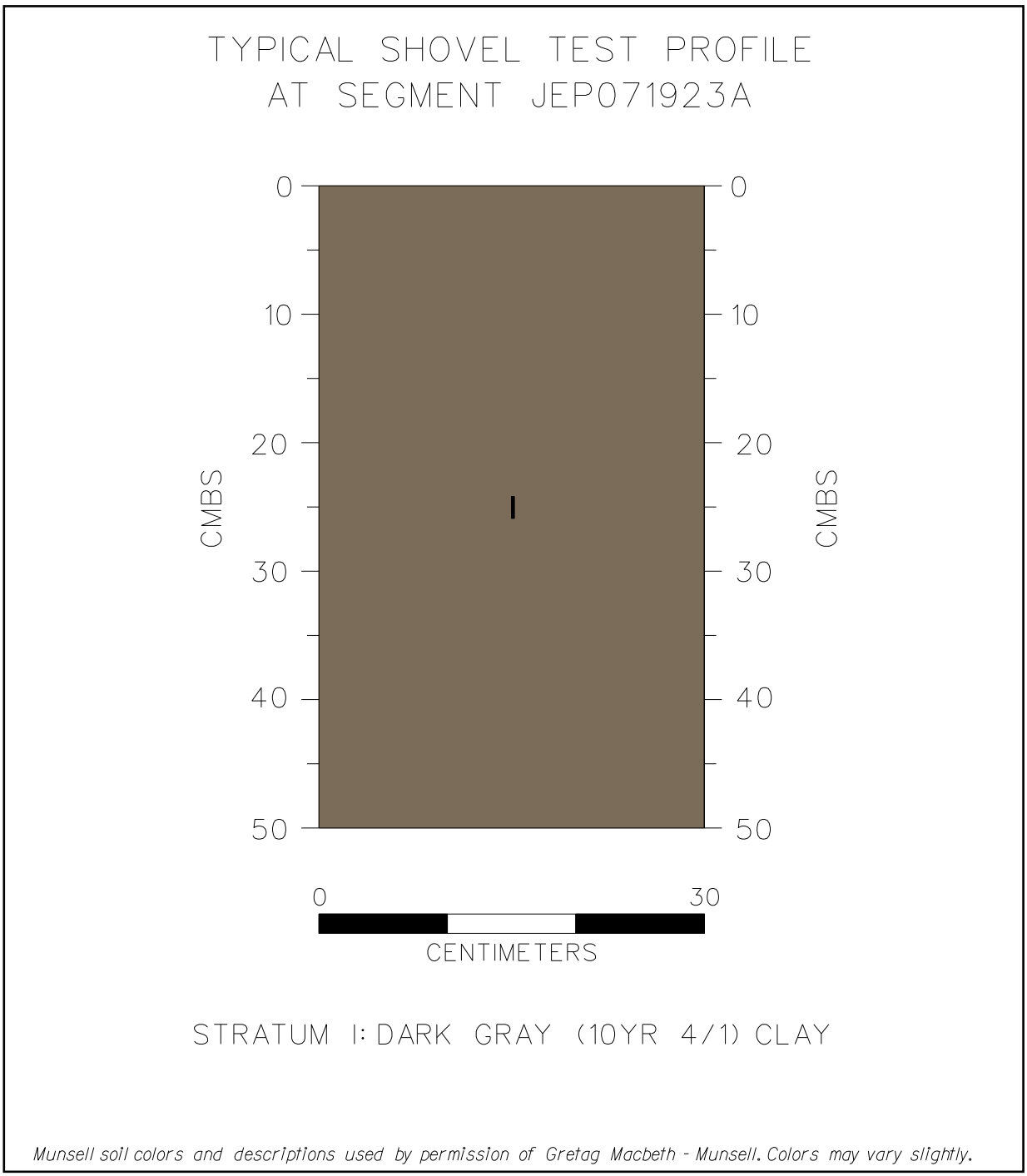

Figure 6.75 Profile of a typical shovel test excavated within Segment JEP071923A.

Figure 6.76 Overview photo of Segment JEP080123A, facing northwest. Photo taken on August 1, 2023.

in the vicinity of the ROW consisted of Schriever clay, 0 to 1 percent slopes, rarely flooded (Sn) (Figure 2.1, Table 2.1).

Although situated near the 10 ft contour line, Segment JEP080123A was reclassified in the field as having a low probability for containing cultural resources due to saturated soils. Fieldwork consisted of pedestrian survey supplemented with shovel testing at 50 m (164 ft) intervals along a single transect. A total of 14 shovel tests were excavated within this segment, with 3 planned shovel tests within the HDD workspace not excavated due to standing water. A typical shovel test was extended to a depth of 50 cmbs (19.7 inbs) and exhibited one stratum in profile (Figure 6.77). Stratum I (0 to 50 cmbs [0 to 19.7 inbs]) was described as a deposit of gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) iron staining. No artifacts were recovered from any of the shovel tests, and no evidence for undisturbed cultural deposits or features was identified anywhere within Segment JEP080123A. No additional work is recommended.

Segment JEP082323A (M.P. 14.27 to 14.65)

Between M.P. 14.54 and 14.71 the pipeline will be installed by horizontal drilling in order to cross Bayou Conway, a natural drainage located near M.P. 14.65. This portion of the proposed pipeline ROW between M.P. 14.27 and 14.65 nevertheless was surveyed prior to the need for drilling was determined. Segment JEP082323A originated at the north end of Segment JEP080123A near M.P. 14,27 and extended north-northwest for about 129 m (423.2 ft) to the south bank of the bayou near M.P. 4.65 (Figures 6.1 [Sheet 26], 6.78; Table 6.1). This segment was situated along and adjacent to an existing transmission corridor that ran parallel to a railroad line approximately 60 m (196.8 ft) to the west. Vegetation within the portion of the segment inside the transmission corridor consisted of low grasses and weeds, while east of the transmission corridor the segment ran through a secondary growth hardwood forest with wetland vegetation. Topography was described as nearly level through the segment. Soils recorded in the vicinity of the ROW consisted of Schrie-

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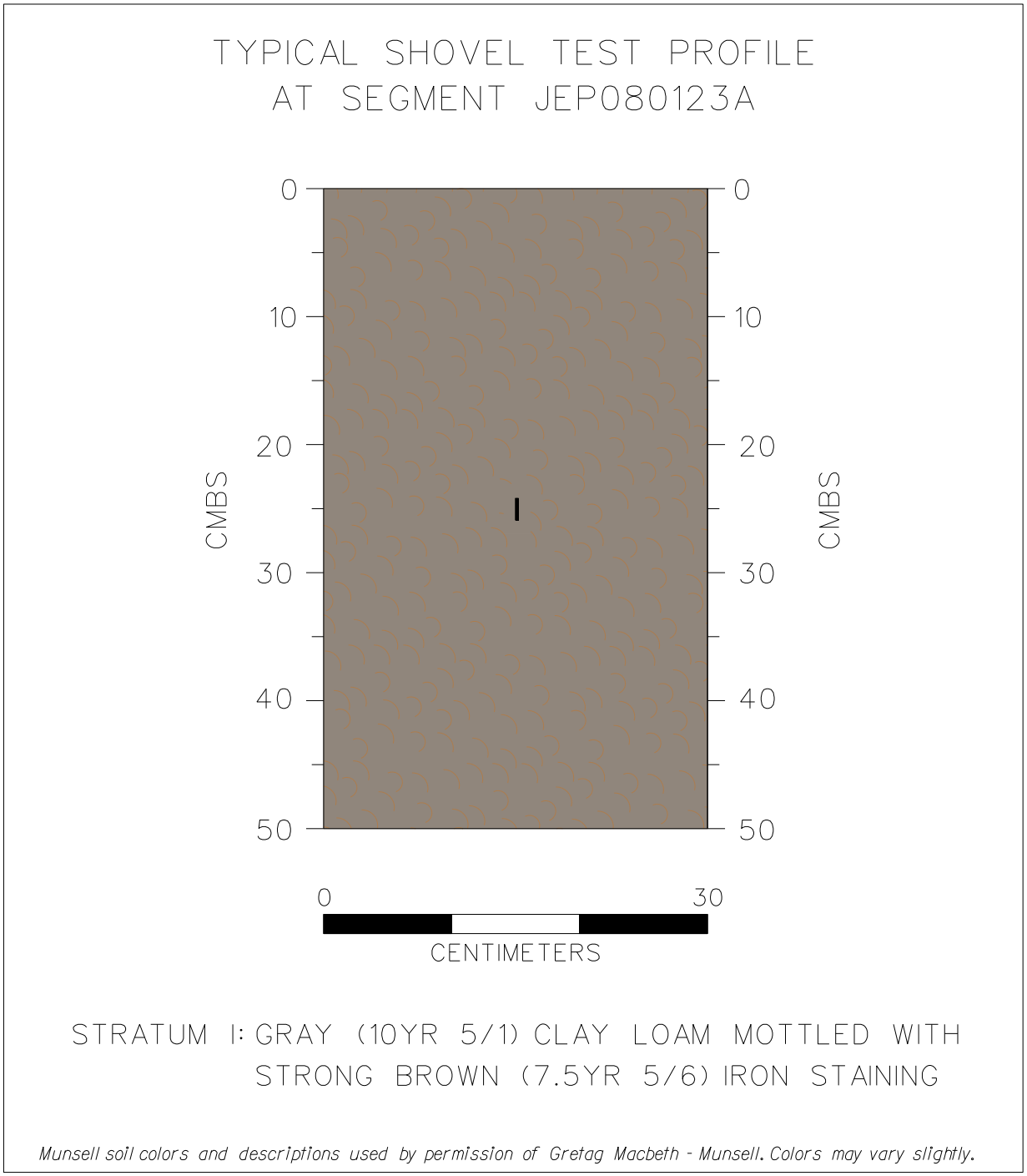

Figure 6.77 Profile of a typical shovel test excavated within Segment JEP080123A.

Figure 6.78 Overview photo of Segment JEP082323A, facing northwest. Photo taken on August 23, 2023.

ver clay, 0 to 1 percent slopes, rarely flooded (Sn) (Figure 2.1, Table 2.1).

Because Segment JEP082323A was situated below the 10 ft contour line and in an area characterized by wetland vegetation and saturated soils, it was judged to have a low probability for containing cultural resources. Fieldwork consisted of pedestrian survey supplemented with shovel testing at 50 m (164 ft) intervals along a single transect. A total of 3 shovel tests were excavated within this segment, with 1 planned shovel test not excavated due to a buried utility. A typical shovel test was extended to a depth of 50 cmbs (19.7 inbs) and exhibited one stratum in profile (Figure 6.79). Stratum I (0 to 50 cmbs [0 to 19.7 inbs]) was described as a deposit of gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) iron staining. No artifacts were recovered from any of the shovel tests, and no evidence for undisturbed cultural deposits or features was identified anywhere within Segment JEP082323A. No additional work is recommended.

Segment JEP082423A (M.P. 14.65 to 14.79)

Segment JEP082423A was a ca. 161 m (528.2 ft) long segment of 50 m (164 ft) wide project ROW that originated at the north bank of Bayou Conway near M.P. 14.65 and extended north-northwest to its endpoint near M.P. 14.79 (Figures 6.1 [Sheet 26], 6.80; Table 6.1). From M.P. 14.65 to 14.71 the pipeline will be installed by HDD although a narrow access corridor to the bayou may be required during construction. Also, from M.P. 14.71 to 14.77 was a 0.55 ha (1.36 ac) expanded workspace as an exit point for the HDD. This segment was situated along and adjacent to an existing transmission corridor that ran parallel to a railroad line approximately 60 m (196.8 ft) to the west. Vegetation within the portion of the segment inside the transmission corridor consisted of low grasses and weeds, while east of the transmission corridor the segment ran through a secondary growth hardwood forest with wetland vegetation. Topography was described as nearly level through the segment. Soils recorded in the vicinity of the ROW consisted of Schriever clay, 0 to 1 percent slopes, rarely flooded (Sn) (Figure 2.1, Table 2.1).

Due to its proximity to Bayou Conway and in the absence of saturated soils, Segment JEP082423A was judged to have a high probability for containing cultural resources. The seg-

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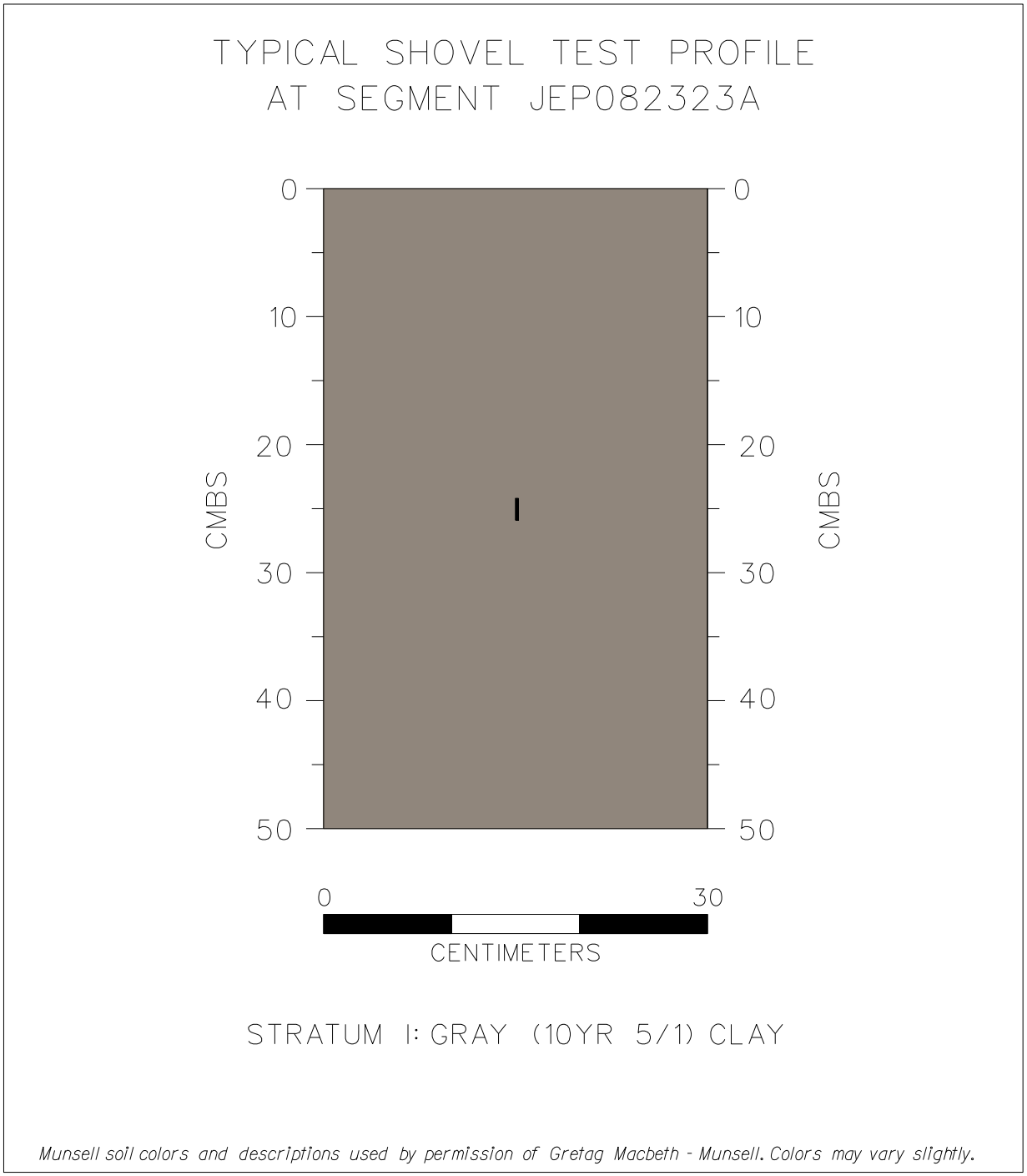

Figure 6.79 Profile of a typical shovel test excavated within Segment JEP082323A.

Figure 6.80 Overview photo of Segment JEP082423A, facing northwest. Photo taken on August 24, 2023.

ment was investigated by pedestrian survey supplemented with shovel testing at 30 m (98.4 ft) intervals along two transects spaced 30 m (98.4 ft) apart, with additional shovel tests placed judgmentally within the workspace to provide complete survey coverage. A total of 13 shovel tests were excavated within this location with 8 planned shovel tests not excavated due to the presence of utilities. A typical shovel test was extended to a depth of 50 cmbs (19.7 inbs) and exhibited two strata in profile (Figure 6.81). Stratum I (0 to 30 cmbs [0 to 11.8 inbs]) was described as a deposit of dark grayish brown (10YR 4/2) clay. Below Stratum I was Stratum II (30 to 50 cmbs [11.8 to 19.7 inbs]), a layer of gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) clay. No artifacts were recovered from any of the shovel tests, and no evidence for undisturbed cultural deposits or features was identified anywhere within Segment JEP082423A. No additional work is recommended.

Segment JEP082423B (M.P. 14.79 to 15.81)

Segment JEP082423B was a ca. 1,642 m (5,387.1 ft) long segment of 50 m (164 ft) wide project ROW that originated at the north end of Segment JEP082423A near M.P. 14.79 and extended north-northwest to its endpoint near M.P. 15.81 (Figures 6.1 [Sheets 26, 27], 6.82; Table 6.1). This segment was situated along and adjacent to an existing transmission corridor that ran parallel to a railroad line approximately 60 m (196.8 ft) to the west. Vegetation within the portion of the segment inside the transmission corridor consisted of low grasses and weeds, while east of the transmission corridor the segment ran through a secondary growth hardwood forest with wetland vegetation. Topography was described as nearly level through the segment. Soils recorded in the vicinity of the ROW consisted of Essen silt loam (ES), and Schriever clay, 0 to 1 percent slopes, rarely flooded (Sn) (Figure 2.1, Table 2.1).

Due to its position below the 10 ft contour line on USGS quadrangle maps (Figure 1.2), Segment JEP082423B was judged to have a low probability for containing cultural resources. The segment was investigated by pedestrian survey supplemented with shovel testing at 50 m (164 ft) intervals along a single transect. A total of 33 shovel tests were excavated within this segment. A typical shovel test was extended to a depth of 50 cmbs (19.7 inbs) and exhibited two strata in pro-

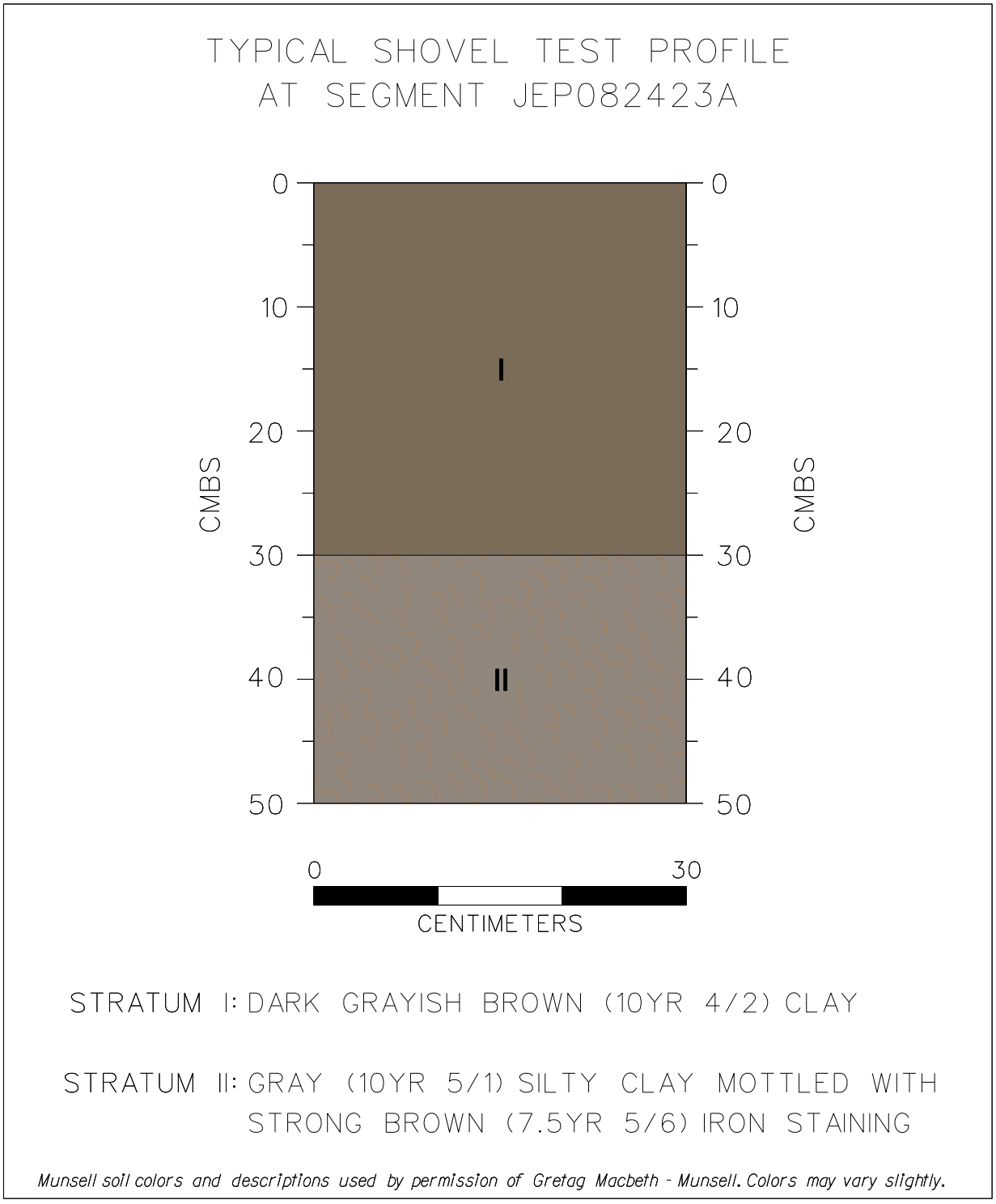

Figure 6.81 Profile of a typical shovel test excavated within Segment JEP082423A.

Figure 6.82 Overview photo of Segment JEP082423B, facing northwest. Photo taken on August 24, 2023.

file (Figure 6.83). Stratum I (0 to 30 cmbs [0 to 11.8 inbs]) was described as a deposit of dark gray (10YR 4/1) clay. Below Stratum I was Stratum II (30 to 50 cmbs [11.8 to 19.7 inbs]), a layer of gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) clay. No artifacts were recovered from any of the shovel tests, and no evidence for undisturbed cultural deposits or features was identified anywhere within Segment JEP082423B. No additional work is recommended.

Segment JEP080823A (M.P. 15.81 to 16.10)

Segment JEP080823A was a ca. 467 m (1,532.2 ft) long segment of 50 m (164 ft) wide project ROW that originated at the north end of Segment JEP082423B near M.P. 15.81 and extended north-northwest to its endpoint near Access Road AR-14 and M.P. 16.10 (Figures 6.1 [Sheets 27, 28], 6.84; Table 6.1). This segment was situated along and adjacent to an existing transmission corridor that ran parallel to a railroad line approximately 60 m (196.8 ft) to the west, and it crossed an existing pipeline corridor near M.P. 15.95. Vegetation within the portion of the segment inside the transmission corridor consisted of low grasses and weeds, while east of the transmission corridor the segment ran through a secondary growth hardwood forest with wetland vegetation. Topography was described as nearly level through the segment. Soils recorded in the vicinity of the ROW consisted of Essen silt loam (ES), and Schriever clay, 0 to 1 percent slopes, rarely flooded (Sn) (Figure 2.1, Table 2.1).

Due to its position below the 10 ft contour line on USGS quadrangle maps (Figure 1.2), Segment JEP080823A was judged to have a low probability for containing cultural resources. The segment was investigated by pedestrian survey supplemented with shovel testing at 50 m (164 ft) intervals along a single transect. A total of 11 shovel tests were excavated within this segment, with one planned shovel test not excavated due to its proximity to the aforementioned pipeline corridor. A typical shovel test was extended to a depth of 50 cmbs (19.7 inbs) and exhibited two strata in profile (Figure 6.85). Stratum I (0 to 40 cmbs [0 to 15.7 inbs]) was described as a deposit of dark grayish brown (10YR 4/2) silty clay. Below Stratum I was Stratum II (40 to 50 cmbs [15.7 to 19.7 inbs]), a layer of very pale brown (10YR 7/3) silty clay. No artifacts were recovered from any of the shovel tests, and no evidence for undisturbed

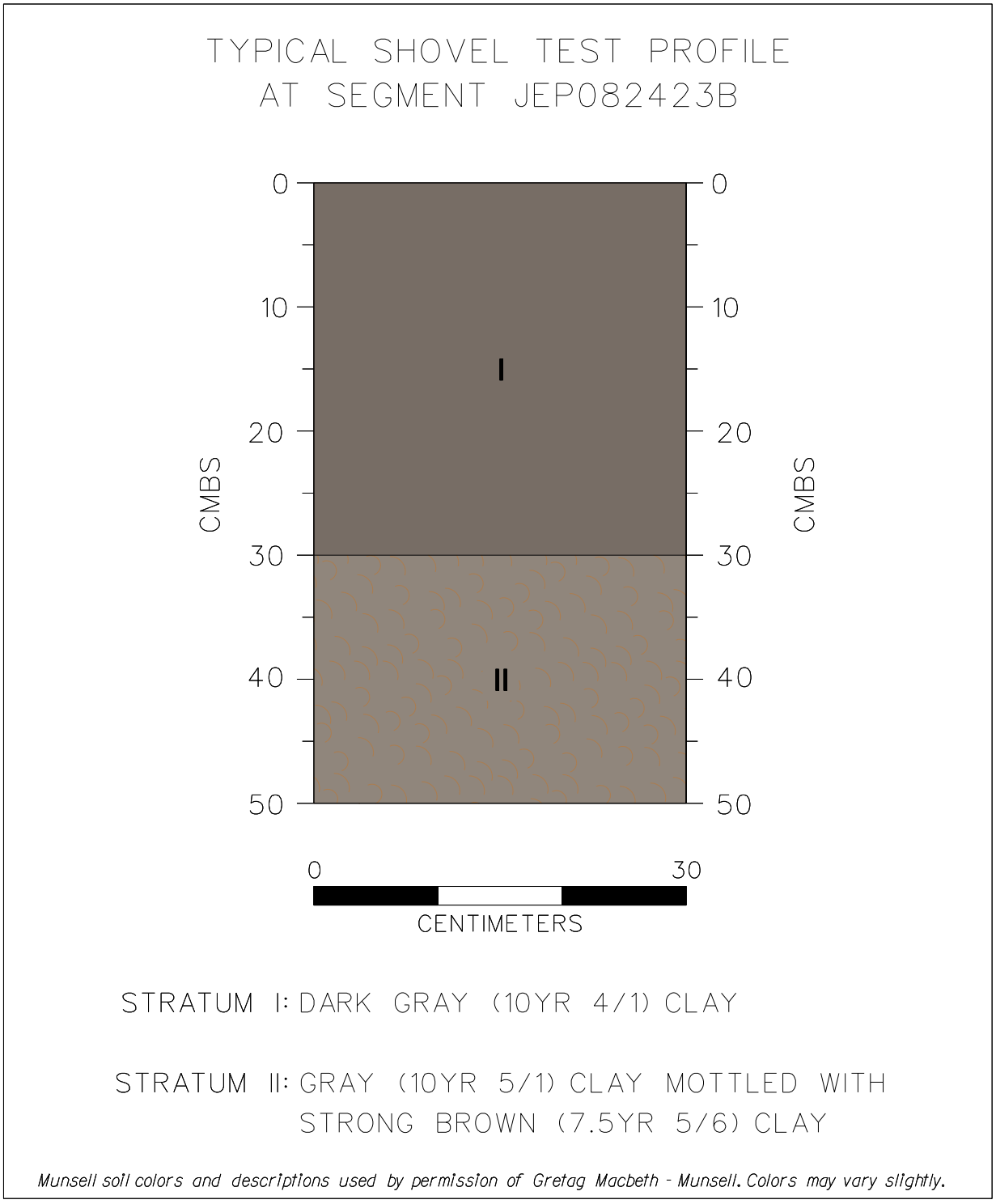

Figure 6.83 **Profile of a typical shovel test excavated within Segment JEP082423B.**

Figure 6.84 Overview photo of Segment JEP080823A, facing southeast. Photo taken on August 8, 2023.

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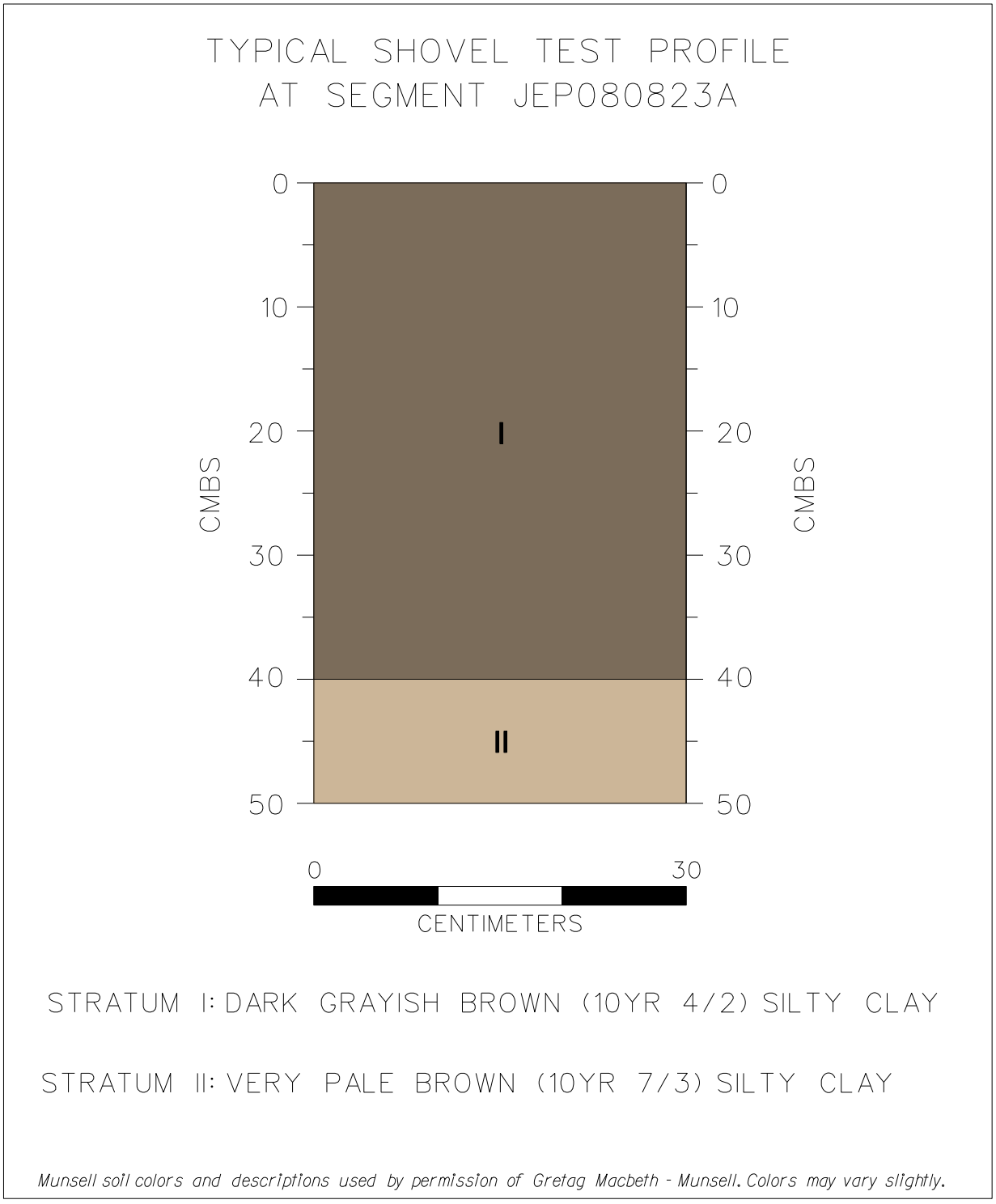

Figure 6.85 Profile of a typical shovel test excavated within Segment JEP080823A.

cultural deposits or features was identified anywhere within Segment JEP080823A. No additional work is recommended.

Segment JEP080323A (East Leg M.P. 16.10 to 16.28, West Leg, M.P. 0.0 to 0.07)

Segment JEP080323A was a segment of proposed pipeline ROW that originated at the north end of Segment JEP080823A near M.P. 15.81 and extended north-northwest for a distance of approximately 290 m (951.4 ft) (Figures 6.1 [Sheet 28], 6.86; Table 6.1). Near M.P. 6.20 the ROW split into two branches, designated herein as the East and West Legs. The East Leg continued to the north-northwest to the end of the segment at M.P. 6.28, while the West Leg was shifted in direction to the northwest and its mileposting was reset to M.P. 0.0 and within the West Leg the endpoint of Segment JEP080323A was near M.P. 0.07. Both portions of the segment fell within a stand of secondary growth hardwoods and intersected with existing gravel roads near M.P. 16.1 and 16.3. Topography was described as nearly level through the segment, while soils recorded in the vicinity of the ROW consisted of Essen silt loam (ES) (Figure 2.1, Table 2.1).

Segment JEP080323A was judged to have a low probability for containing cultural resources due to its position below the 10 ft contour line on USGS quadrangle maps (Figure 1.2). The segment was investigated by pedestrian survey supplemented with shovel testing at 50 m (164 ft) intervals along a single transect, with additional shovel tests placed judgmentally to provide complete survey coverage near the point where the pipeline was split. A total of 11 shovel tests were excavated within this segment, with 4 planned shovel test not excavated due to its proximity to the aforementioned gravel roads. A typical shovel test was extended to a depth of 50 cmbs (19.7 inbs) and exhibited one stratum in profile (Figure 6.87). Stratum I (0 to 50 cmbs [0 to 19.7 inbs]) was described as a deposit of grayish brown (10YR 5/2) silty clay. No artifacts were recovered from any of the shovel tests, and no evidence for undisturbed cultural deposits or features was identified anywhere within Segment JEP080323A. No additional work is recommended.

Figure 6.86 Overview photo of Segment JEP080323A, facing southwest. Photo taken on August 3, 2023.

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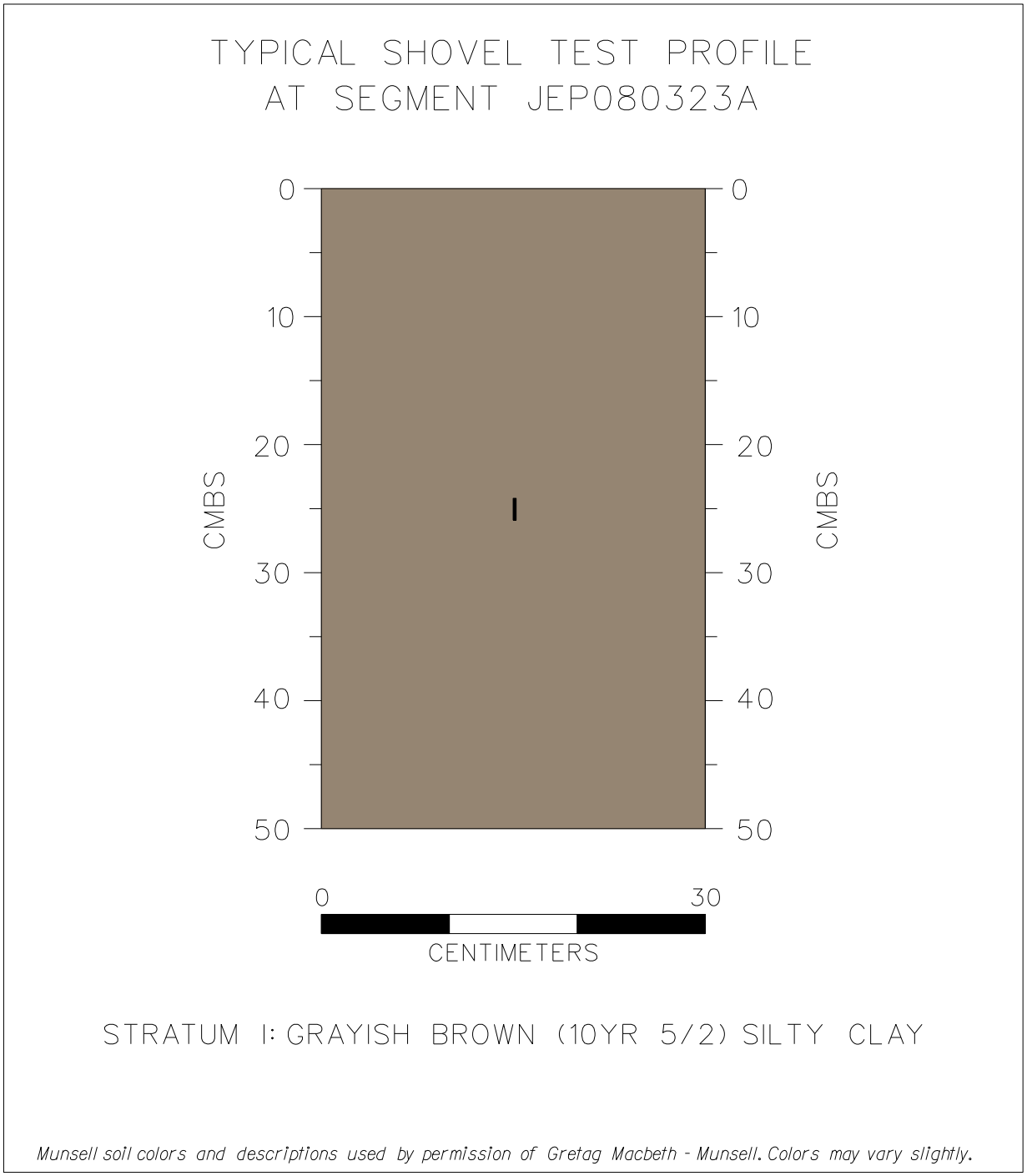

Figure 6.87 Profile of a typical shovel test excavated within Segment JEP080323A.

Segment JEP080223B (East Leg, M.P. 16.28 to 16.69)

Segment JEP080223B was a 418 m (1,371.4 ft) long segment of 50 m (164 ft) wide project ROW that originated at the north end of Segment JEP080323A near M.P. 16.28 and extended north-northwest to its ending point near M.P. 16.69 (Figures 6.1 [Sheet 28], 6.88; Table 6.1). This segment traversed through secondary growth hardwood forest for its entire length; furthermore, it intersected with an unnamed natural drainage near M.P. 16.40 where also a small extra workspace and associated access road (i.e., Access Road AR-02) entered the area from the west. Topography was described as nearly level through the segment, while soils recorded in the vicinity of the ROW were mapped as Schriever clay, 0 to 1 percent slopes, rarely flooded (Sn) (Figure 2.1, Table 2.1).

Segment JEP080223A was judged to have a high probability for containing cultural resources due to the presence of the aforementioned unnamed drainage. The segment was investigated by pedestrian survey supplemented with shovel testing at 30 m (98.4 ft) intervals along two transects spaced 30 m (98.4 ft) apart, with additional shovel tests placed judgmentally to provide complete survey coverage near the water crossing. A total of 32 shovel tests were excavated within this segment. A typical shovel test was extended to a depth of 50 cmbs (19.7 inbs) and exhibited one stratum in profile (Figure 6.89). Stratum I (0 to 50 cmbs [0 to 19.7 inbs]) was described as a deposit of grayish brown (10YR 5/2) clay. No artifacts were recovered from any of the shovel tests, and no evidence for undisturbed cultural deposits or features was identified anywhere within Segment JEP080223B. No additional work is recommended.

Segment JEP080223A (East Leg, M.P. 16.54 to 16.69)

Segment JEP080223A was a 241 m (790.7 ft) long segment of 50 m (164 ft) wide project ROW that originated at the north end of Segment JEP080223B near M.P. 16.54 and extended north-northwest to its ending point near M.P. 16.69 (Figures 6.1 [Sheet 28], 6.90; Table 6.1). Near the north end of this segment was a ca. 0.37 ha (0.91 ac) workspace for directional drilling beneath an existing pipeline corridor and a road. This segment traversed through secondary growth hardwood forest for its entire length. Topography was described as nearly level through the segment,

Figure 6.88 Overview photo of Segment JEP080223B, facing northeast. Photo taken on August 2, 2023.

EXHIBIT E

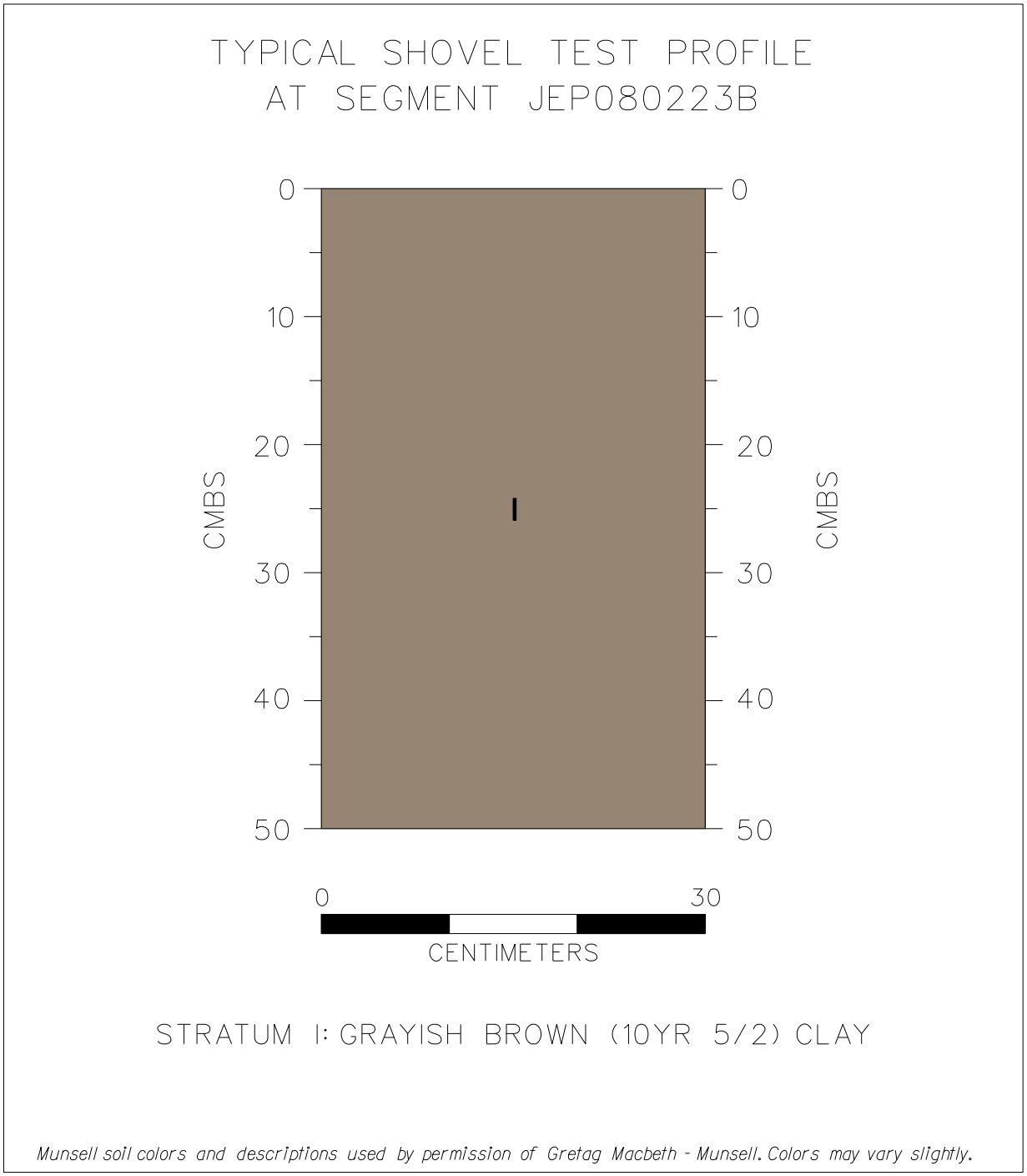

Figure 6.89 Profile of a typical shovel test excavated within Segment JEP080223B.

Figure 6.90 Overview photo of Segment JEP080223A, facing southeast. Photo taken on August 2, 2023.

while soils recorded in the vicinity of the ROW were mapped as Schriever clay, 0 to 1 percent slopes, rarely flooded (Sn) (Figure 2.1, Table 2.1).

Segment JEP080223B was judged to have a low probability for containing cultural resources due to its position below the 10 ft contour line on USGS quadrangle maps (Figure 1.2). The segment was investigated by pedestrian survey supplemented with shovel testing at 50 m (164 ft) intervals along a single transect. A total of 4 shovel tests were excavated within this segment. A typical shovel test was excavated to a depth of 50 cmbs (19.7 inbs) and exhibited one stratum in profile (Figure 6.91). Stratum I (0 to 50 cmbs [0 to 19.7 inbs]) was described as a deposit of grayish brown (10YR 5/2) clay. No artifacts were recovered from any of the shovel tests, and no evidence for undisturbed cultural deposits or features was identified anywhere within Segment JEP080223A. No additional work is recommended.

M.P. 16.69 to 16.86

Between M.P. 16.64 and 16.79, the pipeline will be installed by HDD in order to cross Smith Bayou Road, avoid various utilities and enter the OxyChem Geismar facility (Figure 6.1 [Sheet 28]; Table 6.1). The HDD will originate from the a ca. 0.37 ha (0.91 ac) HDD workspace at M.P. 16.64 (XWS JEP080223A, described above) at the north end of Segment JEP080223A, and extend north for approximately 245 m (804 ft) to another a ca. 0.5 ha (1.27 ac) HDD workspace near M.P. 16.79 within the existing facility. From there the pipeline will continue for another 530 m (1,738.8 ft) to the end of the proposed pipeline. Due to the use of HDD for a portion of this part of the ROW and the presence of the existing industrial facility beginning north of Smith Bayou Road, no survey subsurface testing was completed. A visual inspection of the area outside of the Oxychem facility identified no evidence for the presence of cultural resources, and no additional work between M.P. 16.64 and 16.86 is recommended.

West Leg

As described previously, at approximately M.P. 16.20, the proposed pipeline ROW was split into two branches with one portion continuing to the north-northeast to its termination point at M.P. 16.86 as described above, and the other portion extending from the split for a distance of ap-

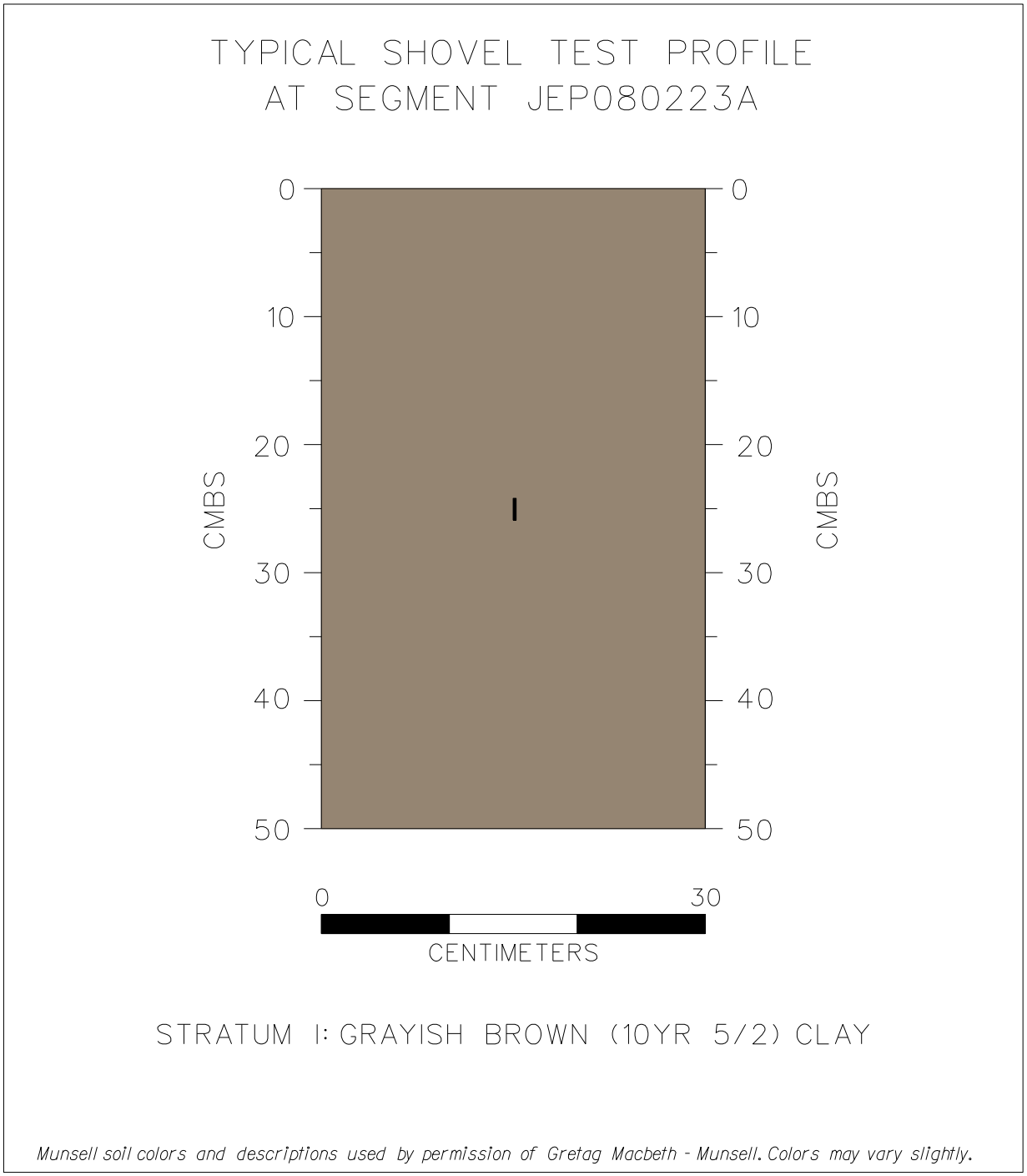

Figure 6.91 Profile of a typical shovel test excavated within Segment JEP080223A.

proximately 1.9 km (1.18 mi) to another termination point within the extant Oxychem Geismar facility (Figure 6.1 [Sheets 28, 29]; Table 6.1). Mileposting for this west leg of the pipeline corridor was restarted as M.P. 0.0 and continued to the north end of this line at M.P. 1.18. From M.P. 0.0 to 0.53 the pipeline will be installed within an open trench and that portion of the project ROW was investigated for cultural resources, as described below. For the remaining ca. 1046 m (3432 ft) of the west leg the pipeline will be installed by HDD that will originate within a ca. 0.36 ha (0.88 ac) workspace at the north end of Segment JEP080323B near M.P. 0.48 (described below), extend below Smith Bayou Road and continue northwest into the existing facility to its point of termination. Because the final 1,046 m (3,431.8 ft) of the west leg the pipeline will be installed by HDD and will terminate within the existing Oxychem facility, no investigation for the presence of cultural resources was completed between M.P. 0.53 and 1.18 and additional work is recommended.

Segment JEP080723A (West Leg, M.P. 0.07 to 0.36)

Segment JEP080723A was a ca. 467 m (1,532.2 ft) long segment of 50 m (164 ft) wide pipeline ROW that originated at the north end of Segment JEP080323A near M.P. 0.07 (West Leg) and extended west-northwest to its point of termination near M.P. 0.36 (Figures 6.1 [Sheet 28], 6.92; Table 6.1). This segment was situated along and adjacent to an existing transmission corridor that ran parallel to a railroad line approximately 60 m (196.8 ft) to the west, and it crossed proposed Access Road AR-02 and a remnant of an unnamed natural drainage near M.P. 0.21. Vegetation within the portion of the segment inside the transmission corridor consisted of low grasses and weeds, while east of the transmission corridor the segment ran through a secondary growth hardwood forest with wetland vegetation. Topography was described as nearly level through the segment. Soils recorded in the vicinity of the ROW consisted of Essen silt loam (ES), and Schriever clay, 0 to 1 percent slopes, rarely flooded (Sn) (Figure 2.1, Table 2.1).

Figure 6.92 Overview photo of Segment JEP080323A, facing northwest. Photo taken on August 8, 2023.

Segment JEP080723A was judged to have a high probability for containing cultural resources due to the presence of the aforementioned unnamed drainage. The segment was investigated by pedestrian survey supplemented with shovel testing at 30 m (98.4 ft) intervals along two transects spaced 30 m (98.4 ft) apart. A total of 34 shovel tests were excavated within this segment. A typical shovel test was extended to a depth of 50 cmbs (19.7 inbs) and exhibited one stratum in profile (Figure 6.93). Stratum I (0 to 50 cmbs [0 to 19.7 inbs]) was described as a deposit of dark grayish brown (10YR 4/2) clay. No artifacts were recovered from any of the shovel tests, and no evidence for undisturbed cultural deposits or features was identified anywhere within Segment JEP080723A; therefore, no additional work is recommended.

Segment JEP080323B (West Leg, M.P. 0.36 to 0.53)

Segment JEP080323B was a ca. 264 m (899 ft) long segment of 50 m (164 ft) wide pipeline ROW that originated at the north end of Segment JEP080723A near M.P. 0.36 (West Leg) and extended west-northwest to its point of termination near M.P. 0.53 (Figures 6.1 [Sheets 28, 29], 6.94; Table 6.1). This segment was situated along and adjacent to an existing transmission corridor that ran parallel to a railroad line approximately 60 m (196.8 ft) to the west, and a ca. 0.36 ha (0.88 ac) HDD workspace was situated near its north end. Vegetation within the portion of the segment inside the transmission corridor consisted of low grasses and weeds, while east of the transmission corridor the segment ran through a secondary growth hardwood forest with wetland vegetation. Topography was described as nearly level through the segment. Soils recorded in the vicinity of the ROW consisted of Schriever clay, 0 to 1 percent slopes, rarely flooded (Sn) (Figure 2.1, Table 2.1).

Segment JEP080323B was judged to have a low probability for containing cultural resources due to its position below the 10 ft contour line on USGS quadrangle maps (Figure 1.2). The segment was investigated by pedestrian survey supplemented with shovel testing at 50 m (164 ft) intervals along a single transect, with additional shovel tests placed judgmentally near the HDD workspace to provide complete coverage of the project area. A total of 11 shovel tests were excavated within this segment. A typical shovel test was excavated to a depth of 50 cmbs (19.7 inbs) and exhibited one stratum in profile (Figure 6.95). Stratum I (0 to 50 cmbs [0 to 19.7 inbs]) was described as a deposit of grayish brown (10YR 5/2) clay. No artifacts were recovered from any of the shovel tests, and no evidence for undisturbed cultural deposits or features was identified anywhere within Segment JEP080323B. No additional work is recommended.

Access Roads

In addition to the segments of proposed and formerly proposed pipeline ROW and associated workspaces described above, the construction of the OxyChem pipeline also will require the use of approximately 14.5 km (9 mi) of non-public access roads to transport personnel, supplies and equipment to the project corridor. Some of the proposed access roads either were paved or were well-established gravel roads that will not require any modification prior to their use; those roads were photodocumented and examined only briefly to confirm that they required no additional field investigation. Other proposed access roads that were less well established gravel or dirt roads were examined by pedestrian survey, and where possible were investigated by shovel testing. Typically the shovel testing occurred just off the shoulders of the road and with shovel tests placed on alternating sides of the road. No shovel testing occurred within roadside ditches or in locations that contained buried utilities. In addition to shovel testing, each road was examined for the presence of any potential historic built resources at least 50 years old that occurred within 50 m (164 ft) of the road. Eight proposed access roads occurred within St. James Parish, and the remaining 12 proposed roads occurred within Ascension Parish. These are described below in order of their occurrence starting from the southern end of the pipeline ROW.

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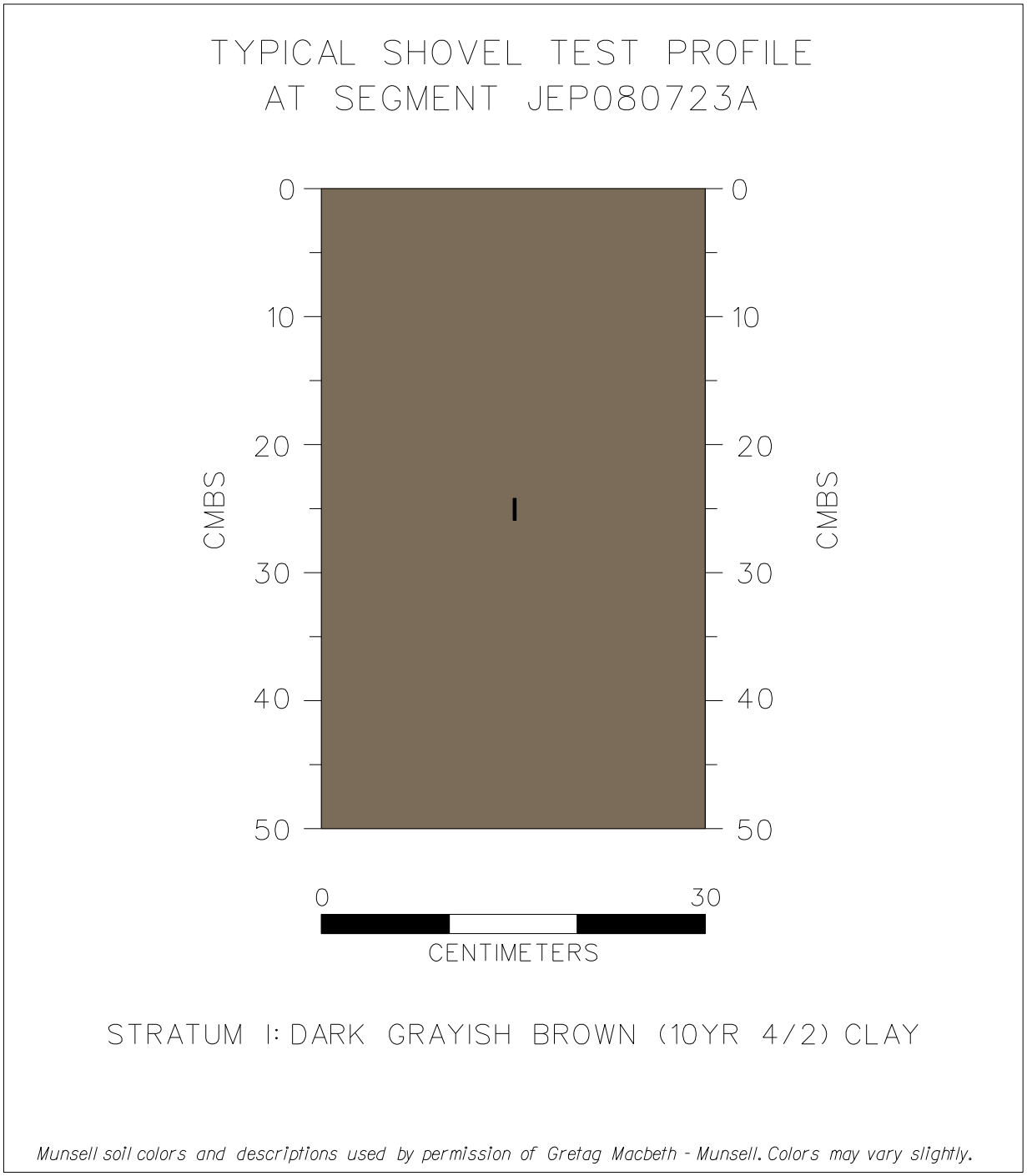

Figure 6.93 Profile of a typical shovel test excavated within Segment JEP080723A.

Figure 6.94 Overview photo of Segment JEP080323B, facing southeast. Photo taken on August 3, 2023.

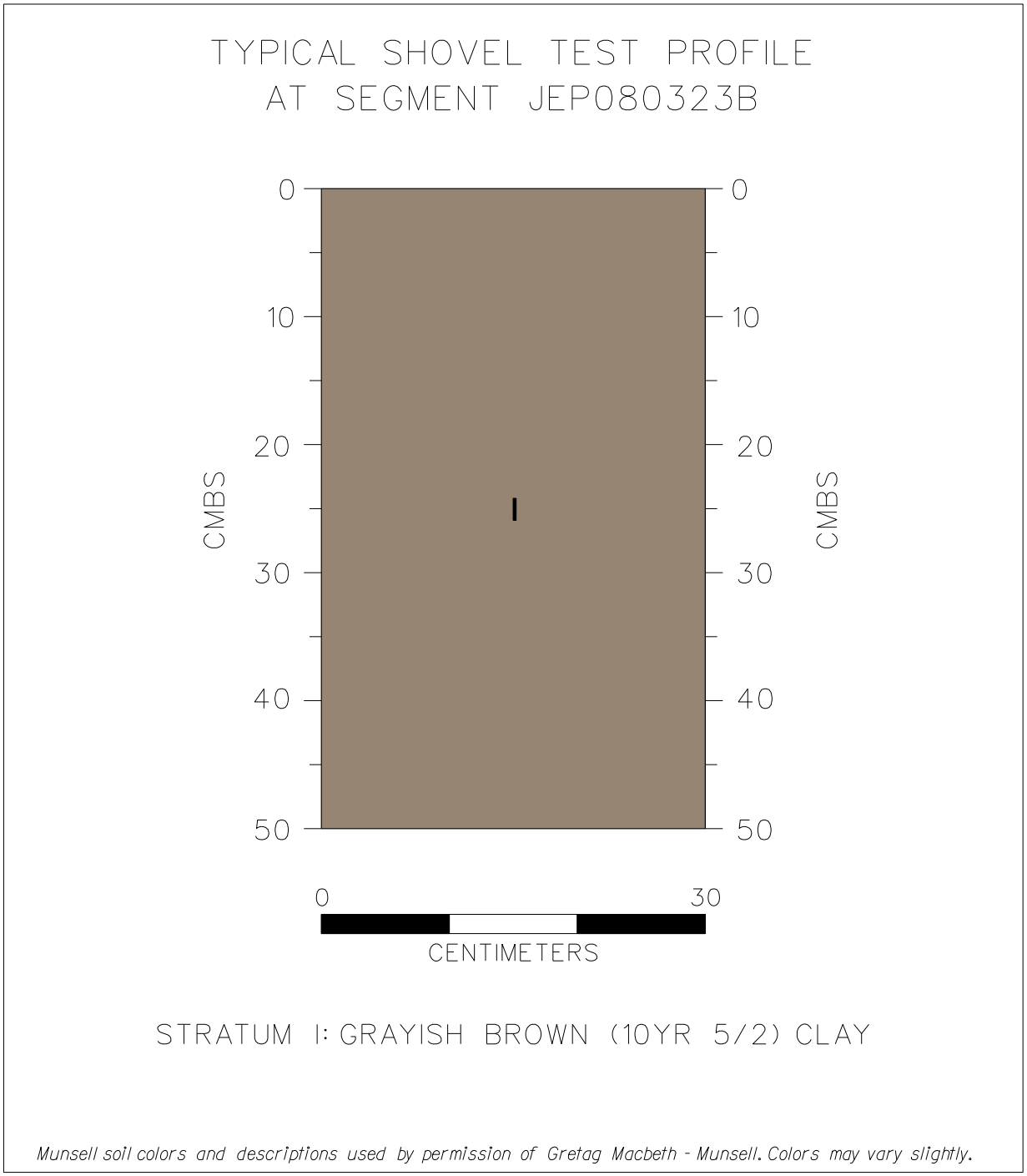

Figure 6.95 Profile of a typical shovel test excavated within Segment JEP080323B.

Unnamed Access Roads within the OxyChem Convent Facility

As described previously, the portion of the pipeline ROW and associated workspaces that fell between M.P. 0.0 and 0.88 fell entirely within an area that was investigated previously for cultural resources (Poche et al. 2016). Included within this area were two proposed access roads (Figure 6.1 [Sheets 1-3]; Table 6.1). The first was a ca. 300 m (984 ft) long existing gravel road that originated at LA 3214 and extended along the east side of the OxyChem facility to the beginning of the pipeline ROW at M.P. 0.0. The second was a ca. 2.2 km (1.4 mi) long existing gravel road (a.k.a. Warren Ashe Road) that also originated at LA 3214 and extended northwest about 525 m (1722 ft) to a split, with one branch that continued west-southwest for an additional 675 m (2215 ft) and entered the pipeline ROW near M.P. 0.18, and the other branch that continued northwest, southwest and northwest another 1 km (0.3 mi) and entered the pipeline ROW near M.P. 0.75. Aerial imagery showed that no potential historic built resources occurred within 50 m (164 ft) of either road. Because these project items were investigated previously and no cultural resources were identified, they were not investigated as part of the current fieldwork efforts, and no additional work is recommended.

Access Road AR-3 (Shady Grove Road)

Access Road AR-3 was a ca. 60 m (196.9 ft) long gravel road that originated at LA-3125 and extended northeast, entering the proposed pipeline ROW near M.P. 1.65 (Figures 6.1 [Sheet 4], 6.96; Table 6.1). The road ran parallel to a canal along its south side and to an existing utilities corridor along its north side. Due to the gravel roadbed and the presence of the canal and the utilities corridor to either side of the road, Access Road AR-3 was investigated by pedestrian survey only. No artifacts were observed, and no evidence for undisturbed cultural deposits or features was identified anywhere along Access Road AR-3. No additional work is recommended.

Access Roads 4, 5, and 6

Access Road AR 4 was a ca. 915 m (3,002 ft) long dirt and gravel farm road that originated at LA-3125 and extended southwest for approximately 780 m (2,559.1 ft) and then turned and continued southeast, entering the proposed pipe-

Figure 6.96 **Overview photo of Access Road AR-3, facing northeast. Photo taken on November 18, 2023.**

EXHIBIT E

line ROW near M.P. 1.65 (Figures 6.1 [Sheets 3, 4], 6.97; Table 6.1). A drainage ditch ran along the south side of this road for most of its length. Extending off of this road were two additional dirt farm roads. The first, designated as Access Road AR-5, extended southeast for a distance of 135 m (442.9 ft) from AR-4 and entered the proposed pipeline ROW near M.P. 1.35 (Figures 6.1, 6.98; Table 6.1), while the second, designated as Access Road AR-6, extended southeast for a distance of 115 m (377.3 ft) from AR-4 and entered the proposed pipeline ROW near M.P. 1.20 (Figures 6.1, 6.99; Table 6.1). Access Road AR-6 also ran parallel to a drainage ditch that was located on its northeast side. All three roads traversed active sugarcane fields that were planted in immature cane. Furthermore, portions of all three roads fell within an area that was investigated previously, and no cultural resources were identified as a result of that investigation (Poche et al. 2016). These were reinvestigated as part of the current fieldwork efforts out of due diligence, and in order to provide coverage of the southwest portion of Access Road AR-4 that was not investigated previously. Topography was nearly level throughout the area, while soils mapped in the vicinity consisted of Carville Silt Loam, 0 to 2 percent slopes (CvA), and Vacherie Silt Loam, 0 to 3 percent slopes (VhA) (Figure 2.1, Table 2.1).

Access Roads AR-4, AR-5 and AR-6 were judged to have a low probability for containing cultural resources due to their positioning below the 10 ft contour line on USGS topographic maps (Figure 1.2) and partially within an area that had been investigated previously and where no cultural resources were recorded as a result. Fieldwork consisted of pedestrian survey supplemented by the excavation of shovel tests at 50 m (164 ft) intervals along AR-5 and AR-6 and the uninvestigated portions of AR-4. A typical shovel test was excavated to a depth of 50 cmbs (19.7 inbs) and exhibited two strata in profile (Figure 6.100). Stratum I was described as a deposit of dark grayish brown (10YR 4/2) clay loam that extended from the surface to a depth of 10 cmbs (3.9 inbs). Below Stratum I was Stratum II, a deposit of gray (10YR 5/1) clay that continued from the base of Stratum I to a depth of 50 cmbs (19.7 inbs). No artifacts were recovered from any of the shovel tests, and no evidence for undisturbed cultural deposits or features was identified anywhere along Access Roads AR-4, AR-5 or

Figure 6.97 Overview photo of Access Road AR-4, facing southwest. Photo taken on November 18, 2023.

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Figure 6.98 Overview photo of Access Road AR-5, facing southeast. Photo taken on November 18, 2023.

Figure 6.99 Overview photo of Access Road AR-6, facing southeast. Photo taken on November 18, 2023.

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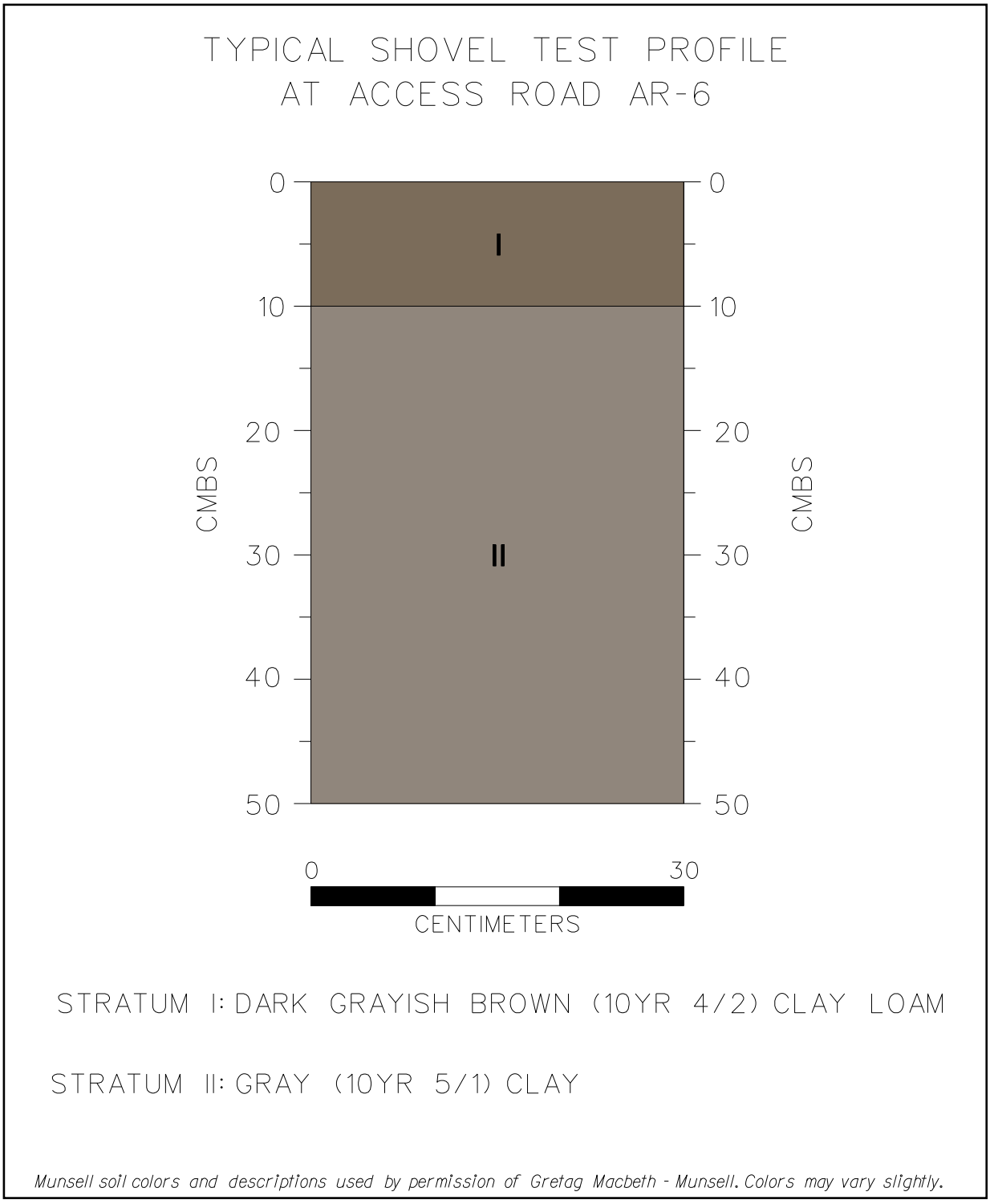

Figure 6.100 Profile of a typical shovel test excavated within Access Road AR-6.

AR-6; no additional work for these three access roads is recommended.

Access Roads AR-7 and AR-8

Two proposed access roads – AR 7 and AR 8/Bagatelle Road – both consisted of improved gravel roads that fell entirely within an area that was investigated previously for cultural resources by Jenkins et al. (2020) and Stanyard et al. (2022) (Figures 6.1 [Sheets 11, 12], 6.101, 6.102; Table 6.1). Access Road AR-7 measured approximately 443 m (1,453.4 ft) in length and intersected with the proposed pipeline ROW near M.P. 7.23, while Access Road AR-8 (Bagatelle Road) measured about 765 m (2,509.8 ft) in length and intersected with the proposed pipeline ROW near M.P. 7.64. Because both project items were investigated previously and no cultural resources were identified, no additional work is recommended.

Access Road AR-12

Access Road AR-12 was a ca. 2,850 m (9,350.4 ft) long proposed access road that originated at LA-44 and extended east-northeast to the proposed pipeline ROW near M.P. 8.72 (Figures 6.1 [Sheets 14-16], 6.103; Table 6.1). This mixed paved, gravel and dirt road traversed a portion of the previously reported Site 16AN31 (Monroe Plantation) and within an area that previously was investigated by Castille and McCloskey (2011) and Port et al. (2015). Vegetation along each side of the road consisted of immature sugarcane, with small stands of secondary growth hardwoods present near its west and east ends. Soils mapped in the vicinity of the road consisted of Commerce silt loam (Cm), Commerce silty clay loam (Co), Convent silt loam, 0 to 1 slopes (Cs), and Schriever clay (Sn) (Figure 2.1, Table 2.1).

Although the entire area traversed by Access Road AR-12 had been investigated previously and no cultural resources were reported within its limits, this project item was investigated out of due diligence. From the highway the first 400 m (1,312.3 ft) of the road was paved and required only a windshield survey. For the following ca. 1,250 m (4,101.1 ft) of its length the road was covered with gravel with a roadside ditch running along its north side, and it was investigated by pedestrian survey only. Between 1,650 and 2,250 m (5,413.4 and 7,381.9 ft) the road consisted of a dirt farm road bordered by a ditch on the north side, and it was surveyed by pedestrian

Figure 6.101 Overview photo of Access Road AR-8, facing west. Photo taken on November 19, 2023.

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Figure 6.102 Overview photo of Access Road AR-9, facing west. Photo taken on November 19, 2023.

Figure 6.103 Overview photo of Access Road AR-12, facing northeast. Photo taken on November 28, 2023.

survey supplemented by shovel testing at 50 m (164 ft) intervals along a single transect that extended along the south edge of the road. For the final ca. 600 m (1,968.5 ft) of its length AR-12 again was a well-established gravel road and it was investigated by pedestrian survey only.

A total of 13 shovel tests were excavated within Access Road AR-12. A typical shovel test was excavated to a depth of 50 cmbs (19.7 inbs) and exhibited two strata in profile (Figure 6.104). Stratum I (0 to 20 cmbs [0 to 7.9 inbs]) was described as a dark grayish brown (10YR 4/2) clay. Below Stratum I was Stratum II (20 to 50 cmbs [7.9 to 19.7 inbs]), a grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 5/8) iron staining. No artifacts were recovered from any of the shovel tests and no evidence for undisturbed cultural deposits or features was identified at any location along this proposed access road; no additional work within Access Road AR-12 is recommended.

Access Road AR-9

Access Road AR-9 was a ca. 1,575 m (5,167.3 ft) long proposed access road that originated at LA-70, and extended west-southwest to the proposed pipeline ROW near M.P. 9.12 (Figures 6.1 [Sheets 17, 18], 6.105; Table 6.1). A 300 m (984.3 ft) long portion of the road that continued west-southwest beyond the proposed pipeline ROW also was investigated for cultural resources but will not be used during construction. This mixed gravel and dirt road traversed the boundary between the previously reported Sites 16AN31 (Monroe Plantation) and 16AN32 (Bruslie Plantation), and fell within an area that previously was investigated by Castille and McCloskey (2011) and Port et al. (2015). Furthermore, approximately 130 m (426.5 ft) north of the road lay the Bruslie Cemetery, the boundaries of which have been well documented and lay well outside the limits of the road. The road fell mostly within active farmland with some forested area south of the road near the highway. Vegetation north of the road consisted of a mix of immature sugarcane and secondary regrowth of cane within fallow fields, while south of the road was a roadside ditch with wetland vegetation and a narrow band of secondary growth hardwoods that formed a boundary with additional cane fields to the south. Soils mapped in the vicinity of the road consisted of Schriever clay (Sn) (Figure 2.1, Table 2.1).

Although the entire area traversed by Access Road AR-9 had been investigated previously and no cultural resources were reported within its limits, this project item was investigated out of due diligence due to its positioning on the border between two known sites. From the highway the first 1,150 m (7,773 ft) of the road was covered with gravel with a roadside ditch running along its south side, and it was investigated by pedestrian survey only, while the remaining ca. 975 m (3,198.8 ft) of the road (including the final 300 m [984.3 ft] of the road that will not be used) consisted of a dirt farm road also bordered by a ditch on the south side, and it was surveyed by pedestrian survey supplemented by shovel testing at 50 m (164 ft) intervals along a single transect that extended along the north edge of the road. A total of 15 shovel tests were excavated within Access Road AR-9, with 1 planned shovel test not excavated due to the presence of a buried pipeline. A typical shovel test was excavated to a depth of 50 cmbs (19.7 inbs) and exhibited a single stratum in profile (Figure 6.106). Stratum I (0 to 50 cmbs [0 to 19.7 inbs]) was described as a gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) iron staining. No artifacts were recovered from any of the shovel tests and no evidence for undisturbed cultural deposits or features was identified at any location along this proposed access road; no additional work within Access Road AR-9 is recommended.

Access Road AR-18 (Old Highway 22)

Access Road AR-18 was a ca. 565 m (1,853.7 ft) long asphalt and gravel road that originated at LA-22 and extended southwest, intersecting with the proposed pipeline ROW near M.P. 9.96 (Figures 6.1 [Sheet 19], 6.107; Table 6.1). Due to the asphalt and gravel roadbed Access Road AR-18 was investigated by pedestrian survey only. No artifacts were observed, and no evidence for undisturbed cultural deposits or features was identified anywhere along Access Road AR-18. No additional work is recommended.

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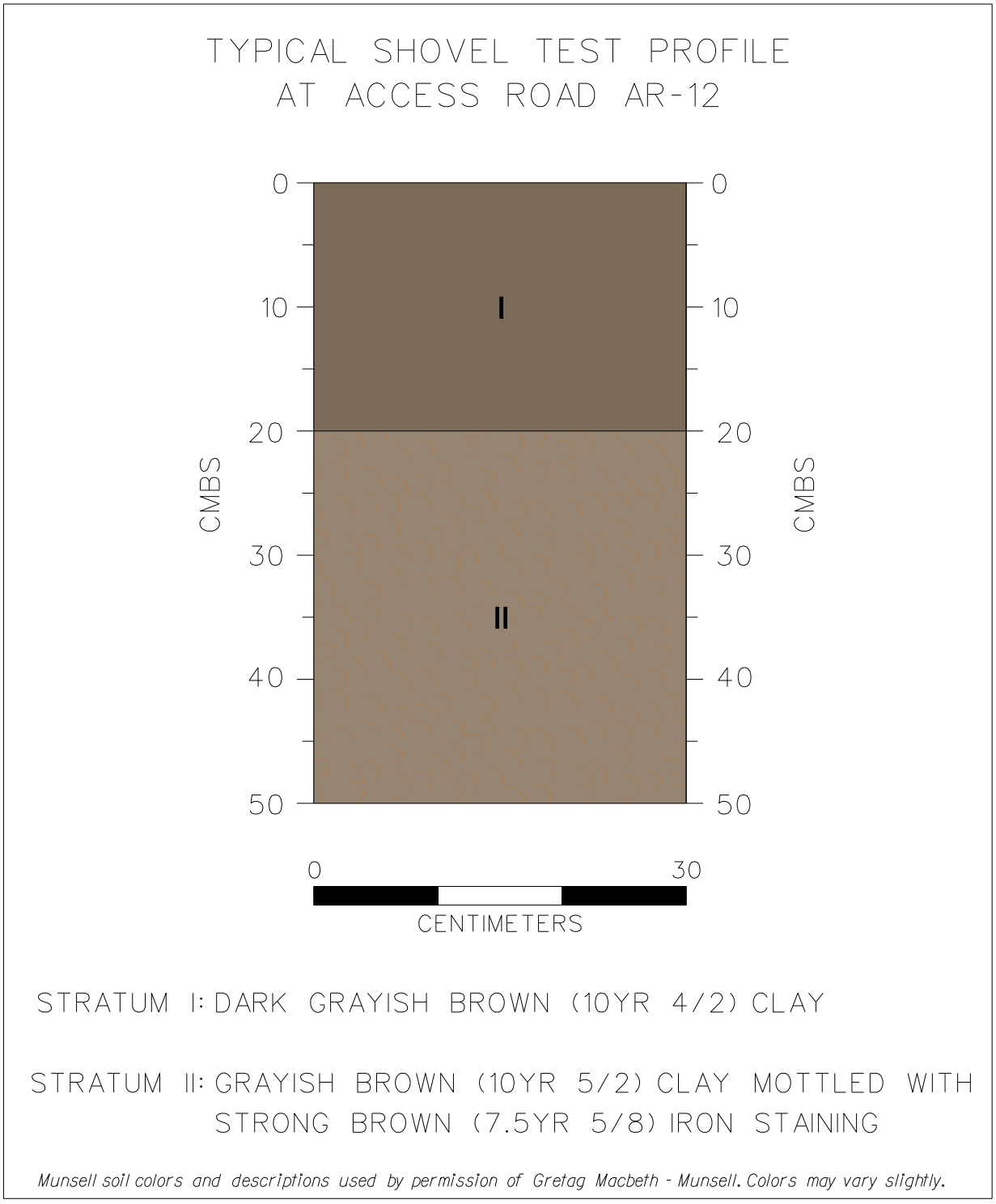

Figure 6.104 Profile of a typical shovel test excavated within Access Road AR-12.

Figure 6.105 Overview photo of Access Road AR-9, facing northeast. Photo taken on November 27, 2023.

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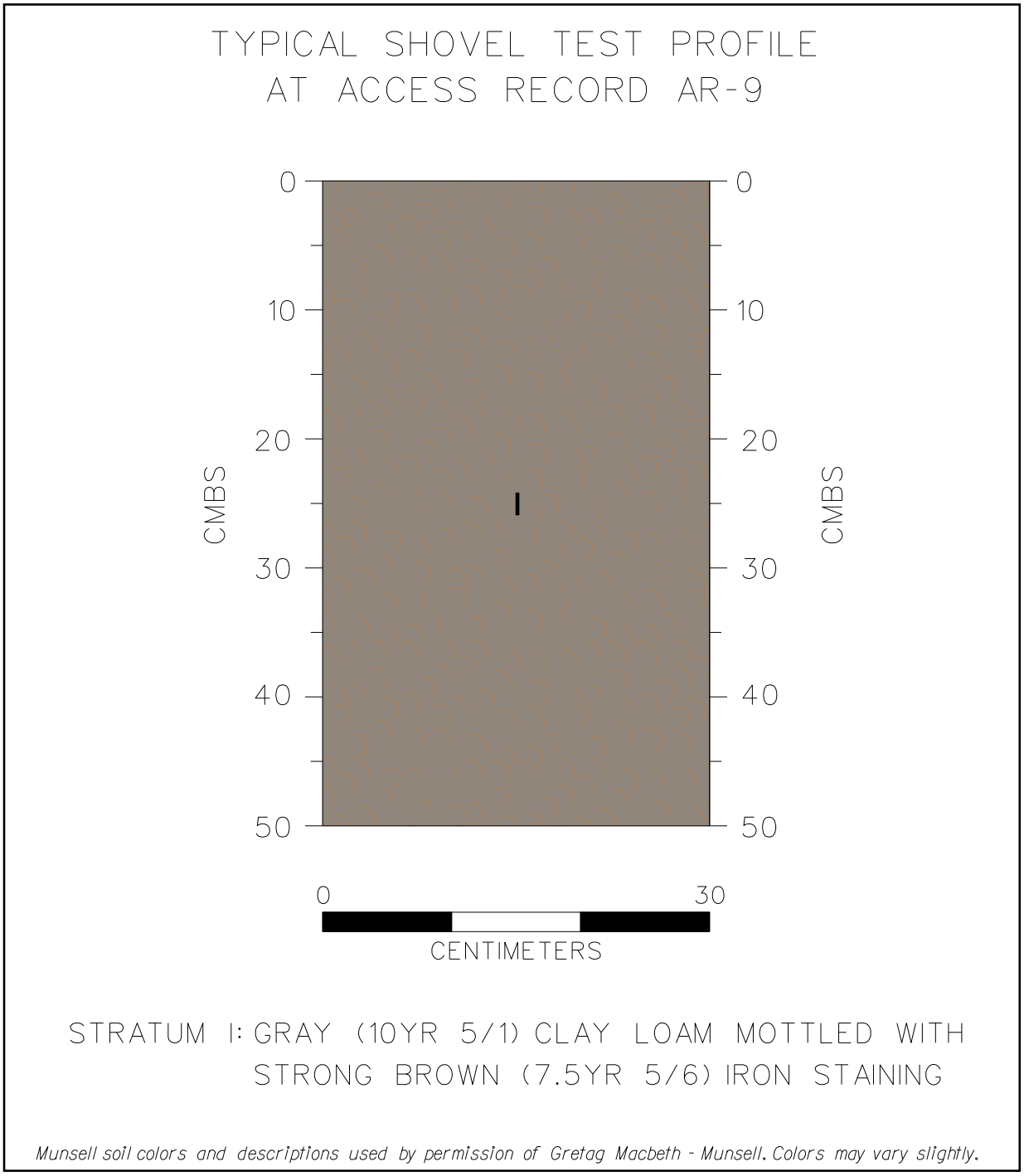

Figure 6.106 Profile of a typical shovel test excavated within Access Road AR-9.

Figure 6.107 Overview photo of Access Road AR-18, facing northeast. Photo taken on November 19, 2023.

Access Roads AR-19 and AR-20

Access Roads AR-19 and AR-20 were two proposed access roads that extended south from LA-22 and entered the portion of the proposed pipeline ROW designated as Segment AMH032923A (Figure 6.1 [Sheets 19, 20]; Table 6.1). Access Road AR-19 measured 20 m (65.6 ft) in length and was situated atop a concrete culvert that crossed a drainage ditch associated with the highway; it intersected with the proposed pipeline ROW near M.P. 10.09. Access Road AR-20 measured 52 m (170.6 ft) in length and followed an existing gravel and dirt farm road to the proposed pipeline ROW near M.P. 10.37. Both roads fell entirely within the area that was investigated as Segment AMH032923A, and no evidence for undisturbed cultural deposits or features was identified anywhere along Access Roads AR-19 or AR-20. No additional work is recommended.

Access Roads AR-10 and AR-11

Access Road AR-10 was a ca. 400 m (1,312.3 ft) long proposed access road that extended south from LA-22 and entered the proposed pipeline ROW near M.P. 11.38 (Figures 6.1 [Sheet 21], 6.108; Table 6.1). A second road that extended south from the highway, Access Road AR-11, measured 115 m (377.7 ft) in length and merged with AR-10 as it continued south to the pipeline ROW (Figure 6.109). Both roads were paved for their entire lengths and therefore were investigated by windshield survey only. No evidence for undisturbed cultural deposits or features was identified anywhere along Access Roads AR-10 or AR-11. No additional work is recommended.

Access Road AR-1

Access Road AR-1 was a ca. 850 m (2789 ft) long proposed access road that followed an existing, unimproved gravel and dirt farm road that originated at LA-22 and extended northwest to an HDD workspace at the south end of Segment JEP071923A near M.P. 14.62 (Figures 6.1 [Sheets 24, 25], 6.110; Table 6.1). At a distance of about 750 m (2461 ft) from LA-22 the road split into two segments that were separated by about 15 m (49.2 ft), and from that point each continued to the workspace at the northwest end of the access road. Access Road AR-1 fell within an existing transmission line corridor and ran parallel with the propose pipeline ROW about 30 m (98.4 ft) to the east as well as with

Figure 6.108 Overview photo of Access Road AR-10, facing south. Photo taken on November 19, 2023.

Figure 6.109 Overview photo of Access Road AR-11, facing south. Photo taken on November 19, 2023.

Figure 6.110 Overview photo of Access Road AR-1, facing northwest. Photo taken on July 17, 2023.

an existing railroad corridor about 30 m (98.4 ft) to the west. Vegetation along each side of the road consisted of low grasses and weeds, while the soils mapped in the vicinity consisted of Commerce silt loam (Cm), Commerce silty clay loam (Co), Schriever clay (Sn), and Thibaut clay (Tu) (Figure 2.1, Table 2.1).

Due to its proximity to the Mississippi River and to known Site 16AN34 located about 150 m (492.1 ft) west of the north end of the road, Access Road AR-1 was judged to have a high probability for the presence of cultural resources. The first ca. 300 m (984.3 ft) of the road was covered by gravel and this portion was investigated by pedestrian survey only, while the remaining ca. 550 m (1804.5 ft) of the road was investigated by pedestrian survey supplemented by shovel tests excavated at 30 m (98.4 ft) intervals and placed on alternating sides of the road. A total of 14 shovel tests were excavated within Access Road AR-1 with another 6 planned shovel tests not excavated due to the presence of berms and drainage ditches. A typical shovel test was excavated to a depth of 50 cmbs (19.7 inbs) and exhibited a single stratum in profile (Figure 6.111). Stratum I (0 to 50 cmbs [0 to 19.7 inbs]) was described as a grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 5/6) clay. No artifacts were recovered from any of the shovel tests and no evidence for undisturbed cultural deposits or features was identified at any location along this proposed access road; no additional work within Access Road AR-1 is recommended.

Access Roads AR-13 and AR-14

Access Road AR-13 was a ca. 2 km (1.2 mi) long proposed access road that originated within the existing OxyChem Geismar facility and extended southeast to the proposed pipeline ROW near M.P. 16.13 (Figures 6.1 [Sheets 28, 29], 6.112; Table 6.1). This road was a well-established gravel road that ran parallel with a railroad corridor about 10 m (32.8 ft) to the west and was bordered by roadside ditches and existing transmission lines on both sides. Near the south end of this access road a second gravel road (Access Road AR-14) branched off and extended another 100 m (328.1 ft) south and east, entering the proposed pipeline ROW near M.P. 16.11 (Figure 6.113). Because both roads were covered with gravel they were investigated by pedestrian survey only. No evidence for undisturbed cultural de-

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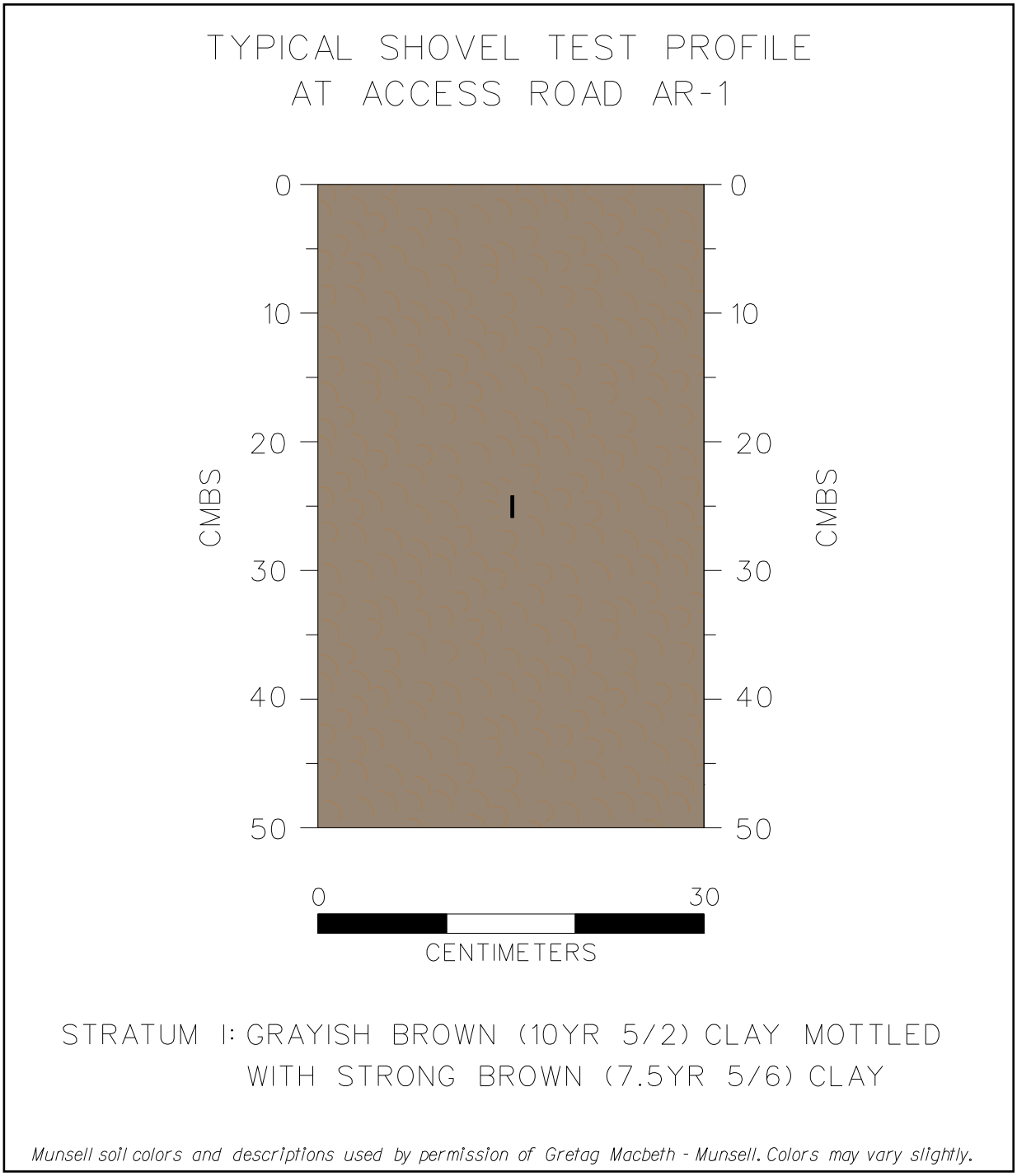

Figure 6.111 Profile of a typical shovel test excavated within Access Road AR-1.

Figure 6.112 Overview photo of Access Road AR-13, facing south. Photo taken on November 19, 2023.

Figure 6.113 Overview photo of Access Road AR-14, facing west. Photo taken on August 8, 2023.

posits or features was identified anywhere along Access Roads AR-13 or AR-14. No additional work is recommended.

Access Road AR-2

Access Road AR-2 was a ca. 180 m (590.6 ft) long proposed access road that originated at Access Road AR-13 and extended east-northeast to the proposed pipeline ROW near M.P. 16.39 (Figures 6.1 [Sheet 28], 6.114; Table 6.1). This proposed road followed a narrow dirt trail through an area of secondary growth hardwoods with dense underbrush, and ran alongside a pond situated a few meters to the south that fell within the channel of a former natural drainage. Topography was described as nearly level throughout. Soils mapped in the vicinity of the road consisted of Schriever clay (Sn) (Figure 2.1, Table 2.1).

Access Road AR-2 was judged to have a high probability for containing cultural resources due to its proximity to a former natural drainage feature. This road was investigated by pedestrian survey supplemented by shovel testing at 30 m (98.4 ft) intervals along a single transect that ran down the centerline of the proposed road. A total of 5 shovel tests were excavated with 1 planned shovel test not excavated due to the presence of utilities. A typical shovel test was excavated to a depth of 50 cmbs (19.7 inbs) and exhibited one stratum in profile (Figure 6.115). Stratum I (0 to 50 cmbs [0 to 19.7 inbs]) was described as a dark grayish brown (10YR 4/2) clay. No artifacts were recovered from any of the shovel tests and no evidence for undisturbed cultural deposits or features was identified at any location along this proposed access road; no additional work within Access Road AR-2 is recommended.

Access Road AR-15 (Smith Bayou Road)

Access Road AR-15 was a 570 m (1,870.1 ft) long mixed gravel and dirt road that originated at Access Road AR-13 and extended southwest to northeast along the southern edge of the OxyChem Geismar facility, terminating at the proposed pipeline ROW near M.P. 16.75 (Figures 6.1 [Sheets 28, 29], 6.116; Table 6.1). The first 375 m (1,230.3 ft) of this road was a well-established gravel road (i.e., Smith Bayou Road) that for much of its length ran alongside a retention pond and afterward crossed an existing pipeline corridor. For the final 195 m (639.8 ft) of its length this road was mostly dirt with only some

Figure 6.114 Overview photo of Access Road AR-2, facing south. Photo taken on November 19, 2023.

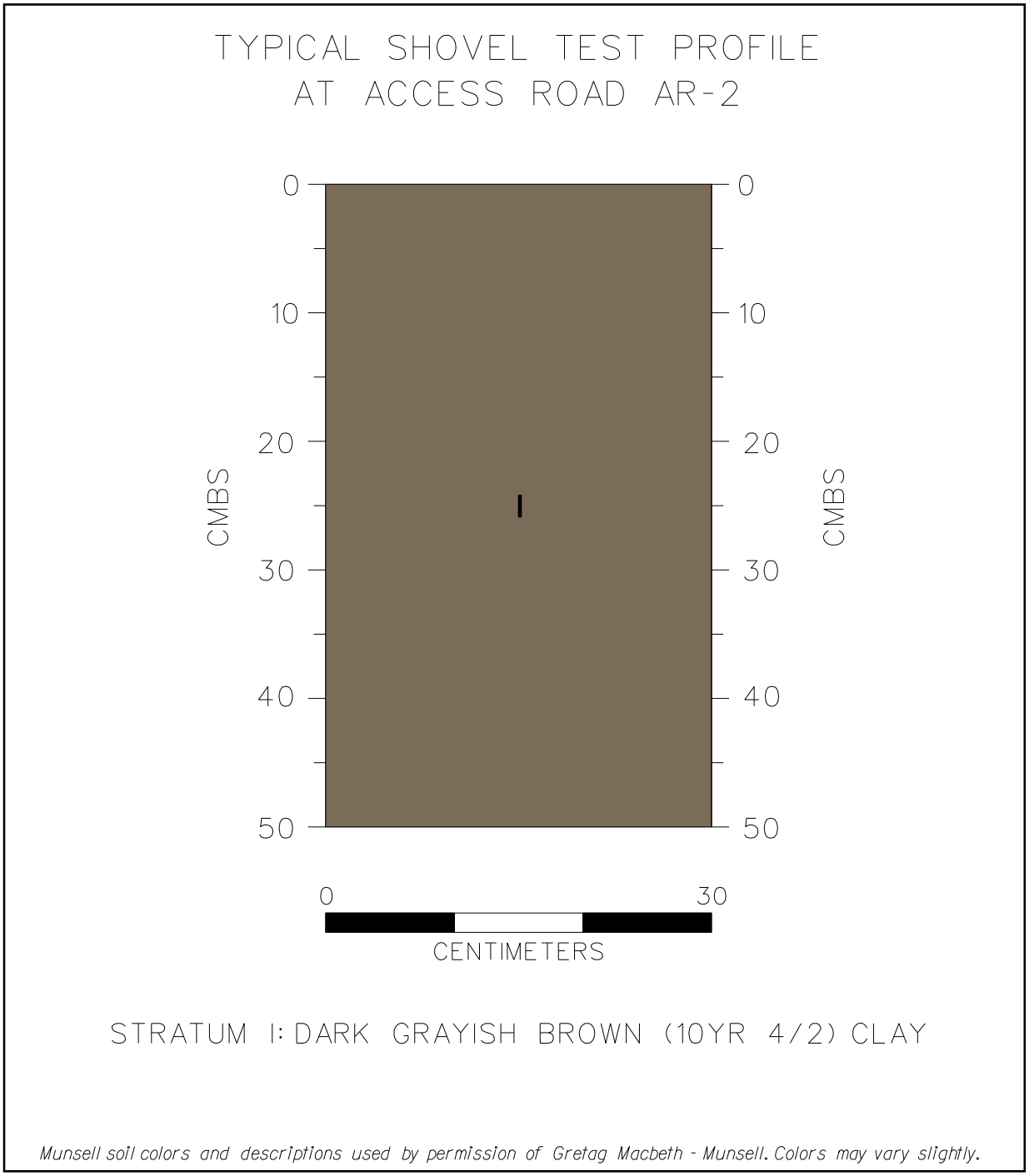

Figure 6.115 Profile of a typical shovel test excavated within Access Road AR-2.

Figure 6.116 Overview photo of Access Road AR-15 (Smith Bayou Road), facing east. Photo taken on November 28, 2023.

gravel and shell visible at the surface. Vegetation in the area consisted of low grass with a stand of secondary growth hardwoods presented on the south side of the road near its east end. Topography was described as nearly level throughout. Soils mapped in the vicinity of the road consisted of Schriever clay (Sn) (Figure 2.1, Table 2.1).

Access Road AR-15 was judged to have a low probability for containing undisturbed cultural resources due to its positioning below the 10 ft contour line on USGA topographic maps (Figure 1.2) and its proximity to the aforementioned facility, pipeline, and retention pond. Most of the road was investigated by pedestrian survey only because it was covered with gravel, while the final 195 m (639.8 ft) of the road where the gravel covering was minimal the road was investigated by pedestrian survey supplemented by shovel testing at 50 m (164 ft) intervals placed along a single transect that ran down the center of the road. A total of 5 shovel tests were excavated. A typical shovel test was excavated to a depth of 50 cmbs (19.7 inbs) and exhibited a single stratum in profile (Figure 6.117). Stratum I, which originated at the surface and extended to a depth of 50 cmbs (19.7 inbs), was described as a deposit of grayish brown (10YR 5/2) clay mottled with reddish yellow (7.5YR 6/8) iron staining. Several of the shovel tests contained inclusions of gravel or shell, likely representative of a former matrix of the roadbed. No artifacts were recovered from any of the shovel tests and no evidence for undisturbed cultural deposits or features was identified at any location along this proposed access road; no additional work within Access Road AR-15 is recommended.

Access Road AR-16

Access Road AR-16 was a 155 m (508.5 ft) long proposed access road that originated at Access Road AR-15 and extended south-southeast to the HDD workspace at the north end of Segment JEP080223A near M.P. 16.66 (Figures 6.1 [Sheet 28], 6.118; Table 6.1). This proposed road traversed across a cleared corridor that passed between two stands of mixed, secondary growth hardwood forest and into an existing pipeline corridor. A drainage ditch that extended south to an existing retention pond ran along the west edge of the proposed road. The final ca. 50 m (164 ft) of the proposed road extended through a stand of secondary growth hardwood forest before

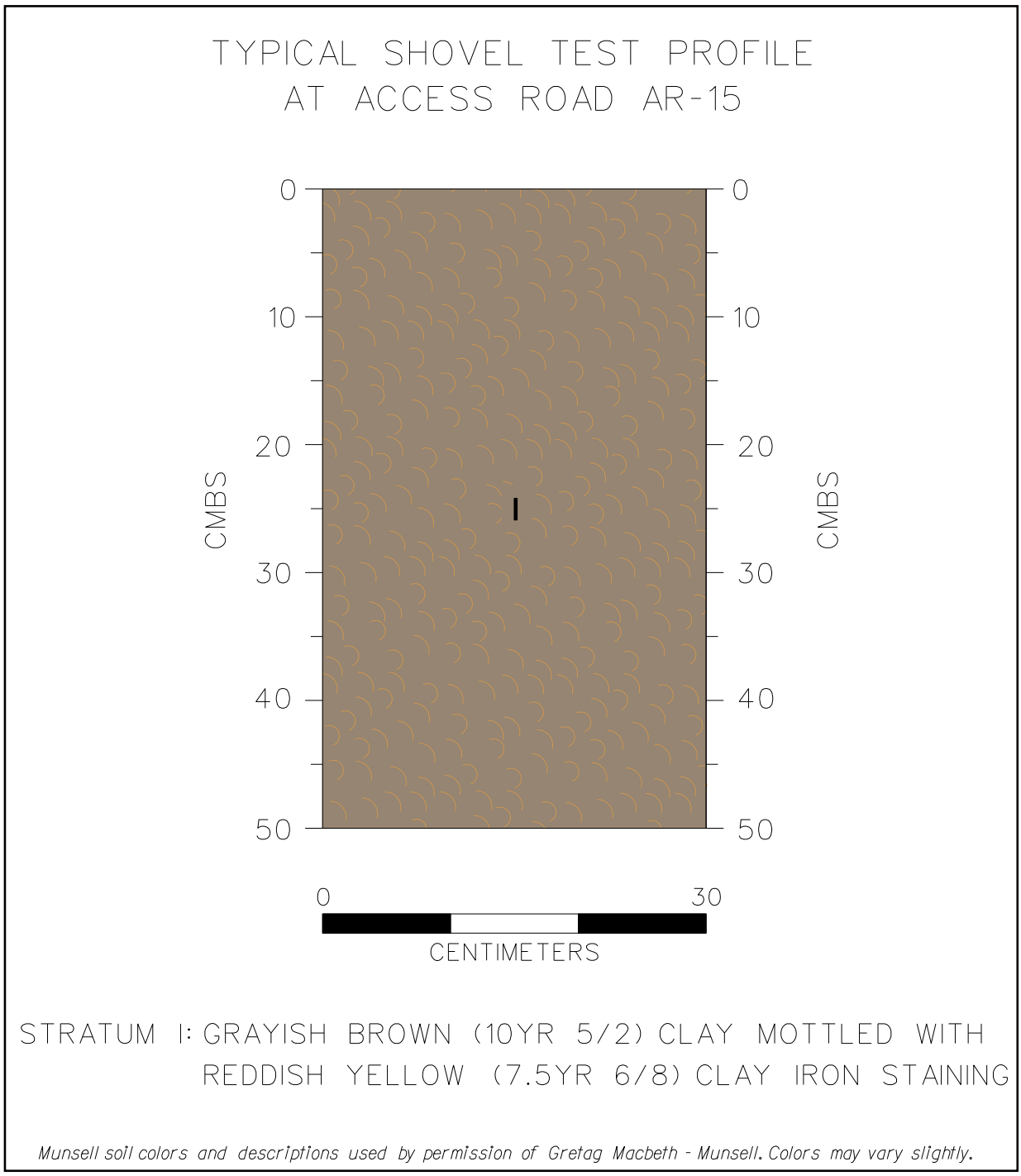

Figure 6.117 Profile of a typical shovel test excavated within Access Road AR-15.

Figure 6.118 Overview photo of Access Road AR-16, facing south. Photo taken on November 28, 2023.

entering the HDD workspace. Vegetation outside of the forested areas consisted of low grasses. Topography exhibited a gentle slope to the west toward the aforementioned drainage ditch. Soils mapped in the vicinity of the road consisted of Schriever clay (Sn) (Figure 2.1, Table 2.1).

Access Road AR-16 was judged to have a low probability for containing undisturbed cultural resources due to its positioning below the 10 ft contour line on USGA topographic maps (Figure 1.2) and its proximity to the aforementioned pipeline, ditch and retention pond. The road was investigated by pedestrian survey supplemented by shovel testing at 50 m (164 ft) intervals placed along a single transect that ran down the center of the road, with a total of 4 shovel tests excavated. A typical shovel test was excavated to a depth of 50 cmbs (19.7 inbs) and exhibited a single stratum in profile (Figure 6.119). Stratum I (0 to 50 cmbs [0 to 19.7 inbs]) was described as a deposit of dark grayish brown (10YR 4/2) clay. No artifacts were recovered from any of the shovel tests and no evidence for undisturbed cultural deposits or features was identified at any location along this proposed access road; no additional work within Access Road AR-16 is recommended.

Access Road AR-17

Access Road AR-17 was a 20 m (65.6 ft) long proposed access road that originated at Access Road AR-15, entered the fenced boundaries of the existing OxyChem Geismar facility, and extended north along an earthen berm to the proposed pipeline ROW near M.P. 16.80 (Figures 6.1 [Sheet 28], 6.120; Table 6.1). The area around this access road also will contain additional workspace and ROW for extending the proposed pipeline into the existing facility to its termination point near M.P. 16.86. A drainage ditch extended north from AR-15 through the area, and several risers were observed marking the presence of buried utilities. Access Road AR-17 was investigated by visual inspection from outside the facility fence only, and no subsurface testing was completed due to the presence of buried utilities and other disturbances associated with the facility. No evidence for undisturbed cultural deposits or features was observed, and no additional work within Access Road AR-17 is recommended.

EXHIBIT E

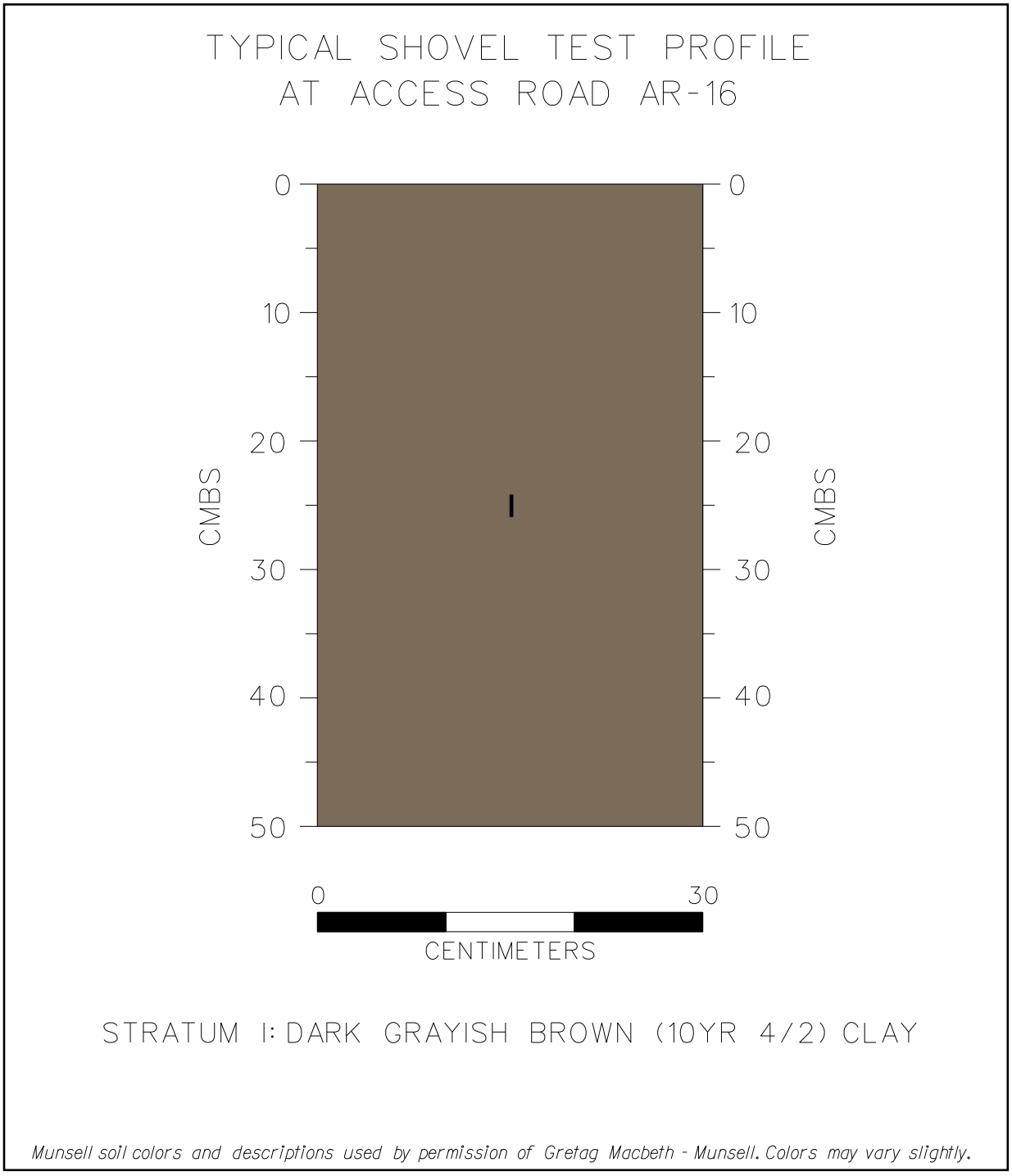

Figure 6.119 Profile of a typical shovel test excavated within Access Road AR-16.

Figure 6.120 Overview photo of Access Road AR-17, facing north. Photo taken on November 19, 2023.

EXHIBIT E

Chapter VII
Summary ansionsd Conclu

This report has described the results of the Phase I cultural resources investigations completed of the proposed OxyChem Geismar to Convent Pipeline Project in St. James and Ascension Parishes, Louisiana. OxyChem is proposing the installation of two pipelines, a 6-in. chlorine, and an 8-in. ethylene dichloride (EDC) pipeline, connecting OxyChem's Convent Plant in St. James Parish to its Geismar Plant in Ascension Parish, Louisiana. Goodwin & Associates completed these investigations on behalf of Project Consulting Services, Inc. and their client, OxyChem between June 4, 2023 and January 19, 2024. The project included the investigations of approximately 29.6 km (18.4 mi) of pipeline ROW and associated workspaces of varying widths, which were divided into 37 segments during survey. Also investigated was approximately 14.5 km (9 mi) of temporary access roads that will be used during pipeline construction. The combined project area investigated for cultural resources encompassed 164.9 ha (407.4 ac) of area.

This cultural resources inventory was designed to identify and to evaluate all cultural resources (archaeological sites, isolated finds, historic above-ground resources, and cemeteries) situated within the proposed Project area that may be impacted adversely by this undertaking, applying the National Register of Historic Places (NRHP) Criteria for Evaluation (36 CFR 60.4 [a-d]). All fieldwork was conducted in accordance with the Secretary of the Interior's "Standards and Guidelines" (48 FR 44716), the Advisory Council on Historic Preservation's handbook entitled *Treatment of Archaeological Properties*, the procedures outlined in the National Historic Preservation Act of 1966, as amended, the Archaeological and Historic Preservation Act of 1974, and Title 36 of the Code of Federal Regulations, Parts 60-66 and 800 as appropriate. Additionally, this survey effort abided by the guidance provided in *Louisiana's Comprehensive Archaeological Plan* (Girard et al. 2022), and the Louisiana Division of Archaeology's online guidelines for cultural resources investigations. Finally, this investigation was guided by a project-specific scope of work (SOW) developed in consultation with the Louisiana SHPO's office, which is reproduced in Appendix I.

The field methods used for the cultural resources investigations consisted of intensive pedestrian survey and systematic shovel testing at 30 m (98.4 ft) or 50 m (164 ft) intervals throughout the project area. Locations that could not be investigated by subsurface testing due to the existence of gravel surfaces, ditches, buried utilities, or other obstructions were investigated by pedestrian survey only. A total of 164.9 ha (407.4 ac) of area was investigated and 1300 shovel tests were excavated as part of the field investigations. As a result of those efforts, two new archaeological sites were recorded (i.e., Sites 16AN168 and 16AN169), and three previously recorded sites were revisited (i.e., Sites 16AN31, 16AN32, 16AN89); furthermore, one previously recorded site within the Project ROW was not investigated because it will be avoided by HDD (Site 16AN60). Site 16AN169 is recommended as not eligible for listing on the NRHP, and no additional work is recommended. Site 16AN168 and the portion of Site 16AN89 identified within the Project ROW have not been evaluated and assessed applying the NRHP Criteria for Evaluation (36 CFR 60.4 [a-d]) and those areas will be avoided during construction. Additionally, although portions of Sites 16AN31 and 16AN32 have been evaluated and assessed applying the NRHP Criteria for Evaluation (36 CFR 60.4 [a-d]) and assessed as eligible for listing, no significant archaeological remains of either site were identified within the proposed project ROW, and no additional work is recommended.

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EXHIBIT E

APPENDIX I

SCOPE OF WORK

EXHIBIT E

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Scope of Work: Phase I Cultural Resources Survey of the Proposed Project Jupiter Pipeline Project in Ascension and St. James Parishes, Louisiana

Introduction

R. Christopher Goodwin & Associates, Inc. (RCG&A) and Project Consulting Services, Inc. (PCS) are pleased to submit this scope of work (SOW) to complete a Phase I cultural resource survey of the proposed Jupiter Pipeline project (Project) in Ascension and St. James Parishes, Louisiana (Figure 1). This detailed SOW describes the survey methods and approach for performing terrestrial Phase I cultural resources survey for the proposed Project.

The proposed Project will require the applicant, Occidental Chemical Corporation, to obtain permits from the United States Corps of Engineers, New Orleans District (USACE). Consequently, the Project is being reviewed under Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended. The USACE must afford the Advisory Council on Historic Preservation (ACHP) the opportunity to comment on the undertaking. The Section 106 process is coordinated at the state level by the State Historic Preservation Office (SHPO), represented in Louisiana by the Louisiana Division of Archaeology (LDOA) and the Louisiana Division of Historic Preservation (LDHP) within the Office of Cultural Development (OCD). The SHPO provides input regarding compliance with all relevant state historic preservation laws and acts as a consulting party throughout the Section 106 process. All work will be performed in accordance with all applicable federal guidelines, including Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations (36 CFR Part 800); the Secretary of the Interior's Standards and Guidelines (48 FR44738-44739); and, with applicable administrative rules and guidelines pertaining to historic preservation published by the Louisiana SHPO. RCG&A is the cultural resources contractor for the Project and will provide the Principal Investigator (PI) and all professional staff required for the Project.

Project Description

The proposed project is a ca. 25.8 km (16 mi) long pipeline corridor for 6-in and 8-in product pipelines that will originate at Occidental Chemical Corporation's Romeville facility in St. James Parish and terminate at their Geismar facility in Ascension Parish and terminate at Occidental Chemical Corporation's Romeville facility in St. James Parish (Figures 2, 3). This proposed right-of-way (ROW) includes four alternatives that may require investigation, which together measure an additional 4.6 km (2.9 mi) in length and 23 to 33.5 m (75 to 110 ft) in width. The proposed pipelines will loop existing pipelines for most of their length, and will require a 23 m (75 ft) wide ROW for construction in areas of wetlands, and a 33.5 m (110 ft) wide ROW for construction in non-wetland areas. To date only the centerline of the ROW has been defined, and the locations of reroutes, access roads, expanded workspaces, staging areas, and other ancillary facilities have not been determined. Furthermore, at this point in time the routes are being finalized, so some deviation from the existing ROWs may be necessary for engineering, safety, landowner agreements, and other similar challenges.

Area of Potential Effects

The Area of Potential Effect (APE) is the "geographic area or areas where the proposed undertaking may directly or indirectly cause changes in the character of or use of historic properties, if any such properties exist" (36 C.F.R. § 800.16(d)). The APE for archaeological resources includes all areas where the ground may be disturbed. Construction activities will include installation of pipeline both within open trenches

and by horizontal directional drill (HDD). All construction activities will be within defined workspaces, and maximum depth of disturbance within open trenches will be approximately 2.5 m (8 ft), with greater depths of disturbance within HDD entry and exit points. The Project APE for direct effects consists of the proposed 23 to 33.5 m (75 to 110 ft) pipeline corridor, including the four alternatives (if used) and any re-routes, access roads, expanded and temporary workspaces, contractor yards, and ancillary facilities, which to date have not been defined. Based on the 30.4 km (18.9 mi) long preliminary Project ROW only, including alternatives, and assuming 66 percent of the ROW will measure 33.5 m (110 ft) in width while the remaining 33 percent will measure 23 m (75 ft), the geographic extent of the terrestrial direct APE for the Project will encompasses a total of 91.2 hectares (225.4 acres).

The project will include the installation of pipelines both adjacent to existing pipeline corridors and in greenfield. Most of the greenfield portions will traverse through established agricultural fields, and removal of trees will be minimal. Wherever collocated the existing pipelines will be left in-place. Because all permanent, above-ground impacts will be limited to the Project ROW, the proposed APE for indirect/visual affects is the same as the APE for direct affects.

Project Schedule
RCG&A plans to initiate the survey upon approval of the SOW and completion of the preliminary project design. It is anticipated that all Phase I cultural resources investigations will be completed during the spring of 2023, with construction to commence in 2024. Draft report writing will be completed within thirty (30) days following completion of fieldwork. Agencies will have a thirty (30) day period to review the draft report; all comments received by RCG&A will be resolved within fifteen (15) calendar days at which time the final report will be produced and submitted. Project materials not returned to landowners will be submitted to the LDOA for permanent curation, which will occur after the final report is accepted.

Key Personnel
Personnel assigned to the project will include Dr. Wayne Boyko, Ph.D., R.P.A., Mr. Nathanael Heller, M.A., R.P.A., and/or Mr. Peter Cropley, M.A., R.P.A, one of whom will serve as Principal Investigator for this project. Crew chiefs and field archeologists will be chosen from our full-time professional archeological staff and they will assist in the prosecution of this work. Mr. Tyler Leben, B.A. will handle geomatics while Ms. Heidi Post, B.A. (Production Manager) will oversee report production. The staff of RCG&A is highly trained, and all of our senior staff exceeds the professional qualifications standards stipulated by the Secretary of the Interior (36 CFR 60.1, Appendix A). All members of our field staff have long-standing experience in cultural resources survey throughout the state of Louisiana.

Research Objectives
The objective of this cultural resource investigation is to identify and to evaluate all historic properties (i.e., archeological sites, cultural resources loci, standing structures, and/or cemeteries) that may be impacted adversely by the proposed project. This cultural resources investigation is inclusive of the following tasks: Background Research; Phase I cultural resources survey and archeological inventory; architectural review and historic built resources recordation; cultural resources assessment and report preparation/production; and, curation. Each of these tasks is discussed briefly below.

Previous Investigations
To ensure that all potential impacts to known historic properties are addressed prior to investigating the project area, a review was undertaken of those previously completed cultural resources investigations, recorded archeological site locations, recorded historic standing structures, and properties listed on the National Register of Historic Places (NRHP) situated within 1.6 km (1.0 mi) of the currently proposed project area. Particular care was taken to identify any possible unmarked cemeteries that may be impacted by the pro-

posed project. R. Christopher Goodwin & Associates, Inc., completed this review using data currently on file with the LDOA, as well as online NRHP records maintained by the LDHP and the National Park Service. The potential for cemeteries that might be situated within 0.8 km (0.5 mi) of the project area was examined by reviewing USGS quadrangle maps for marked cemeteries, as well as by utilizing online sources such as Find-a-Grave (www.findagrave.com) and Louisiana Cemeteries (www.LA-cemeteries.com). The results of the background research are presented below.

Previously Completed Cultural Resources Investigations within 0.8 km (0.5 mi) of the Project Jupiter Project Area

Thirty-five previous cultural resources investigations have been completed within 0.8 km (0.5 mi) of the Project Jupiter project area (Figure 2; Table 1). Of these, five previous studies significantly intersected the current project area (Poche et al. 2016; Port et al. 2015; Shuman and Taylor 2012; Stanyard et al. 2022; Wells et al. 2011) and these investigations are described in greater detail below, while the 30 remaining investigations did not significantly intersect the Project Jupiter project area. Furthermore, fieldwork for one cultural resources investigation was completed in 2022 and the report for this survey effort is pending (RCG&A 2023).

Of the completed investigations, one was completed on behalf of the USACE, New Orleans District for a Mississippi River levee improvement project (Goodwin et al. 1986), one was for the Louisiana Department of Transportation and Development (LA DOTD) for a highway improvement project (Ryan et al. 2019), and 33 were Section 106 compliance efforts for private-sector industrial/commercial development projects (Carpenter et al. 1981; Cloy et al. 2019; Davies et al. 1998; Hale et al. 2011; Handly et al. 2015; Handly, Perrault, et al. 2011; Handly, Poche, and Perrault 2011; Helmer et al. 2016; Heller et al. 2020, 2021; Hutchins and Eberwine 2019; Jenkins 2020; Jones et al. 1998; Kelley 2011; Kennedy and Hearnes 2016; King 2018; Lee et al. 2016; Mehta et al. 2014; Morsink 2022; Pepperman and Shane 2021; Perrault et al. 2012; Poche et al. 2016; Port et al. 2015; Robblee and Davis 1997; Robblee et al. 1997; Rothrock and Moreno 2015; Shuman and Taylor 2012; Shuman, Taylor, and Gabour 2014; Shuman, Gabor, et al. 2014; Smith et al. 2001; Stanyard et al. 2022; Wells et al. 2011; Williams and Athens 1996).

Furthermore, 26 studies were described as Phase I cultural resources investigations that included subsurface testing efforts (Carpenter et al. 1981; Cloy et al. 2019; Davies et al. 1998; Goodwin et al. 1986; Hale et al. 2011; Helmer et al. 2016; Heller et al. 2020, 2021; Hutchins and Eberwine 2019; Jenkins 2020; Kelley 2011; Kennedy and Hearnes 2016; King 2018; Mehta et al. 2014; Morsink 2022; Pepperman and Shane 2021; Poche et al. 2016; Robblee et al. 1997; Rothrock and Moreno 2015; Ryan et al. 2019; Shuman, Gabor, et al. 2014; Shuman and Taylor 2012; Shuman, Taylor, and Gabour 2014; Smith et al. 2001; Stanyard et al. 2022; Williams and Athens 1996), and 3 included both Phase I survey and Phase II NRHP testing efforts (Jones et al. 1998; Port et al. 2015; Wells et al. 2011). Two studies were Phase II NRHP testing efforts (Perrault et al. 2012; Robblee and Davis 1997), 3 were Phase II NRHP testing and Phase III data recovery (Handly et al. 2015; Handly, Poche, and Perrault 2011; Lee et al. 2016), and 1 was a Phase III data recovery (Handly, Perrault, et al. 2011). Of these, three reports were management summaries only (Handly, Perrault, et al. 2011; Handly, Poche, and Perrault 2011; Perrault et al. 2012), which were associated with a subsequent full report (Handly et al. 2015).

Intersecting Surveys

Five previous completed investigations intersected with significant portions of the current project area (Poche et al. 2016; Port et al. 2015; Shuman and Taylor 2012; Stanyard et al. 2022; Wells et al. 2011) and these investigations are described in greater detail below. Furthermore, the single investigation intersecting the current project area for which the report is pending also is described below (RCG&A 2023). Regardless of the mapped polygon, only those surveys with testing or excavations near the currently proposed project

area were selected for additional discussion, which was determined by inspecting the maps provided within the respective reports. All five completed investigations were Section 106 compliance efforts for private-sector industrial/commercial development projects. Three of these studies were described as Phase I cultural resources investigations that included subsurface testing efforts (Poche et al. 2016; Shuman and Taylor 2012; Stanyard et al. 2022) and two included both Phase I survey and Phase II NRHP testing efforts (Port et al. 2015; Wells et al. 2011). The single investigation for which the report is pending is being completed on behalf of the USACE, New Orleans District for proposed wetland mitigation lands.

Wells et al. 2011 (Report no. 22-3017)
Coastal Environments, Inc., performed a Phase I cultural resources survey of an approximately 150 ha (370.5 ac) area and Phase II testing of selected locations within that area on behalf of Nucor Corporation (Wells et al. 2011). Four sites, 16SJ20 (Wilton Plantation), 16SJ21 (Helvetia Plantation), 16SJ30 (Colomb Plantation), and 16SJ34 (St. Rose Plantation), were revisited. No new archeological resources were identified as a result of the study, and seven built resources were recorded. Field methods included pedestrian survey, shovel testing, architectural survey, and mechanical stripping. However, due to the project area primarily consisting of low-lying backswamp, only 126 shovel tests were excavated during the Phase I survey (Wells et al. 2011:96-97).

Mechanical stripping and/or additional shovel testing of selected areas was used during the Phase II testing portion of the project. Relevant to the currently proposed project area are Localities 1-9, 77-82, and 97, which comprised the tenant houses of the Brusly Community within Site 16SJ20 (see Figure 7-1 in Wells et al. 2011:111). No intact cultural deposits were identified in this area, and all artifacts were recovered from within the plowzone; no further work in this location was recommended (Wells et al. 2011:150-151). The remaining investigated portions were outside of the current project area. Additional shovel testing at Localities 18 and 20 of Site 16SJ20 and Locality 76 of Site 16SJ21 was conducted (Wells et al. 2011:151-170). Mechanical trenching of these areas was planned, but was not deemed necessary following the completion of shovel testing. No further work was recommended at any of these locations due to lack of research potential and intact deposits. Finally, mechanical stripping was conducted in the suspected cemetery location within Site 16SJ30. At least 10 graves were identified, and avoidance or excavation and reburial was recommended for that location.

Shuman and Taylor 2012 (Report no. 22-4031)
In 2012, SURA completed a Phase I survey of 72.1 ha (178.2 ac) of land on behalf of Impala Warehousing (Shuman and Taylor 2012). This survey, combined with Shuman et al. 2014 (Report no. 22-4026), covered a majority of Site 16AN89. However, the latter survey covered the more southerly portions of the site and will not be discussed further. Systematic shovel testing revealed an area containing cultural resources, designated Locations 2 and 3 (Shuman and Taylor 2012:13). This was in the vicinity of previous tenant cabins, and contained foundation features as well as an associated artifact deposit. Avoidance or additional testing of that location was recommended, and no further work was recommended for the remaining portions covered by the cultural resources investigation.

Port et al. 2015 (Report no. 22-5113)
A Phase I cultural resources survey of an approximately 985.4 ha (2,435 ac) area and Phase II testing of selected locations within that area was performed by ERM and CEI in 2012-2013 on behalf of Motiva Enterprises (Port et al. 2015). However, the proposed project was cancelled before the Phase II testing was completed, and Port et al. (2015) summarized only the findings completed up to that point. Phase I field methods consisted of pedestrian survey and shovel testing; remote sensing survey, mechanical stripping and excavation, unit excavation, and cemetery recordation were utilized at selected locations for Phase II test-

ing. No shovel testing or unit excavation was performed within the known Monroe Cemetery, and limited shovel testing and no unit excavation was conducted in the then-suspected vicinity of Bruslie Cemetery.

Three archeological sites, 16AN30 (Tezcuco Plantation), 16AN31 (Monroe Plantation), and 16AN32 (Bruslie Plantation, situated within Site 16AN31), were revisited during this study. The survey area was divided into 16 tracts, and Tracts A1, A2, B (including Bruslie Cemetery), D1, D3-1, and G (including Monroe Cemetery) were recommended eligible for the NRHP. Tracts C and D2 were not fully investigated prior to the cancellation of the project; additional work in these tracts is recommended. No further work was recommended in the investigated portions of the remaining tracts.

Four tracts were located within or in close proximity to the currently proposed project area: Tracts B (coincides with Site 16AN32), D1, E3, and F1. Tract F1 was subjected to Phase I survey only, which failed to identify any cultural resources. The remaining tracts were identified during Phase I survey and further investigated with Phase II testing. Certain areas within Tract B (Site 16AN32) were subjected to additional shovel testing, unit excavation, and mechanical excavation to investigate the depositional integrity and reveal the location of structures such as those found in the sugarhouse areas, possible location of the mill manager's house, and worker's quarters (Port et al. 2015:10-49 – 10-112). Shovel testing also revealed the location of Bruslie Cemetery, which was further investigated by mechanical stripping to record the areal extent of burials; 99 burial shafts were documented, and no human remains were exhumed or uncovered during these excavations (Port et al. 2015:11-87). Additional shovel testing and mechanical stripping/trenching was conducted as part of Phase II testing in Tract D1. A majority of Tract D1 was recommended not eligible for the NRHP, but a 1.1 ha (2.7 ac) Area of Interest was identified and later merged with Tract B, as it was found to be more closely related to Bruslie Plantation (Port et al. 2015:10-141). Mechanical trenching also was conducted in Tract E (consisting of Tracts E1, 2, and 3), which failed to produce any evidence of intact archeological deposits, and no further work in that tract was recommended (Port et al. 2015:10-183).

Poche et al. 2016 (Report no. 22-5271)

In 2016, AECOM completed a Phase I cultural resources survey for the proposed Shady Grove Property for Wanhua Chemical US Holding, Inc. (Poche et al. 2016). That investigation included pedestrian survey and systematic shovel testing of a 148 ha (366 ac) project area. Four historic archeological sites (16SJ94, 16SJ95, 16SJ96, and 16SJ97), 2 isolated finds, and 2 historic built resources (47-01787, 47-01788) were identified. Areas A-D are of particular interest to the currently proposed project area, and Site 16SJ97 is located within Area D. All artifacts within Site 16SJ97 were recovered from the surface of the site, and none from any of the subsurface shovel tests (Poche et al. 2016:46-49). All cultural resources identified during this 2016 survey were assessed as not eligible for listing in the NRHP and no additional work was recommended.

Stanyard et al. 2022 (Report no. 22-7044)

A Phase I cultural resources survey of a proposed Shell facility was begun in March of 2020 and continued in 2022 by archeologists from ERM (Stanyard et al. 2022). Field methods consisted of pedestrian survey and systematic shovel testing, as well as architectural recordation. Three new archeological sites (16SJ128-130) were recorded, and portions of Sites 16AN30 and 16AN31 were revisited. Furthermore, 13 built resources were recorded or revisited during the architectural portion of the survey. However, only Sites 16AN30 and 16AN31 are within or in close proximity to the currently proposed project area, and the remaining cultural resources are located well outside of it. Additional work at all three newly recorded sites (16SJ128-130) was recommended (Stanyard et al. 2022:1, 5). No evidence of cultural resources was found in the investigated portions of previously recorded Sites 16AN30 and 16AN31, so no further work is recommended in those areas. Of the 13 built resources, only the Sunshine Bridge (LHRI# 47-01766) was recommended as eligible, but no effect was anticipated as part of that proposed project (Stanyard et al. 2022:5).

RCG&A 2023

In addition to the five completed cultural resources investigations described above, fieldwork for one Phase I cultural resources survey performed by RCG&A on behalf of the U.S. Army Corps of Engineers was completed in 2022 and the report for this investigation is pending. This investigation examined 408.5 ha (1009.6 ac) of proposed wetland mitigation lands that encompassed large portions of Sites 16SJ20 (Wilton Plantation) and 16SJ21 (Helvitia Plantation). A total of 3850 shovel tests were excavated throughout the project area.

Within 16SJ21, shovel tests were excavated at 50 m (164 ft) intervals throughout approximately 99.2 ha (245 ac) of site area, and only a single historic isolated find was identified. Within Site 16SJ20, 294.3 ha (728.4 ac) of site area was investigated was investigated by shovel testing at 50 m (164 ft) intervals. Furthermore, approximately 14.6 ha (36.2 ac) of the project area, encompassed the former location of the "Back Bruly" settlement where previous investigators recorded 16 "localities" representing house sites that were dated from the late nineteenth through mid-twentieth centuries (Wells et al. 2011); in this area, shovel tests were excavated at 10 m (32.8 ft) intervals along transects spaced 10 m (32.8 ft) apart.

A total of 77 cultural resources loci were recorded within or in close proximity to the "Back Bruly" area, and 1154 artifacts were recovered. Only 18 of the 1154 artifacts were recovered from subsurface contexts within 12 shovel tests, and of those only a single pearlware ceramic sherd was recovered from a context below the plowzone. A total of 77 loci were recorded within this area, and shovel tests were excavated at 10 m (32.8 ft) intervals around all surface finds and all positive shovel tests to define the limits of each locus. While a few of the temporally diagnostic artifacts were dated from the early or mid-nineteenth century, the majority of the diagnostic artifacts were dated from the late nineteenth century through the mid-twentieth century. No evidence for undisturbed cultural deposits or features was identified anywhere within the project area, and no additional work was recommended.

Previously Recorded Archeological Sites Located within 0.8 km (0.5 mi) of the Project Jupiter Project Area

Seventeen archeological sites have been recorded previously within 0.8 km (0.5 mi) of the Project Jupiter project area (Figure 2; Table 2). The current project area intersects with nine sites, which will be discussed in further detail below. Fourteen sites were historic in age and generally were dated from the nineteenth and twentieth centuries; one (Site 16SJ20) was dated as early as the eighteenth century. Additionally, one site was prehistoric in age, one contained both prehistoric and historic components, and one site (16AN35) had a historic aboriginal component. Five sites were described as historic deposits or artifact scatters, 1 as a prehistoric artifact scatter, 1 as historic structures and structural remnants (Site 16SJ21), 3 as structural remnants with associated artifact scatters or middens, 1 as a historic cemetery, 5 as historic cemeteries with artifact scatters or artifact scatters and structural remnants, 1 as a historic aboriginal burial ground with historic artifact scatters; these cemeteries will be discussed in further detail below.

Of the 17 sites, 16 occurred on natural levees and one on a floodplain. Three of the sites have been evaluated and recommended as not eligible for listing on the NRHP, 9 sites have not been assessed applying the NRHP Criteria for Evaluation (36 CFR 60.4 [a-d]), and five sites (16AN29, 16AN31, 16AN32, 16SJ20, and 16SJ21) have been assessed as eligible. Sites 16AN31, 16AN32, 16SJ20, and 16SJ21 have not been assessed in their entirety, but portions of these sites have been determined to be eligible for listing on the NRHP.

Intersecting Sites

Nine archeological sites were located within or in close proximity to the currently proposed project area, and these will be discussed in further detail below. Of these, four were assessed as eligible for listing on the

NRHP, in whole or in part: 16AN31, 16AN32, 16SJ20, and 16SJ21. One site, 16SJ34, has been assessed as not eligible for listing on the NRHP, and the four remaining sites have not been assessed applying the NRHP Criteria for Evaluation (36 CFR 60.4 [a-d]). Furthermore, three of the sites (16AN32, 16AN89, and 16SJ30) had associated cemeteries, although the cemeteries at Sites 16AN89 and 16SJ20 were located outside of the 0.8 km (0.5 mi) radius of the current project area.

Site 16AN31, Monroe Plantation

Monroe Plantation, Site 16AN31, was originally recorded in 1981 by CEI as a mid-nineteenth to mid-twentieth century sugar plantation complex. A number of features were identified, including the quarters area, sugarhouse, machine shop, cemetery, and main plantation house. The site was recommended as potentially eligible at that time. A small portion of the site, located near the southern border, was revisited in 2011 during an RCG&A survey, which failed to reveal any evidence of cultural resources. As a result of survey and archival research, the boundary of Site 16AN31 was shifted in 2012 to reflect historic parish boundary changes Another portion of the site was surveyed by CEI in 2011. That Phase I survey traversed the mid-rear width of the site, and also did not result in the recovery of any artifacts of identification of features. The most recent site visit occurred in 2013, as part of Port et al.'s (2015) Phase I and II survey and testing of a large portion of the site. During that visit, they clarified that a majority of the site was under sugar cane cultivation, excepting the cemetery and quarters areas, which were located in the northwestern corner of the site and near the Mississippi River. Structural remains were relocated in the quarters, mill manger's residence, and sugarhouse areas, and intact cultural deposits, including artifact scatters, were located below the plowzone in those areas as well as in Tracts C and D. Furthermore, mechanical stripping was conducted at the Monroe Cemetery in order to define the border of the area; 163 burial features were documented. Although the project was cancelled before Phase II testing was completed, CEI recommended that Tracts A1, A2, D1, D3, and G be considered eligible for listing on the NRHP as a discontinuous contributing elements of Monroe Plantation.

Site 16AN32, Bruslie Plantation

Also recorded in 1981 by CEI, Site 16AN32 (Bruslie Planation) is nested within the boundaries of Monroe Plantation (16AN31). This site was recorded as a late nineteenth to mid-twentieth century sugar plantation, with residential and sugarhouse features, and was recommended as potentially significant. The site was revisited in 2000 by archeologists from CEI. Although the investigated area did not contain significant cultural resources, it was noted that artifact density increased towards the south of the survey area and additional testing may be necessary if the proposed project corridor moved. Another portion of the site was surveyed by CEI in 2011. That Phase I survey traversed the southwestern edge of the site, and recovered artifacts confirmed the late nineteenth to early twentieth century occupation, but noted that the presence of pearlware might indicate an earlier occupation of the site. The most recent site visit occurred in 2013, as part of Port et al.'s (2015) Phase I and II survey and testing of the site. In addition to mechanical stripping and unit excavation at selected building locations, remote sensing and mechanical stripping were utilized to identify and define the boundaries of Bruslie Cemetery.

Site 16AN34, Riverton Plantation

Site 16AN34, Riverton Plantation, was recorded in 1982 by CEI. The currently proposed project traverses only the northernmost (rear) portion of the site. The site was documented as a nineteenth century plantation in which a layer of brick and dense artifact scatter was exposed in a ditch along a road running through the site. Little information is available on the site form, but a quarters area was noted, and it was recommended to be potentially significant.

Site 16AN60, Houmas Central Sugar Factory

The Houmas Central Sugar Factory (Site 16AN60) was originally recorded in 1996 by C. Hays as the location of a nineteenth century sugar factory. Standing structures and remnant foundations were documented, as well as an associated artifact deposit. RCG&A completed Phase II testing of the site in 1997, which included mechanical trenching and unit excavation in portions of the site. In addition to numerous features and foundations associated with the sugar factory, seven architectural features that predated the factory were identified. The site was recommended as eligible for listing on the NRHP, but Phase II testing in the proposed project area exhausted the research potential of those portions of the site. Another Phase I survey was conducted through portions of Site 16AN60 in 2002, in which more structural features, such as foundation walls and a rubble floor, and intact artifact deposits were identified; additional testing of those portions of the site was recommended.

Site 16AN89, Orange Grove Plantation

Orange Grove Plantation was recorded as an archeological site in 2012 by SURA as a nineteenth century sugar plantation site with an associated cemetery. Recovered artifacts included creamware and pearlware, indicating an early occupation, and foundational evidence of 2 sugar mill sites, the main plantation house, and tenant quarters were identified. The cemetery area was clearly marked, and not shovel tested. Additional testing at three locations was recommended, and no impact to the cemetery was expected. The currently proposed project area passes close to, but not through, Localities 2 and 3, which included the main house and farm buildings.

Site 16SJ20, Wilton Plantation

Site 16SJ20, Wilton Plantation, was recorded as a sugar plantation that was dated from as early as the mid-eighteenth century. Recorded cultural features consisted of a quarters area, sugar house remnants, tenant farmer community, and a "big house" ruin, with associated artifact scatters. The site was recommended as potentially eligible at that time. In 2007, CEI revisited the site and excavated in two general vicinities: "Back Bruly," described as late nineteenth and early twentieth centuries tenant houses, and Localities 18/20, the location of Schexnayder barn and the Wilton Plantation Blacksmith shop. No intact deposits or features were identified in either of these areas, and no further work was recommended for those investigated portions. No site form updates resulting from the Phase II or III investigations were available on the Louisiana Department of Culture, Recreation, and Tourism website as of the time of the current study, but additional work at Site 16SJ20 was discussed in Handly et al. 2015. According to the Louisiana site eligibility database, the Main House and Sugar House areas have been determined eligible for listing on the NRHP, Locality 46 is not eligible, and the remainder of the site has not been formally assessed for listing on the NRHP.

Site 16SJ21, Helvetia Plantation

Site 16SJ21, Helvetia Plantation, also was recorded as a sugar plantation, and dated from circa 1820 to the present. Features identified in the original fieldwork included a sugar mill, two standing quarters houses, "big house" ruins, and two overseer's houses, along with the associated historic artifact scatters. The site was recommended as potentially eligible at that time. CEI revisited portions of the Helvetia Plantation site in 2007. However, no evidence of Locality 76 was identified, and no further work was recommended in that location. Portions of Site 16SJ21 were revisited again in 2017 by archeologists from SWCA. Despite the excavation of 49 shovel tests, no archaeological deposits were encountered, and the investigated portions of Site 16SJ21 were recommended as not eligible for listing on the NRHP, and no further work was recommended. No site form updates resulting from the Phase II or III investigations were available on the Louisiana Department of Culture, Recreation, and Tourism website as of the time of the current study, but additional work at Site 16SJ21 was discussed in Handly et al. 2015. According to the Louisiana site eligibility database, the Helvetia Plantation Front area has been determined eligible for listing on the NRHP, Localities 40 and 41 are not eligible, and the remainder of the site has not been formally assessed for listing on the NRHP.

Site 16SJ30, Colomb Plantation

The archeological component associated with previously NRHP-listed Columb Plantation (NPS# 80004250) was recorded in 1981 as a mid-nineteenth to twentieth century plantation; the property was delisted in 2019. In addition to the extant main house and outbuilding that were listed on the NRHP, a number of artifacts were recovered during shovel testing and unit excavation. The site was revisited in 2007 by CEI, by which time the main house and outbuilding had been demolished. This investigation was at the location of an unmarked cemetery only, reported to be a slave cemetery, and located more than 0.8 km (1.0 mi) outside of the currently proposed project area. Mechanical excavation revealed the presence of at least 10 grave shafts, but the full extent of the cemetery was not defined. Additional delineation and avoidance of the cemetery was recommended, as was additional testing of the locations of previous structures that may retain intact archeological deposits.

Site 16SJ34, St. Rose Plantation

Located adjacent to and just downriver from Site 16SJ30 is another nineteenth to twentieth sugar plantation, Site 16SJ34, St. Rose Plantation. This site was recorded in 1981 by Southern Archaeological Research, who noted the site as potentially eligible and recommended additional work. Structures present at that time consisted of four quarterhouses, an overseer's house, and a nineteenth century barn, and archeological features of a quarterhouse midden, the sugar mill location and mill pond, and twentieth century dump also were recorded. Northern (rear) portions of the site were revisited in 2007 by CEI, who did not encounter any intact archeological deposits. Seven standing structures were noted, but these were moved to their current location from the front of St. Rose and Colomb Plantations, and were not considered eligible. Those structures dated from the mid- to late nineteenth century and included two creole cottages, a kitchen, a stable or carriage house, a pigeonnier, and a cistern. Although no further work was recommended in the surveyed portion of Site 16SJ34, additional testing was recommended for locations towards the front of the plantation and outside of the 2007 survey area.

Previously Recorded Historic Built Resources Located within 0.8 km (0.5 mi) of the Project Jupiter Project Area

According to the Louisiana Cultural Resources Database Map, 11 previously reported historic built resources occur within 0.8 km (0.5 mi) of the Project Jupiter project area (Figure 2; Table 3). Of these, seven were historic buildings that were moved to their current location near the intersection of Routes 44 and 22, at the northeastern corner of Site 16AN60 and outside of the currently proposed project area. These consisted of 4 slave quarters from nearby plantations, 1 school that was said to have been the first Black Catholic school in the area, 1 post office, and 1 post office and store. In addition to these, one recorded building was NRHP-listed Houmas House (LHRI# 03-00726), which originally was built circa 1790 and expanded in 1840; this structure will be discussed in further detail below. One structure was a circa 1961 railroad spur (LHRI# 03-00930), and little information was available on another building, LHRI# 03-00726; neither of these are considered eligible for listing on the NRHP. Finally, LHRI# 17-05787 appeared on the map, but was misplotted and the structure form was not available (the 17- prefix does not indicate Ascension Parish).

Cemeteries Located within 0.8 km (0.5 mi) of the Project Jupiter Project Area

Three known cemeteries occur within 0.8 km (0.5 mi) of the Project Jupiter project area (Figure 2; Table 4). None of these occur within or immediately adjacent to the project area, and no information on any of the cemeteries was available on online cemetery resources (i.e. Find-a-Grave, LA-Cemeteries). According to the Louisiana site form, Burnside Cemetery, Site 16AN28, was documented in 1980 as having 20 interments than dated from 1907 to 1943. The burial grounds and artifacts at Great Houmas Village, Site 16AN35, are associated with historic Houmas Native American tribe. This location was recommended to be potentially significant after a site visit in 2002, when it was recommended that immediate measures be

put into place to protect the area from nearby growing subdivisions. Finally, the Bruslie Cemetery is located within Site 16AN32; remote sensing survey and mechanical stripping revealed the likely extent of the unmarked cemetery and 99 burials or likely burials were recorded (Port et al. 2015:11-66 – 11-75).

Properties Listed on the National Register of Historic Places and National Register Historic Districts Located within 0.8 km (0.5 mi) of the Project Jupiter Project Area

One National Register Historic Property occurs within 0.8 km (0.5 mi) of the Project Jupiter project area (Figure 2; Table 5). The Houmas House (NPS# 80001694) occurs immediately across the railroad tracks and approximately 0.15 km (0.09 mi) south of the project area. The original Houmas House was built in circa 1790 and was expanded in 1840 to be a large, central hall residence in Greek Revival style. The NRHP listing includes the original 1790s as well as the larger house, garconnieres, a caretaker's house, carriage house, and several other outbuildings and the formal gardens. Houmas House is of National significance, as the owner in the 1850s-60s was the largest slave holder in Louisiana, and the architecture remains an excellent example of the region's grand plantation houses.

Historic Map Research

Preliminary map research was conducted to help identify locations that may contain cultural resources that currently are not recorded in the state site files. Of particular interest was the identification of any historic cemeteries that may have been visible in early aerial photographs or marked on historic maps, but no longer are visible or readily apparent on the surface. Resources examined included USDA quadrangle maps (Donaldsonville, LA 15' 1892, 1939, 1962, and 1965; Convent, LA 7.5' 1946, 1962; Gonzales, LA 7.5' 1935, 1953, 1954, 1961), U.S. Coast Survey (1877 Vacherie Road to Brilliant Point, Brilliant Point to Point Houmas) and Mississippi River Commission maps (MRC 1874, Chart 29; 1877, Chart 70; 1921, Chart 70), as well as aerial photography from 1941, 1953, 1957, and 1978. None of these examined resources appeared to indicate the presence of a cemetery within the proposed ROW. However, as shown in Figures 4, 5 and 6, the proposed ROW does appear to intersect with several historic plantations and other settlements that no longer are extant including portions of the Conway Plantation, which has not been recorded previously in the Louisiana site files. Also reflected in these maps are possible areas of intersection with remains of the Riverton Plantation (16AN34), Burnside (16AN60), and Orange Grove Plantation (16AN89).

Probability Modeling

Based on the results of the background research, the preferred ROW and project alternatives can be segmented and the segments classified according to their potential containing cultural resources and their requirements for survey. Approximately 6.5 km (4 mi) of the preferred ROW and 0.8 km (1 mi) of the alternatives previously were investigated for cultural resources and will not require additional examination. Another 9.1 km (5.7 mi) of preferred ROW and the remaining 3.8 km (1.9 mi) of the alternative ROW are characterized as having a high probability for containing cultural resources and will require shovel testing at high probability intervals. These locations were identified based on proximity to known archeological sites or suspected sites based on examination of historic maps, as well as positioning on the landscape (i.e., locations not in wetlands and positioned above the 10 ft contour line as indicated on USGS quadrangle maps were determined to be high probability). The remaining 9.9 km (6.1 mi) of preferred ROW and none of the project alternatives are characterized as having a low probability for containing cultural resources and will require shovel testing at low probability intervals. Locations classified as low probability were identified based on positioning below the 10 ft contour lines on USGS quadrangle maps and/or within wetlands, and outside the known or suspected locations of archeological sites. Locations within large, historic plantation sites whose site boundaries were defined based on historic property boundaries rather than on the locations of identified archeological deposits and/or features will be investigated at high probability intervals is areas situated above the 10 ft contour line and/or near known activity loci within the site boundaries, and at low probability intervals in areas situated below the 10 ft contour line and/or within wetlands.

Phase I Cultural Resources Survey and Archeological Inventory
Following concurrence on the methodologies outlined herein, Phase I cultural resources survey of the project corridor and associated project items will consist of pedestrian survey augmented by systematic shovel testing to determine if intact cultural deposits are present within the project area. The project corridor also will be examined for the presence of historic structures and cemeteries.

Archeological Survey
Within locations judged to have a high probability for containing intact cultural resources, fieldwork will consist of pedestrian reconnaissance and systematic shovel testing conducted at 30 m (98 ft) intervals along two survey transects spaced 30 m (98 ft) apart. In locations that are judged to have a low probability for containing intact cultural resources, survey methods will consist of pedestrian reconnaissance and systematic shovel testing conducted at 50 m (164 ft) intervals along a survey transect.

Each shovel test will measure approximately 30 cm (12 in) in diameter and each will be excavated to a minimum depth of 50 cmbs (20 inbs), to sterile clay or clay-like subsoil, or until an influx of water hinders the excavation process. All fill soils will be screened through 0.25 in (0.64 cm) hardware cloth; extremely wet soils and clay will be hand-sifted, troweled, and examined visually for cultural material. Each shovel test will be excavated in 10 cm (4 in) artificial levels within natural strata, and the fill from each level will be screened separately. Munsell® Soil Color Charts will be used to record soil color; soil texture and other identifiable characteristics will be recorded using standard soils nomenclature. All shovel tests will be backfilled immediately upon completion of the archeological recordation process.

Field data collection at each of the proposed corridor survey segments and of all identified cultural resources will employ sub-meter accurate handheld Trimble TDC 150 units. Field data will be processed in-house by GIS specialists using ESRI Collector software and exported to an ArcGIS geodatabase. Trimble TDC 150 units will be equipped with software to provide 'real time' transfer of field data to the home office for processing. This software allows project updates directly to field crews. A customized data dictionary designed for the Phase I cultural resources survey will be loaded to each GPS unit through RCG&A's use of the ESRI Collector. Both field generated data and project item changes can be transferred on-the-fly or when in-field connectivity is optimal. ArcGIS Online will provide a platform so that during periods of fieldwork both PCS and its client will be able to track and view project survey status in real-time at their convenience.

Archeological Site Delineation
Any identified cultural resources will be delineated sufficiently so their vertical and horizontal extent can be determined within the limits of the proposed project corridor. Archeological recordation of each resource will include a combination of the following: (1) establishment of a site datum; (2) intensive surface reconnaissance of the site area; (3) excavation of tightly spaced shovel tests at 10 m (32.8 ft) or 15 m (49.2 ft) intervals along rays emanating from datum in each of the cardinal directions to delineate both site size and configuration within the proposed pipeline corridor; and (4) mapping and photography of any site. Color digital photographs of each site area will be taken.

Architectural Review and Standing Structures Recordation
All visible historic standing structures, cemeteries, or engineering structures located within or immediately adjacent to the proposed project corridor or associated project item that appear to be at least 50 years in age will be recorded using protocols developed by RCG&A architectural historians. Reconnaissance-level architectural survey data, including digital photography, will be collected from the project right-of-way for those buildings identified within or adjacent to the direct Area of Potential Effect (APE). The reconnaissance-level architectural survey data then will be reviewed by an architectural historian who meets or exceeds the Secretary of the Interior standards. This individual will determine whether additional research or recordation will be necessary, and the results will be considered and outlined in the draft report.

Based on the current ROW for the proposed project, the pipeline will pass north of the railroad tracks that form the northern boundary of the Houmas House, a historic property with significance on the national level that was listed on the National Register in 1980. As part of the reconnaissance-level architectural review, RCG&A will include a preliminary assessment of potential project impacts to this historic property and recommendations for additional work, if required. If the proposed project ROW is shifted to fall south of the railroad tracks in the vicinity of the Houmas House, then additional architectural (and archeological) investigation will be required.

Laboratory Analysis

Laboratory analysis of all recovered cultural material will follow established archeological protocols. All field specimen bag proveniences will be crosschecked against the field notes and the specimens will be inventoried for accuracy and completeness. Following this quality-control process, all recovered material will be washed by hand, air-dried, sorted into basic material categories, and then encoded into computerized catalogs for manipulation of the data. The nature and structure of the analyses will be guided by the goals of the project. The first requirement of the research will be to determine whether or not a cultural resource locus has the potential to meet the legal definition of an historic property. Particular care will be taken to observe and record chronologically sensitive attributes of historic artifacts, and to evaluate, for example, whether or not the material is more than 50 years in age.

Beyond the determination of minimum age, the artifact analysis will consist of making and recording a series of observations for each specimen. The observations will be chosen to provide the most significant and diagnostic information about each specimen. Separate relational databases may be used to store, organize, and manipulate the data generated during the analytical process. Separate databases will be used for analyzing the prehistoric lithics, prehistoric ceramics, and historic artifacts recovered during survey. If needed, additional databases will be used for analysis of any recovered faunal or botanical remains, or other unanticipated classes of data. The use of the different databases reflects the differences in analytical protocols required to study the different types of material. Non-diagnostic artifact descriptions will be summarized in tabular form. Photographs and descriptions of chronologically or culturally diagnostic artifacts will be included as illustrations in the report.

Cultural Resources Assessment and Reporting

All sites will be assessed to identify those properties that may possess those qualities of significance and integrity applying the NRHP Criteria for Evaluation (36 CFR 60.4 [a-d]), as well as to document those sites for which no further work or treatment is required. Following survey, a draft report will be written that documents the results of this investigation; technical appendices will include an inventory of the recovered cultural material and an Unanticipated Discovery Plan. Official State of Louisiana Archeological Site Forms (or update forms if the archeological site had been recorded previously) and/or Louisiana Historic Resources Inventory (LHRI) forms will be submitted to the Louisiana SHPO under separate cover. Once prepared a copy of the draft report and Unanticipated Discovery Plan will be submitted to the Louisiana SHPO for review. Within four (4) weeks of receiving review comments, two (2) hard copies of the final report and Unanticipated Discovery Plan (one unbound) and one digital version on CD will be submitted to the Louisiana SHPO incorporating or resolving all comments from the reviews.

Curation

After the final reports have been accepted, RCG&A anticipates that all drawings, maps, photographs, field notes, and cultural materials not returned to individual landowners will be curated with the State of Louisiana.

Key Personnel

Personnel assigned to the project will include Dr. Wayne Boyko, Ph.D., R.P.A., Mr. Nathanael Heller, M.A., R.P.A., and/or Mr. Peter Cropley, M.A., R.P.A, one of whom will serve as Principal Investigator for this project. Crew chiefs and field archeologists will be chosen from our full-time professional archeological staff and they will assist in the prosecution of this work. Mr. Tyler Leben, B.A. will handle geomatics while Ms. Heidi Post, B.A. (Production Manager) will oversee report production. The staff of RCG&A is highly trained, and all of our senior staff exceeds the professional qualifications standards stipulated by the Secretary of the Interior (36 CFR 60.1, Appendix A). All members of our field staff have long-standing experience in cultural resources survey throughout the state of Louisiana.

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1997 *Phase I Cultural Resources Survey and Inventory of the Proposed City of Gonzales Wastewater Facilities Improvement 24" Effluent Force Main Line, Ascension Parish, Louisiana*. Prepared for Glenn Shaheen & Associates, Inc., Gonzales, Louisiana. On file at the Louisiana Department of Culture, Recreation, and Tourism, Baton Rouge, Louisiana. Report no. 22-2031.

Rothrock, Oscar A., III, and Meredith A. Moreno
2015 *Phase I Cultural Resources Survey of the Proposed Maurepas Pipelines Project, Ascension, St. James, St, John the Baptist, and St. Charles Parishes, Louisiana*. Prepared for QPS Engineering, LLC (QPS). On file at the Louisiana Department of Culture, Recreation, and Tourism, Baton Rouge, Louisiana. Report no. 22-4868.

Ryan, Joanne, Sara A. Hahn, and Thurston H.G. Hahn III
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Shuman, Malcolm, Lea Taylor Gabour, Brandy Kerr, and Phllip K. Taylor
2014 *Phase I Cultural Resources Survey of 673.9 Acres (272.67 Hectares) Proposed for Industrial Use, Burnside, Ascension Parish, Louisiana*. Prepared for Impala Warehousing (US), LLC, Darrow, Louisiana. On file at the Louisiana Department of Culture, Recreation, and Tourism, Baton Rouge, Louisiana. Report no. 22-4026.

Shuman, Malcolm K. and Phillip K. Taylor
2012 *Phase I Cultural Resources Survey of 178.2 Acres (72.1 Hectares) Proposed for Industrial Use, Burnside, Ascension Parish, Louisiana*. Prepared for Impala Warehousing (US), LLC, Darrow, Louisiana. On file at the Louisiana Department of Culture, Recreation, and Tourism, Baton Rouge, Louisiana. Report no. 22-4031.

Shuman, Malcolm, Phillip K. Taylor, and Taylor Gabour
2014 *Phase I Cultural Resources Survey of 30.8 Acres (12.5 Hectares) Proposed for Industrial Use, Burnside, Ascension Parish, Louisiana*. Prepared for Impala Warehousing (US), LLC, Darrow, Louisiana. On file at the Louisiana Department of Culture, Recreation, and Tourism, Baton Rouge, Louisiana. Report no. 22-3984.

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Stanyard, William, Steve Treloar, Thurstan Hahn, and Mary Beth Derrick
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Wells, Douglas C., Thurston Hahn, III, Sara A. Hahn, Donald G. Hunter, David B. Kelley, and Joanne Ryan
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Williams, Luis and William P. Athens
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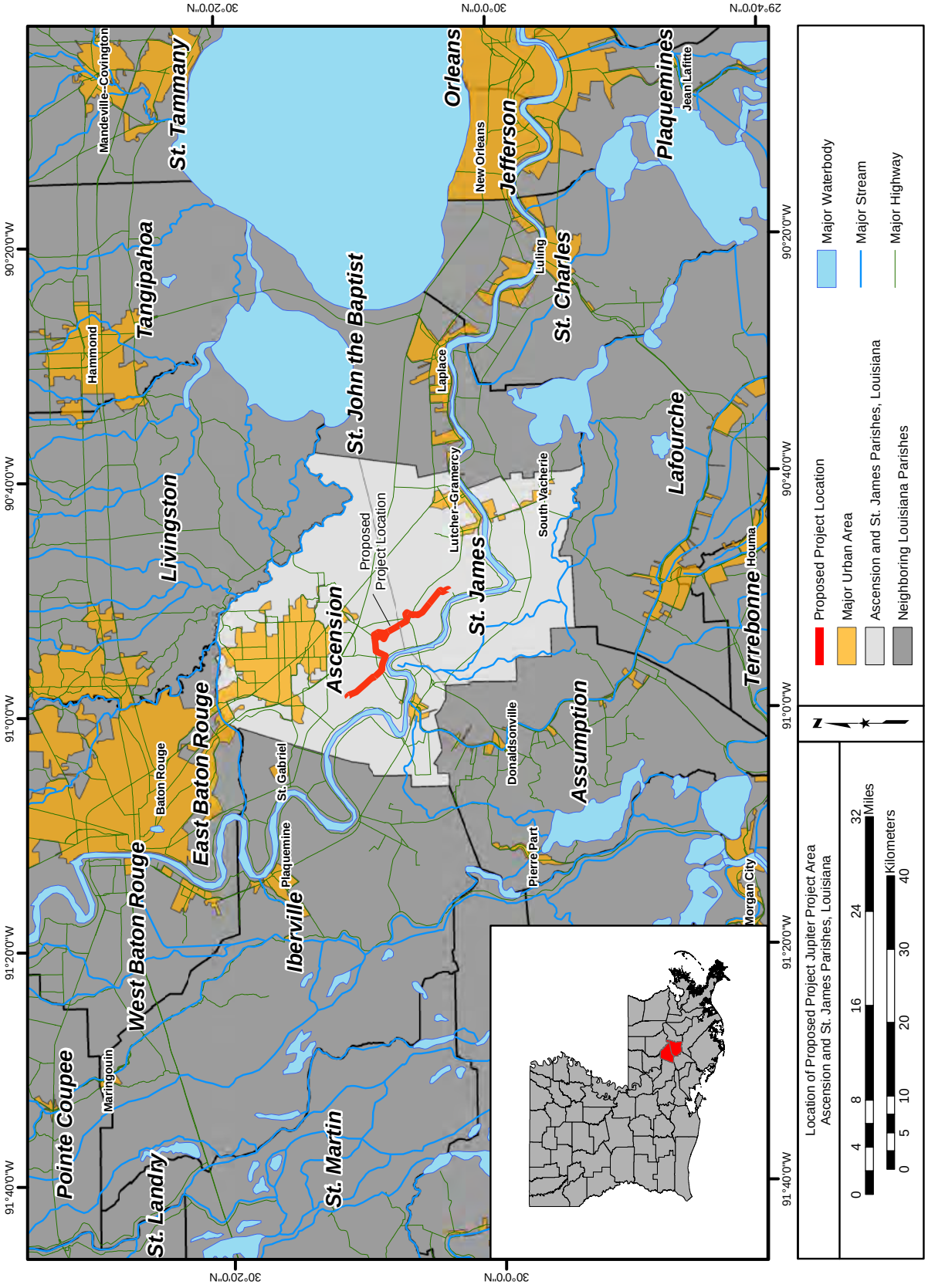

Figure 1 **Overview map depicting the location of the proposed Project Jupiter Pipeline project in Ascension and St. James Parishes, Louisiana.**

Figure 2 Sheet 1 **USGS 7.5' quadrangle map excerpts depicting the location of the proposed Project Jupiter Pipeline project, as well as previously completed cultural resources investigations and known cultural resources located within 0.8 km (1.0 mi) of the project ROW in Ascension and St. James Parishes, Louisiana.**

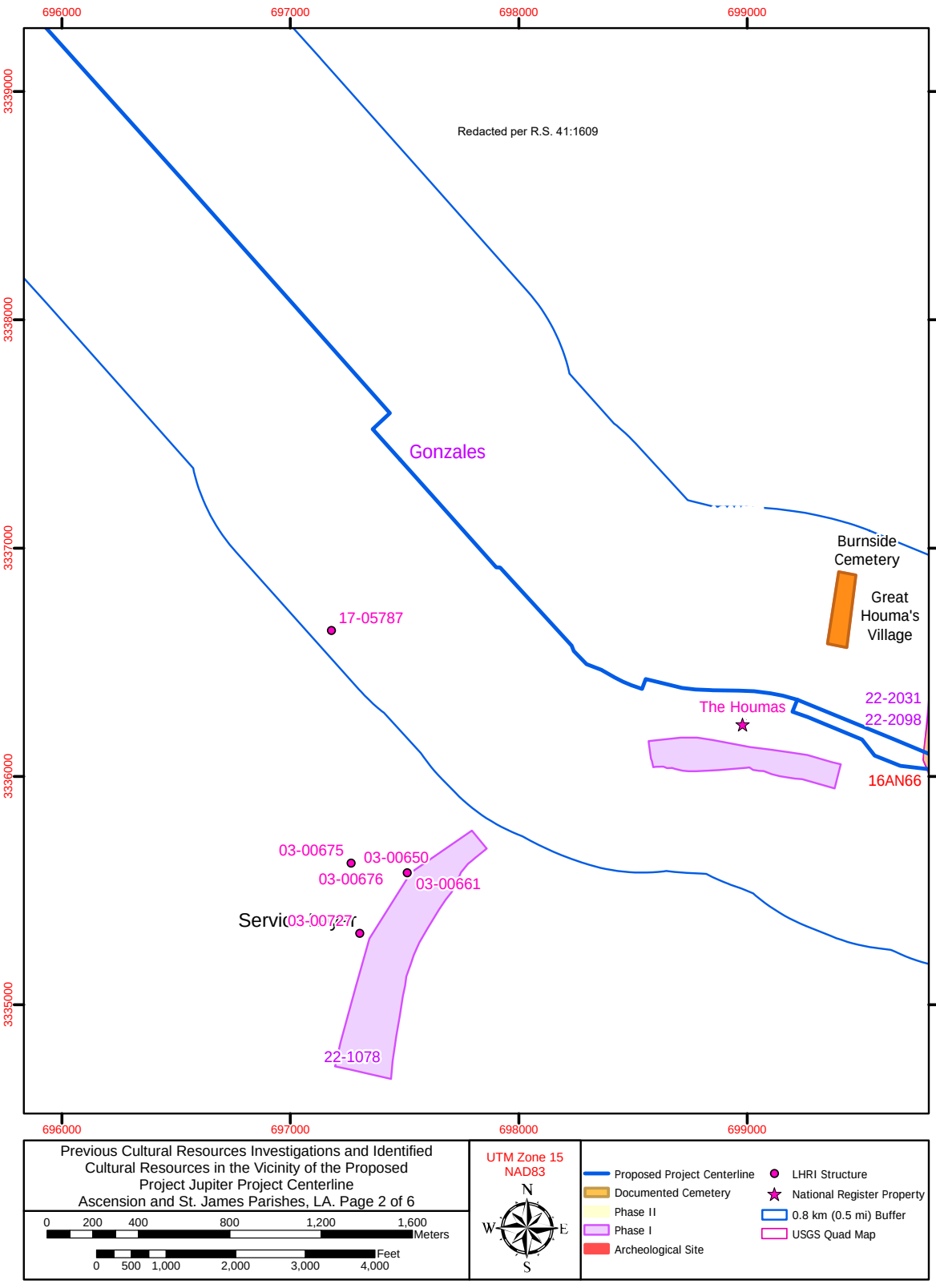

Figure 2 Sheet 2 **USGS 7.5' quadrangle map excerpts depicting the location of the proposed Project Jupiter Pipeline project, as well as previously completed cultural resources investigations and known cultural resources located within 0.8 km (1.0 mi) of the project ROW in Ascension and St. James Parishes, Louisiana.**

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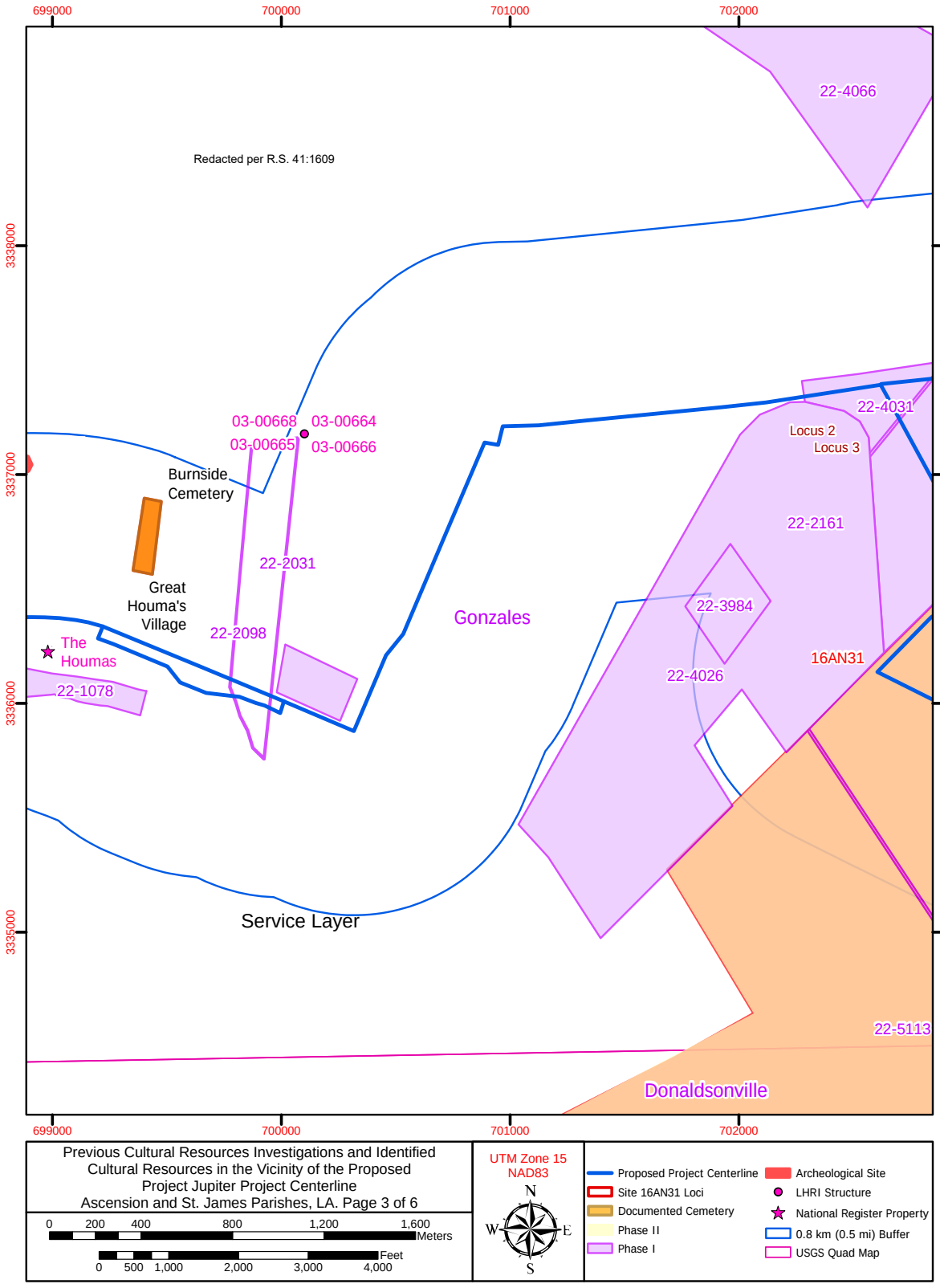

Figure 2 Sheet 3 **USGS 7.5' quadrangle map excerpts depicting the location of the proposed Project Jupiter Pipeline project, as well as previously completed cultural resources investigations and known cultural resources located within 0.8 km (1.0 mi) of the project ROW in Ascension and St. James Parishes, Louisiana.**

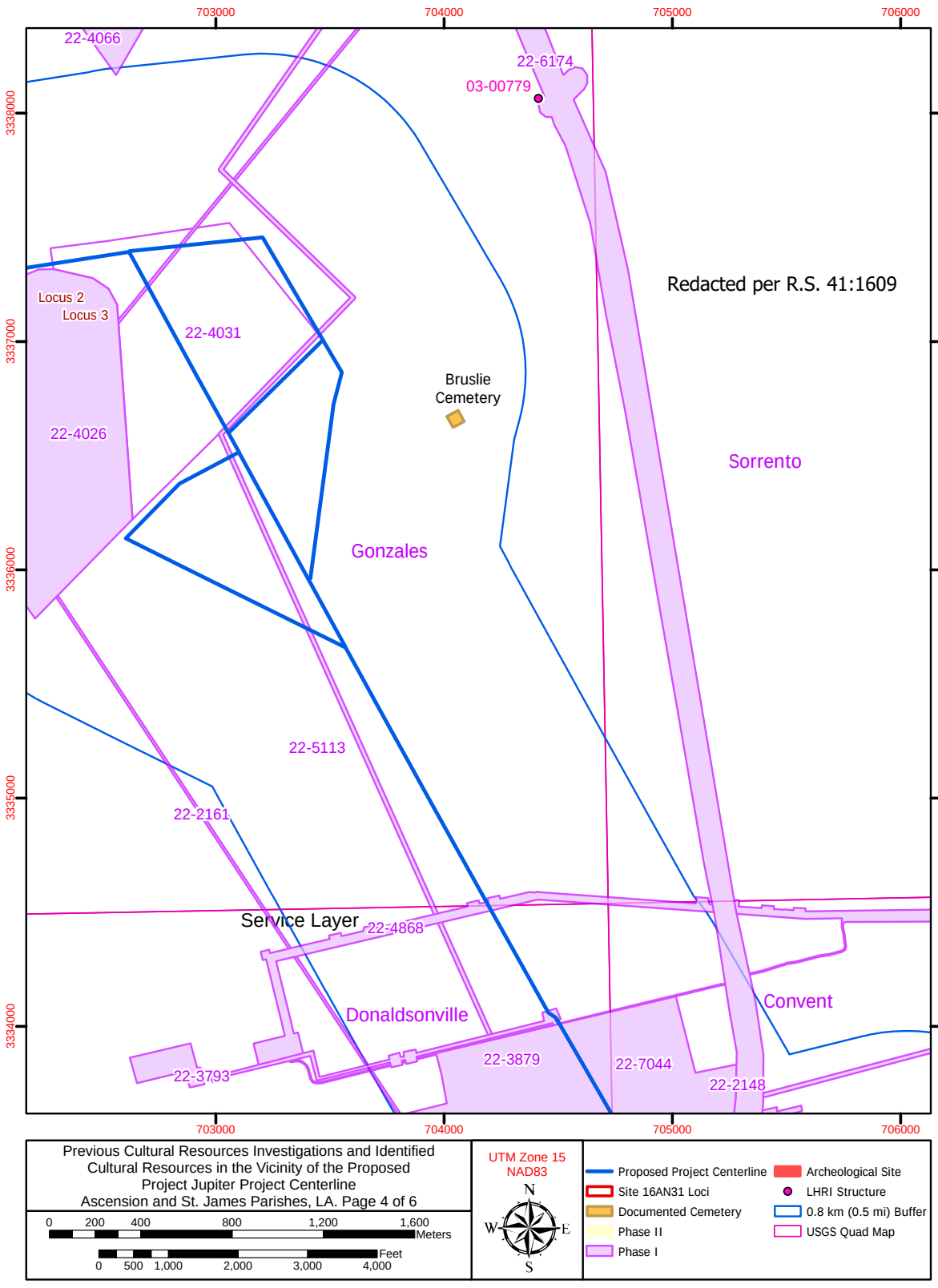

Figure 2 Sheet 4 **USGS 7.5' quadrangle map excerpts depicting the location of the proposed Project Jupiter Pipeline project, as well as previously completed cultural resources investigations and known cultural resources located within 0.8 km (1.0 mi) of the project ROW in Ascension and St. James Parishes, Louisiana.**

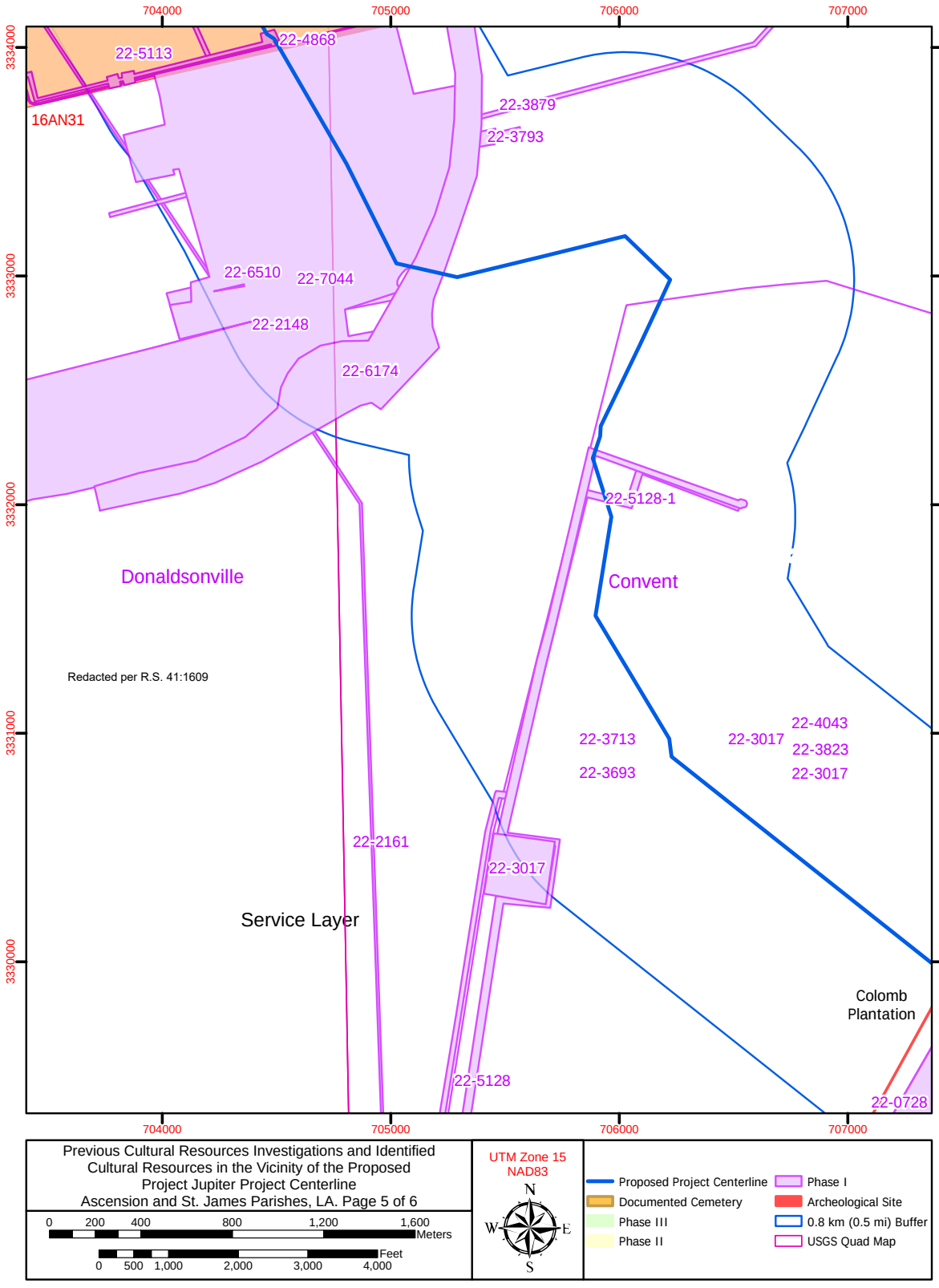

Figure 2 Sheet 5 **USGS 7.5' quadrangle map excerpts depicting the location of the proposed Project Jupiter Pipeline project, as well as previously completed cultural resources investigations and known cultural resources located within 0.8 km (1.0 mi) of the project ROW in Ascension and St. James Parishes, Louisiana.**

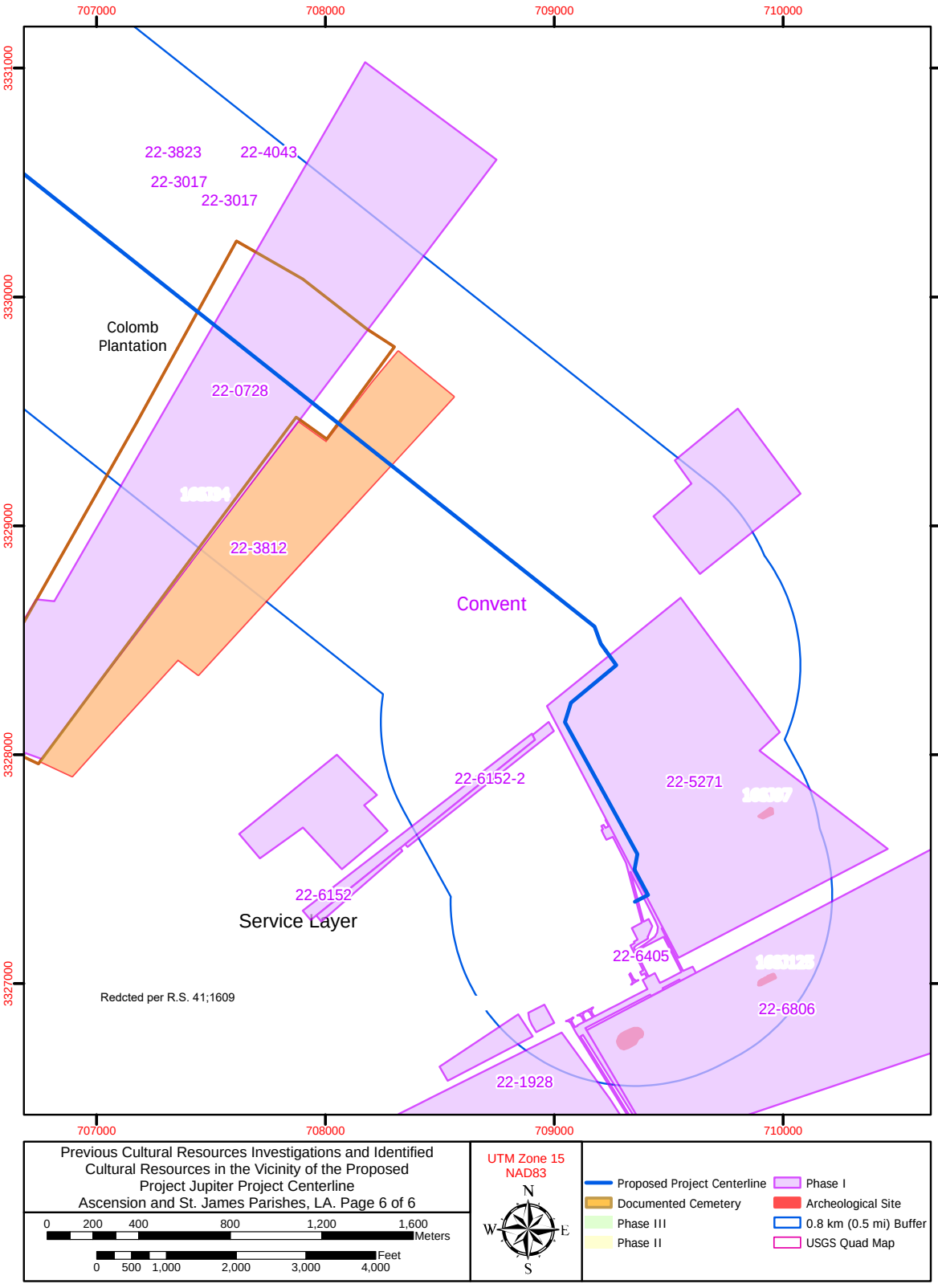

Figure 2 Sheet 6 **USGS 7.5' quadrangle map excerpts depicting the location of the proposed Project Jupiter Pipeline project, as well as previously completed cultural resources investigations and known cultural resources located within 0.8 km (1.0 mi) of the project ROW in Ascension and St. James Parishes, Louisiana.**

Figure 3 Sheet 1 **Aerial photograph excerpts depicting the location of the proposed Project Jupiter Pipeline project in Ascension and St. James Parishes, Louisiana.**

Figure 3 Sheet 2 **Aerial photograph excerpts depicting the location of the proposed Project Jupiter Pipeline project in Ascension and St. James Parishes, Louisiana.**

Figure 3 Sheet 3 **Aerial photograph excerpts depicting the location of the proposed Project Jupiter Pipeline project in Ascension and St. James Parishes, Louisiana.**

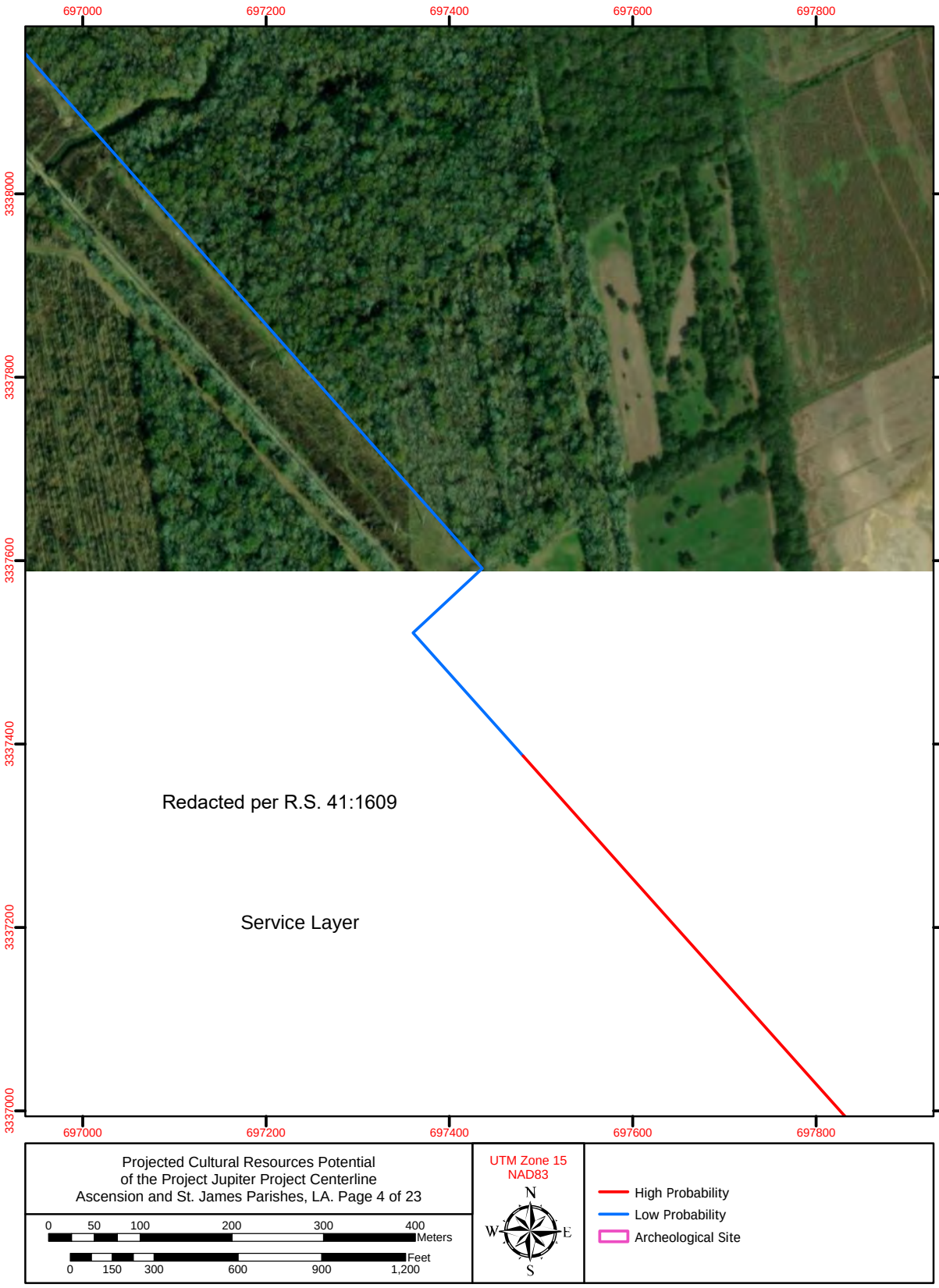

Figure 3 Sheet 4 **Aerial photograph excerpts depicting the location of the proposed Project Jupiter Pipeline project in Ascension and St. James Parishes, Louisiana.**

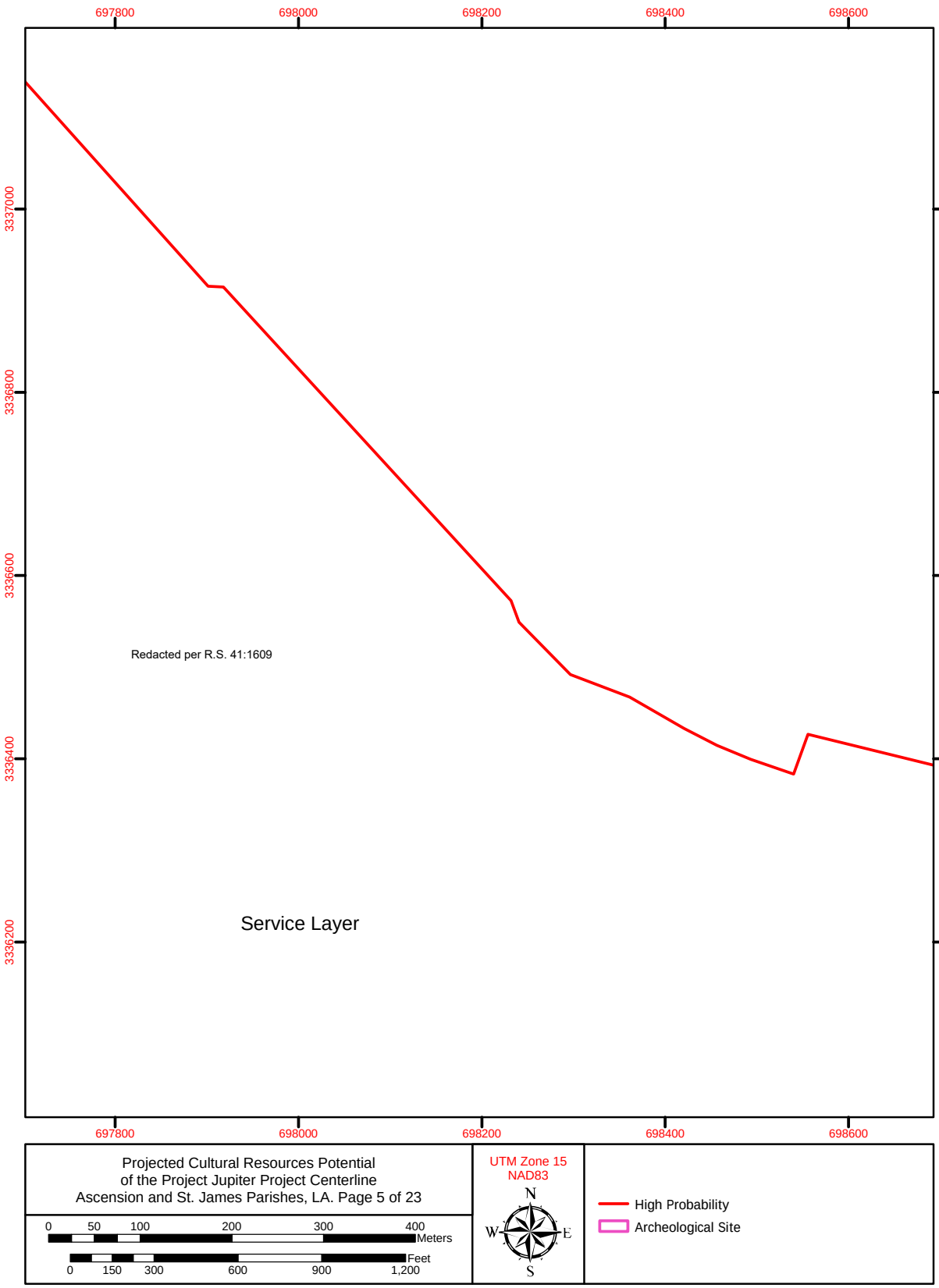

Figure 3 Sheet 5 **Aerial photograph excerpts depicting the location of the proposed Project Jupiter Pipeline project in Ascension and St. James Parishes, Louisiana.**

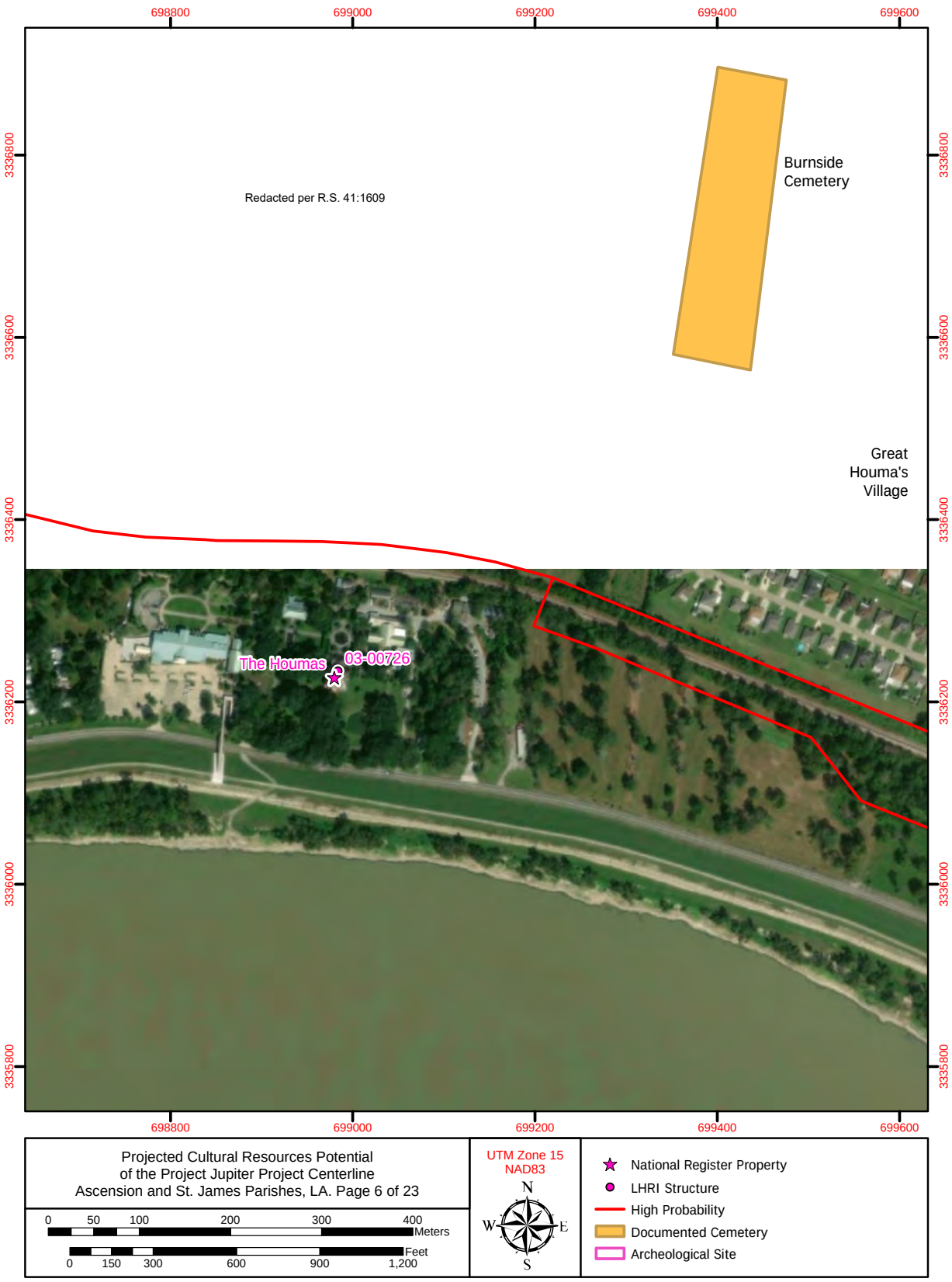

Figure 3 Sheet 6 **Aerial photograph excerpts depicting the location of the proposed Project Jupiter Pipeline project in Ascension and St. James Parishes, Louisiana.**

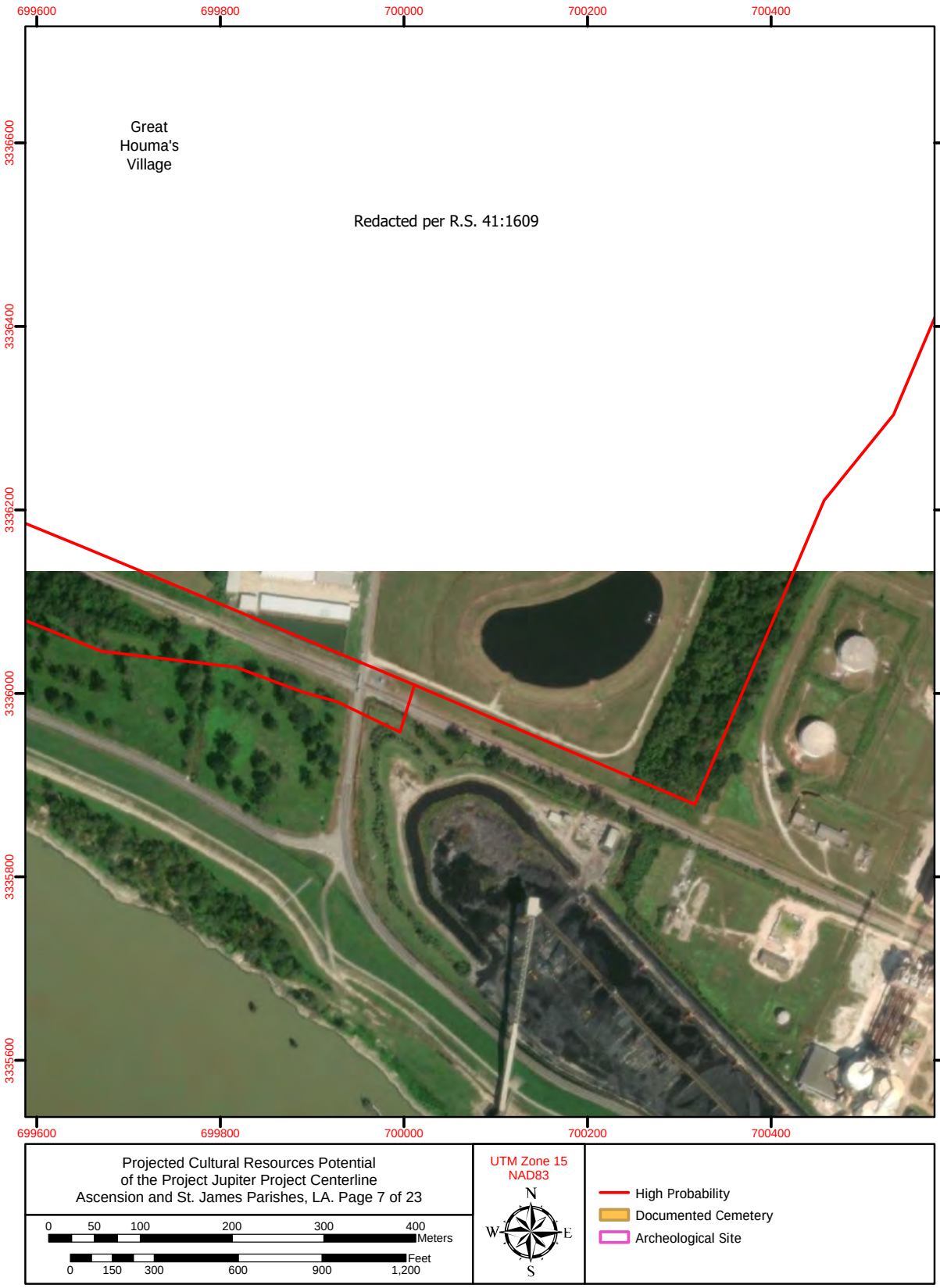

Figure 3 Sheet 7 **Aerial photograph excerpts depicting the location of the proposed Project Jupiter Pipeline project in Ascension and St. James Parishes, Louisiana.**

Figure 3 Sheet 8 **Aerial photograph excerpts depicting the location of the proposed Project Jupiter Pipeline project in Ascension and St. James Parishes, Louisiana.**

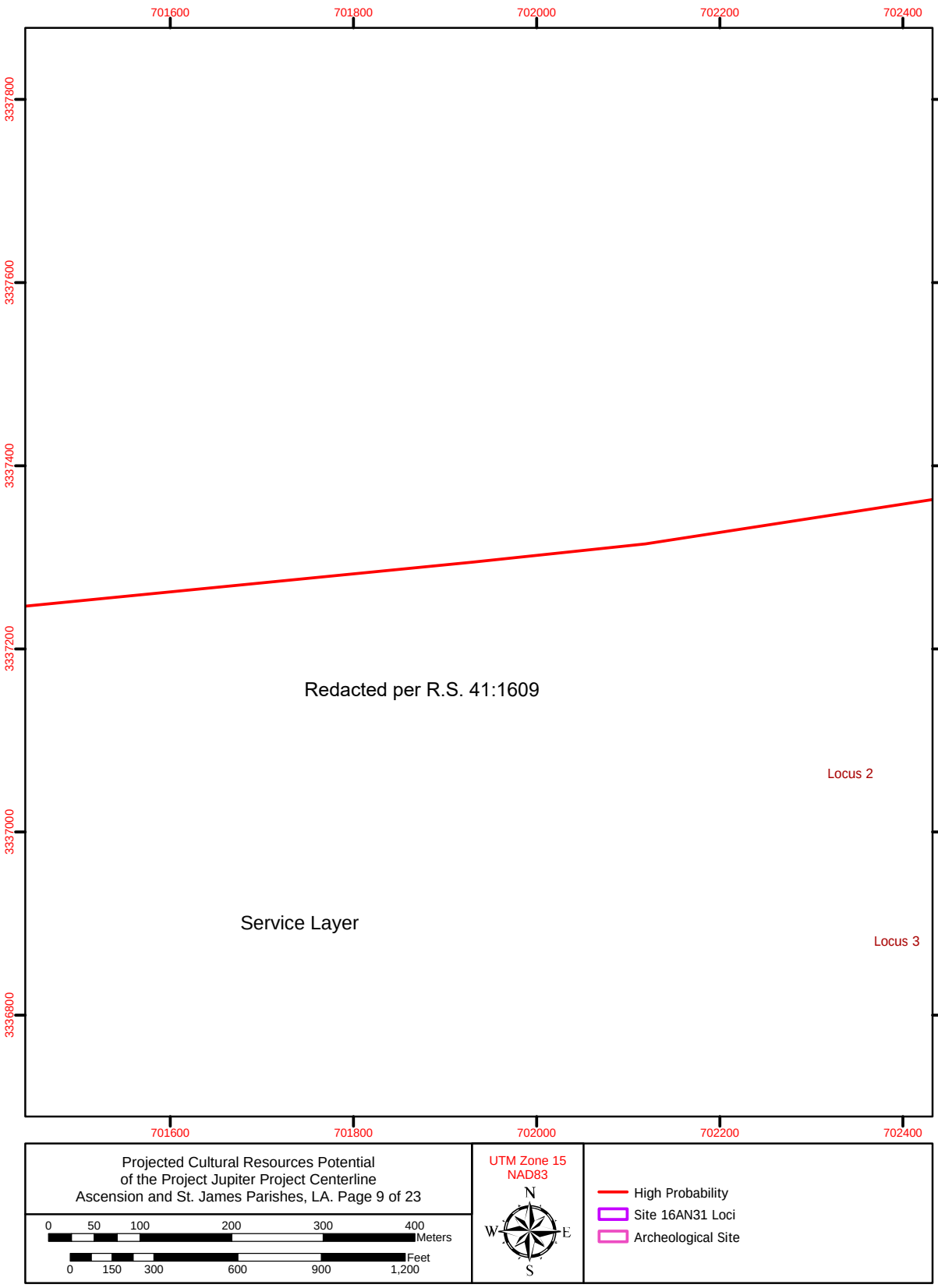

Figure 3 Sheet 9 **Aerial photograph excerpts depicting the location of the proposed Project Jupiter Pipeline project in Ascension and St. James Parishes, Louisiana.**

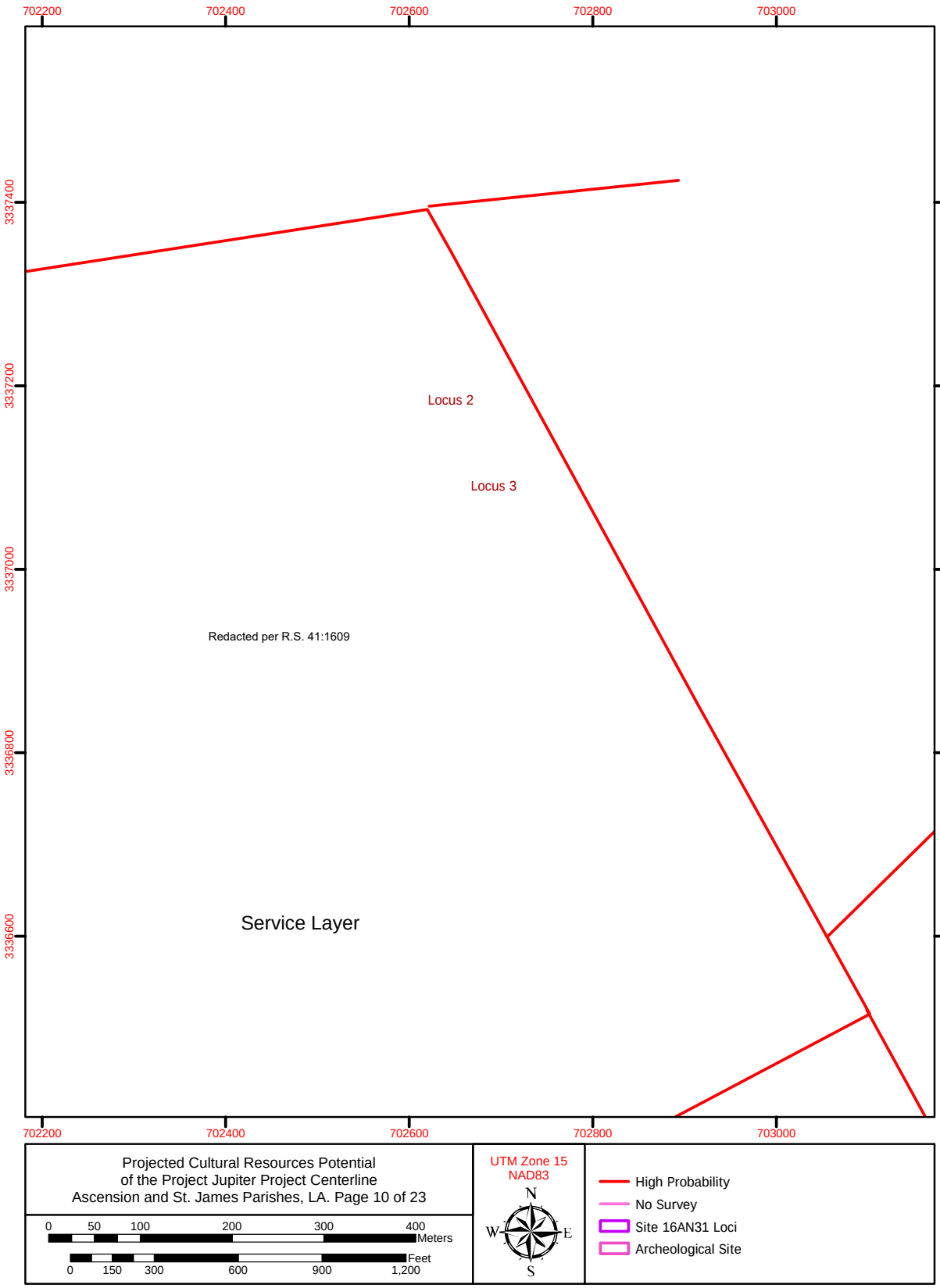

Figure 3 Sheet 10 **Aerial photograph excerpts depicting the location of the proposed Project Jupiter Pipeline project in Ascension and St. James Parishes, Louisiana.**

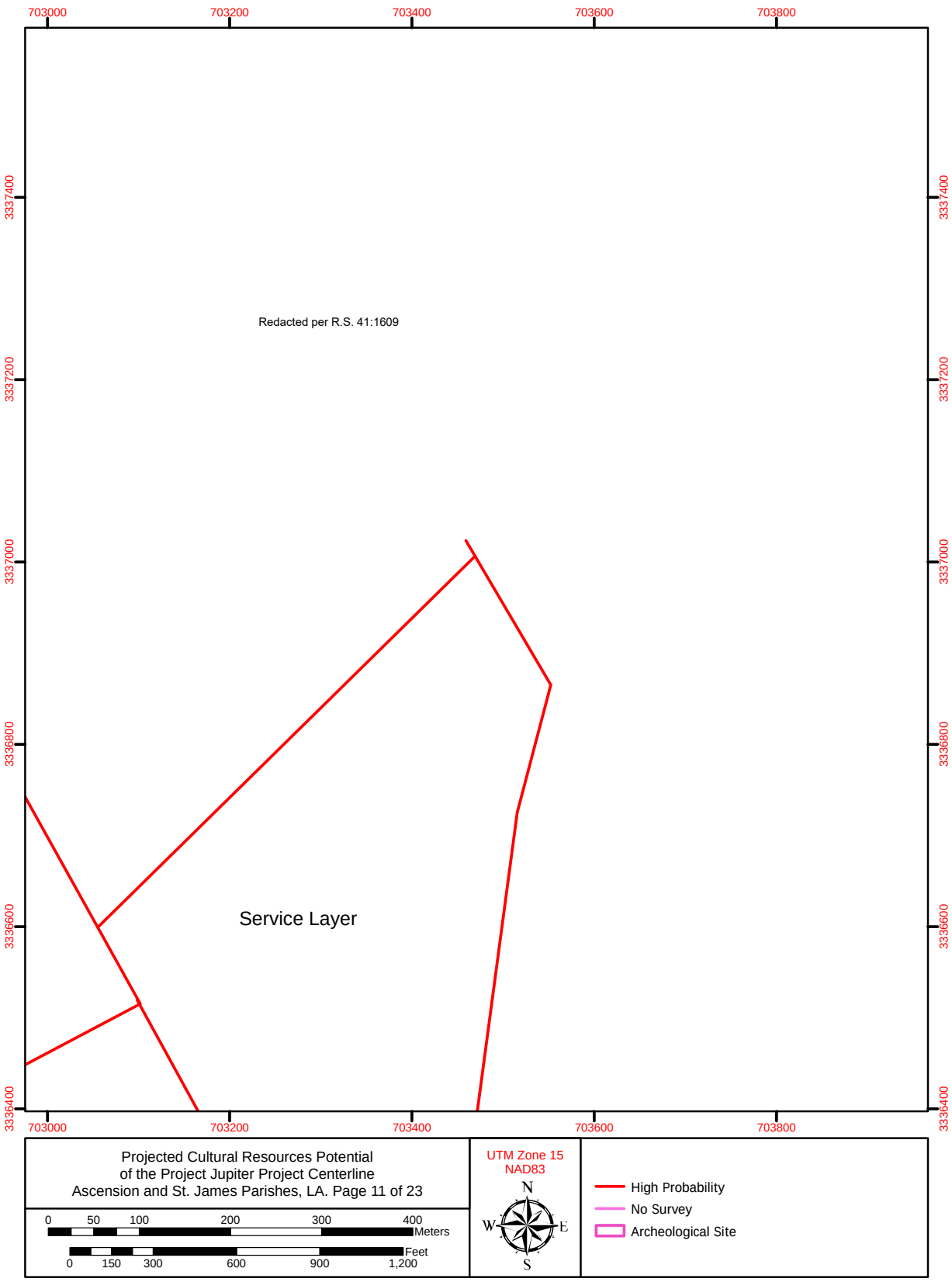

Figure 3 Sheet 11 **Aerial photograph excerpts depicting the location of the proposed Project Jupiter Pipeline project in Ascension and St. James Parishes, Louisiana.**

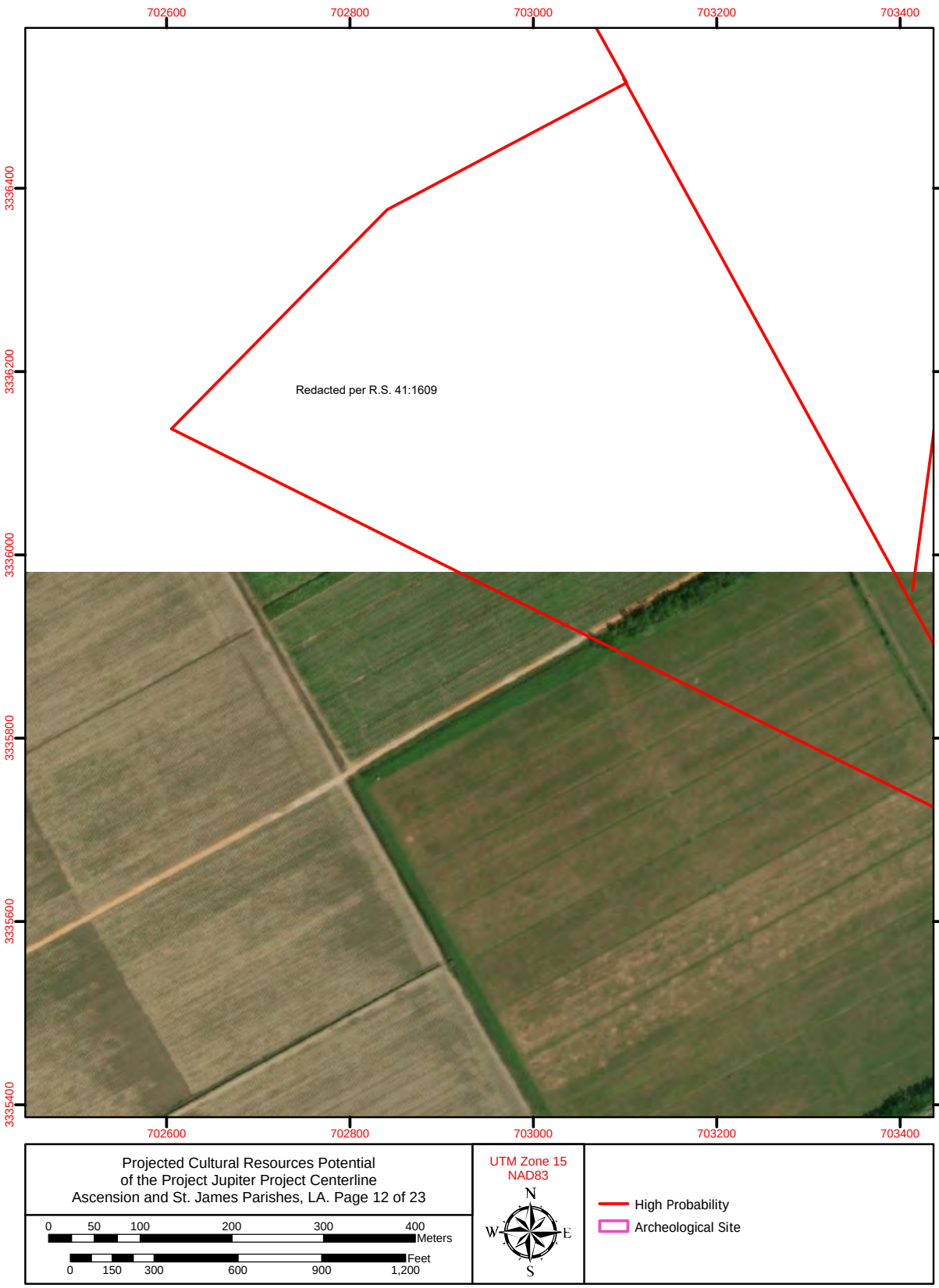

Figure 3 Sheet 12 **Aerial photograph excerpts depicting the location of the proposed Project Jupiter Pipeline project in Ascension and St. James Parishes, Louisiana.**

Figure 3 Sheet 13 **Aerial photograph excerpts depicting the location of the proposed Project Jupiter Pipeline project in Ascension and St. James Parishes, Louisiana.**

Figure 3 Sheet 14 **Aerial photograph excerpts depicting the location of the proposed Project Jupiter Pipeline project in Ascension and St. James Parishes, Louisiana.**

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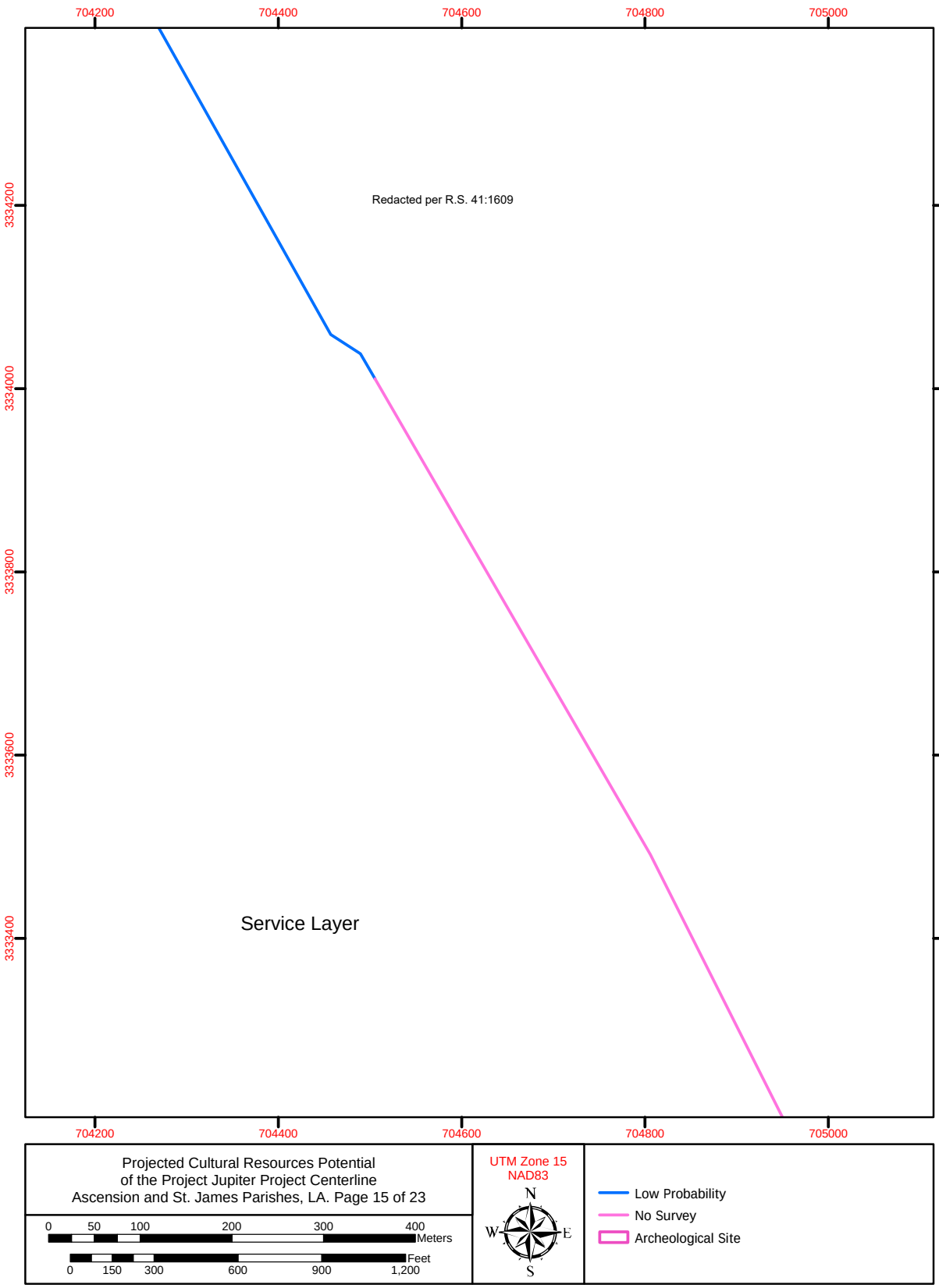

Figure 3 Sheet 15 **Aerial photograph excerpts depicting the location of the proposed Project Jupiter Pipeline project in Ascension and St. James Parishes, Louisiana.**

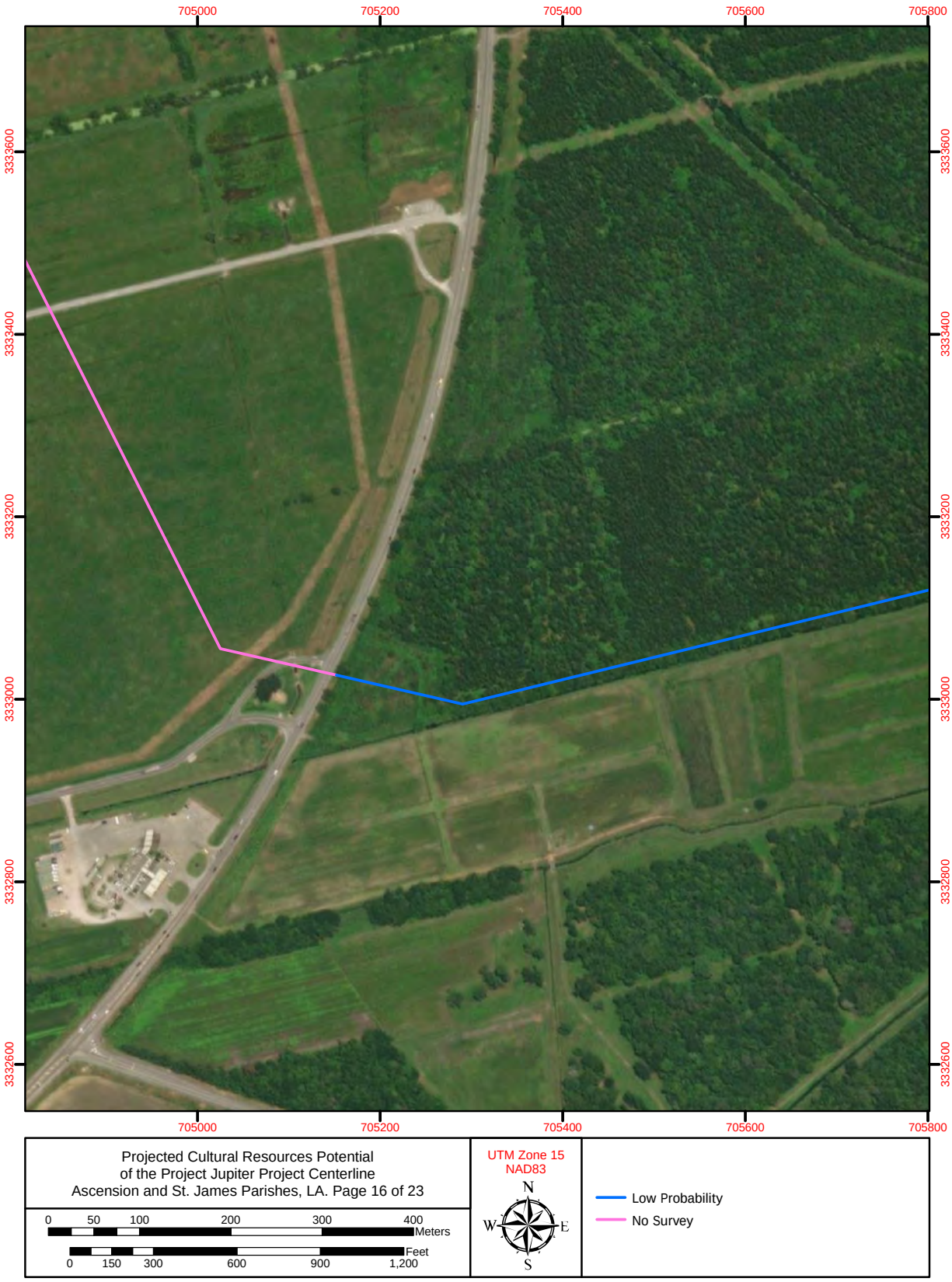

Figure 3 Sheet 16 **Aerial photograph excerpts depicting the location of the proposed Project Jupiter Pipeline project in Ascension and St. James Parishes, Louisiana.**

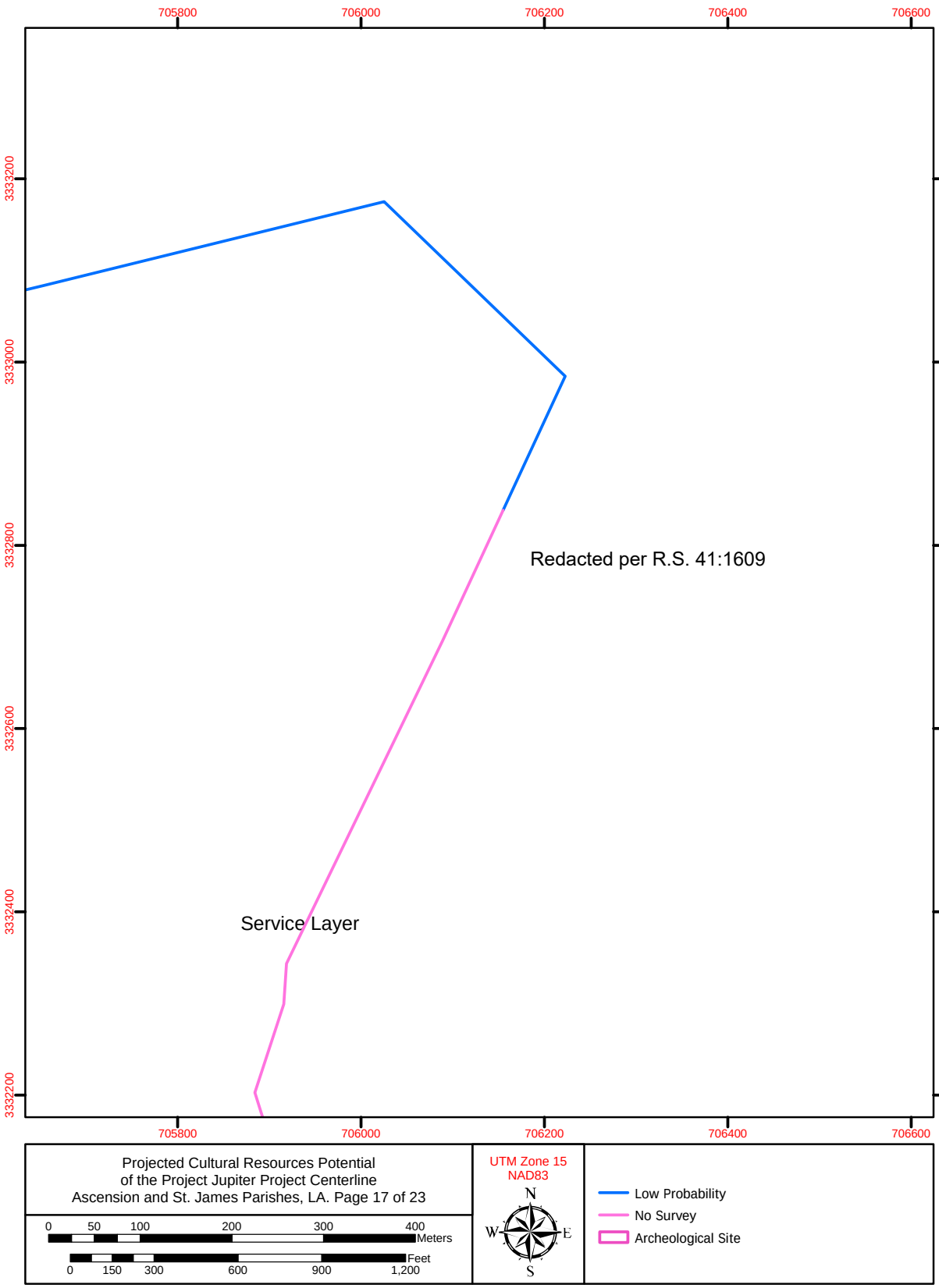

Figure 3 Sheet 17 **Aerial photograph excerpts depicting the location of the proposed Project Jupiter Pipeline project in Ascension and St. James Parishes, Louisiana.**

Figure 3 Sheet 18 **Aerial photograph excerpts depicting the location of the proposed Project Jupiter Pipeline project in Ascension and St. James Parishes, Louisiana.**

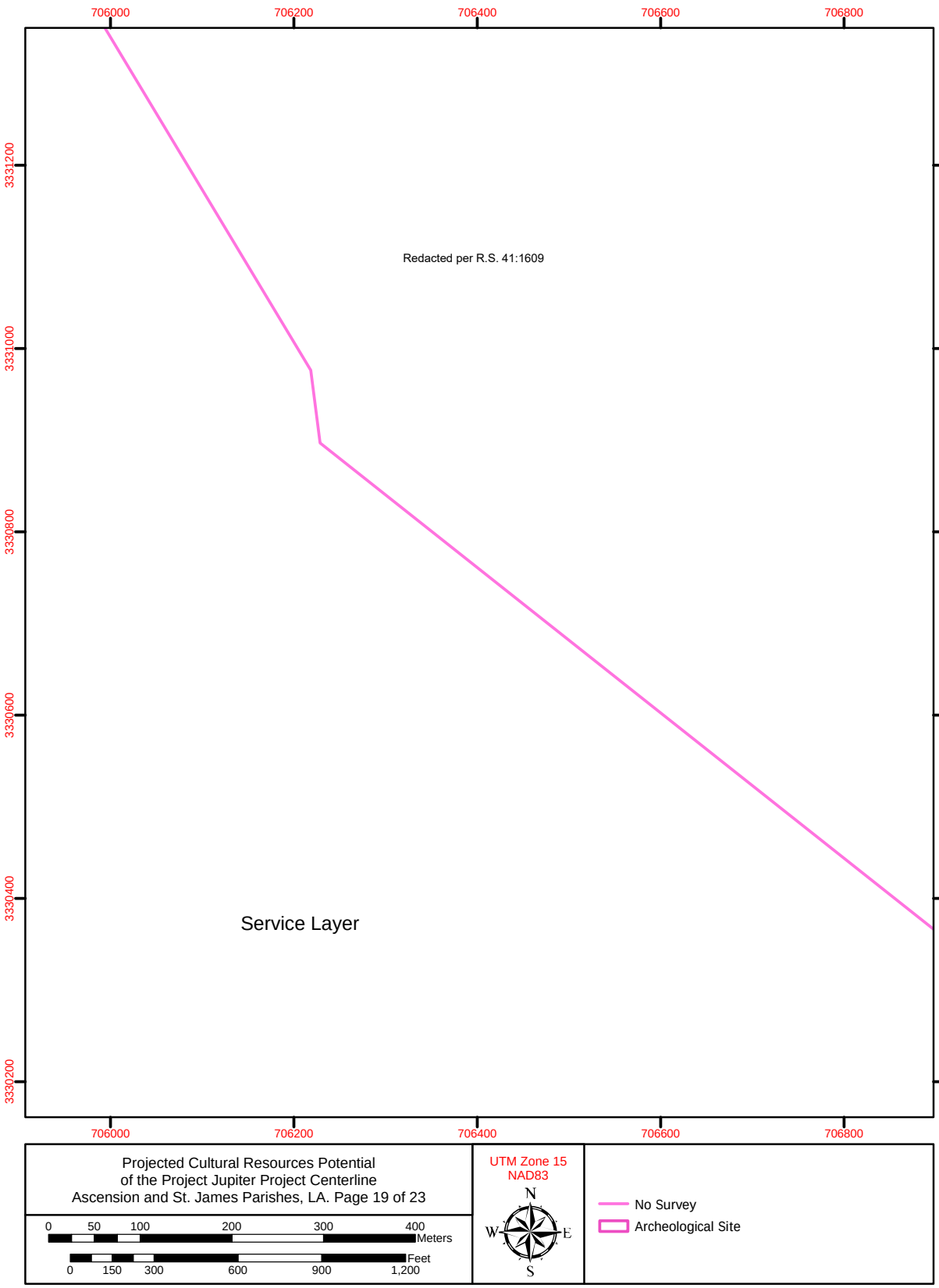

Figure 3 Sheet 19 **Aerial photograph excerpts depicting the location of the proposed Project Jupiter Pipeline project in Ascension and St. James Parishes, Louisiana.**

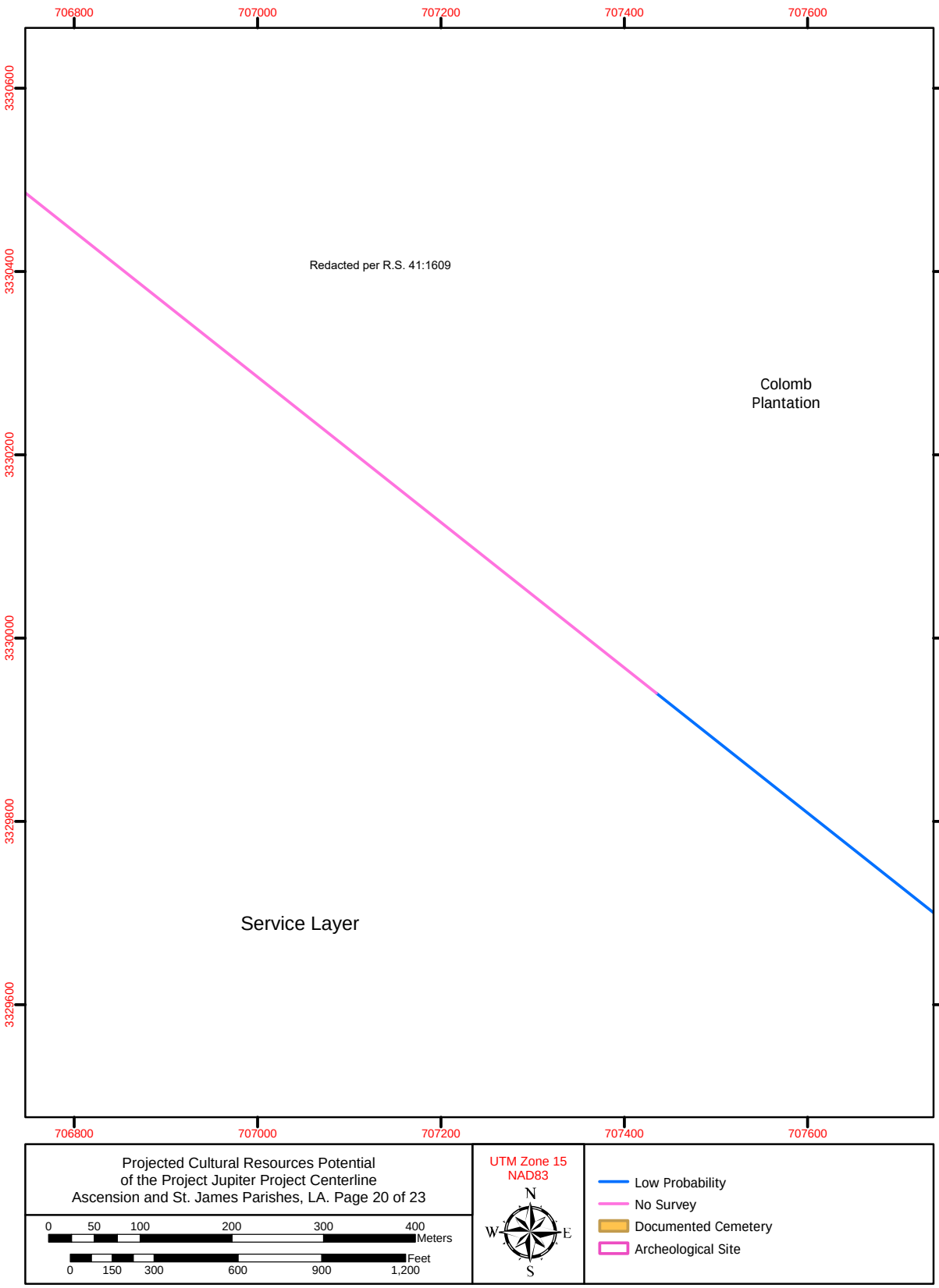

Figure 3 Sheet 20 **Aerial photograph excerpts depicting the location of the proposed Project Jupiter Pipeline project in Ascension and St. James Parishes, Louisiana.**

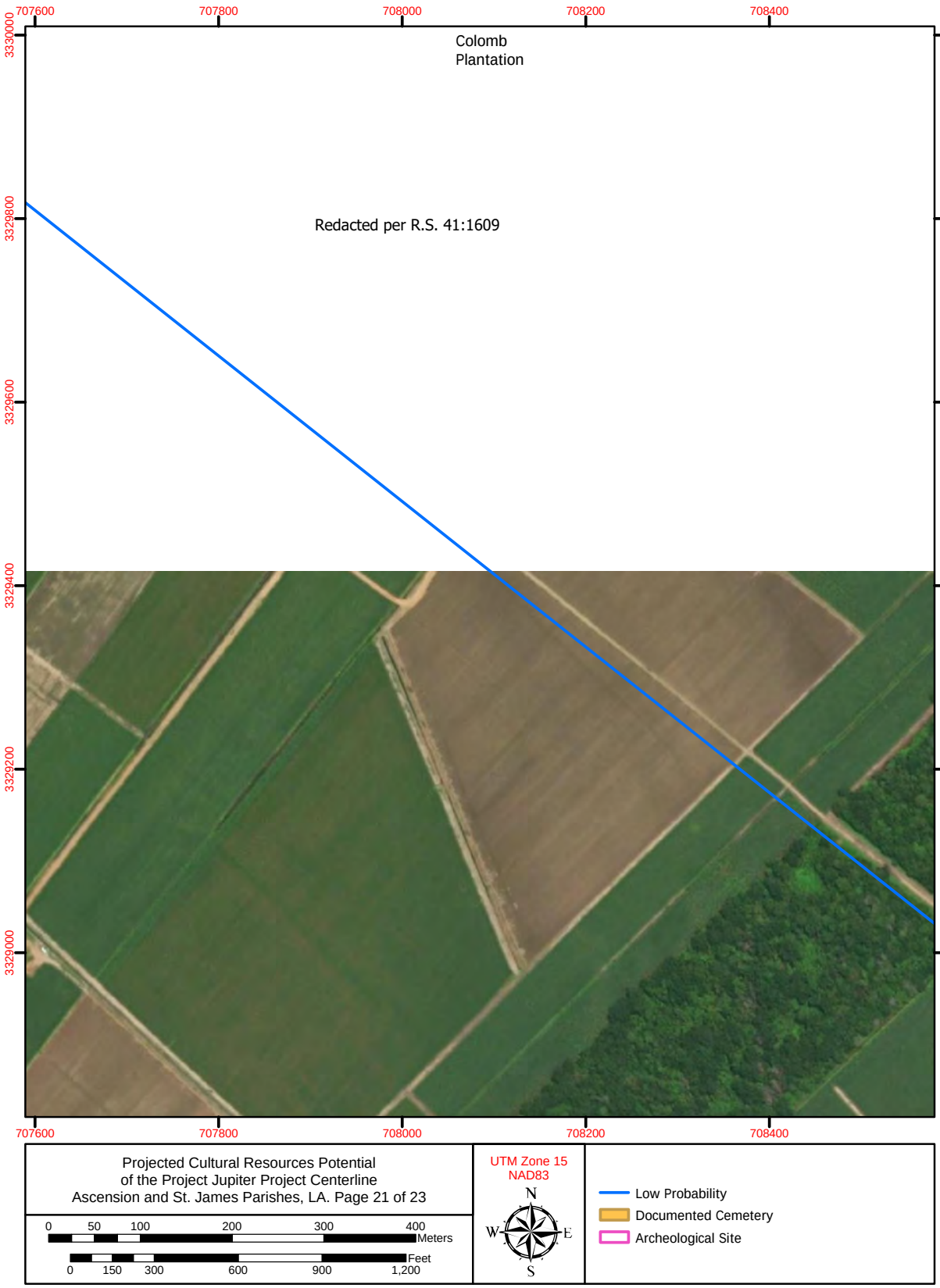

Figure 3 Sheet 21 **Aerial photograph excerpts depicting the location of the proposed Project Jupiter Pipeline project in Ascension and St. James Parishes, Louisiana.**

Figure 3 Sheet 22 **Aerial photograph excerpts depicting the location of the proposed Project Jupiter Pipeline project in Ascension and St. James Parishes, Louisiana.**

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Figure 3 Sheet 23 **Aerial photograph excerpts depicting the location of the proposed Project Jupiter Pipeline project in Ascension and St. James Parishes, Louisiana.**

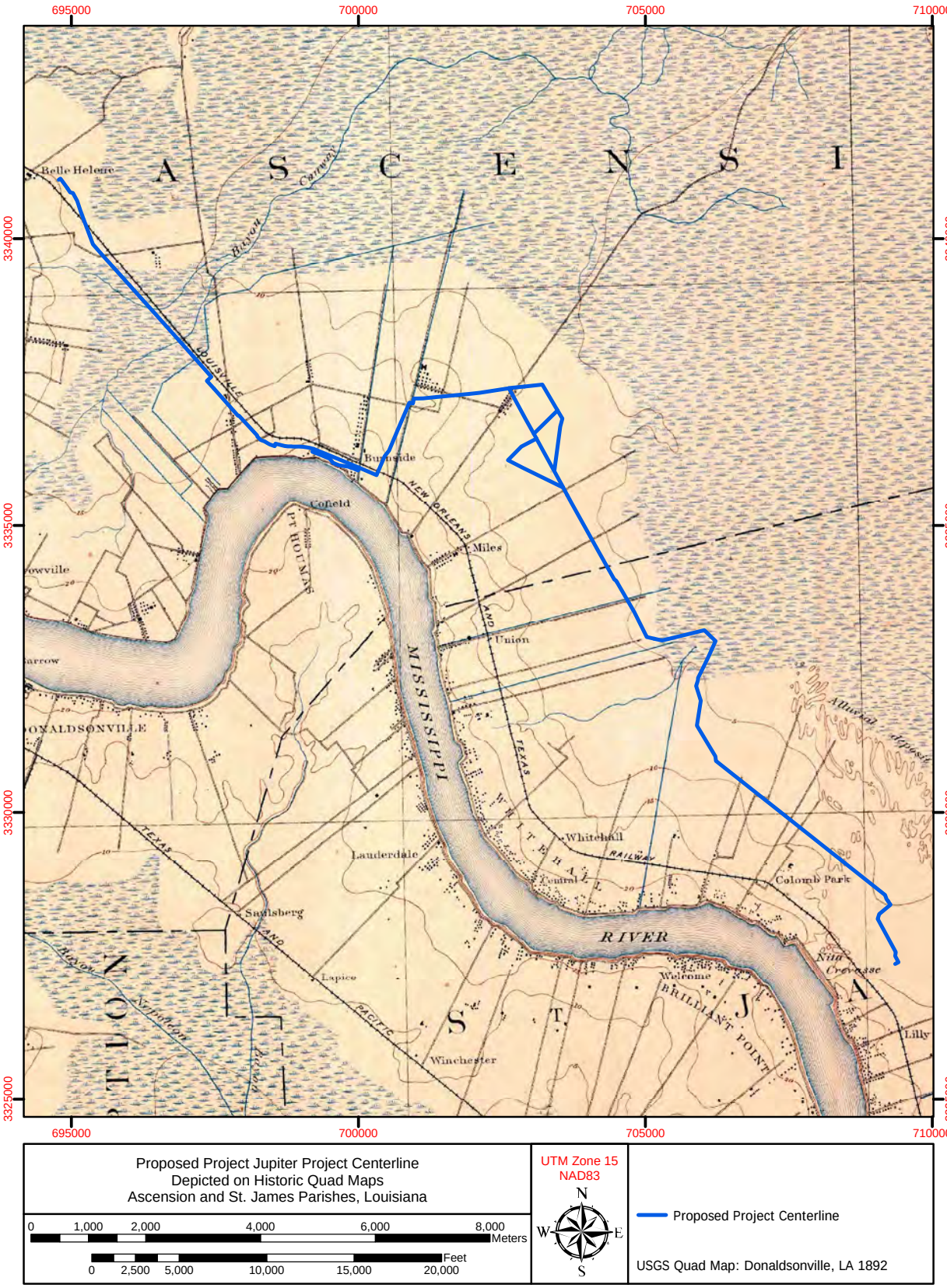

Figure 4 **USGS Donaldsonville, LA 15' (1892) quadrangle map excerpt depicting the location of the proposed Project Jupiter Pipeline project in Ascension and St. James Parishes, Louisiana.**

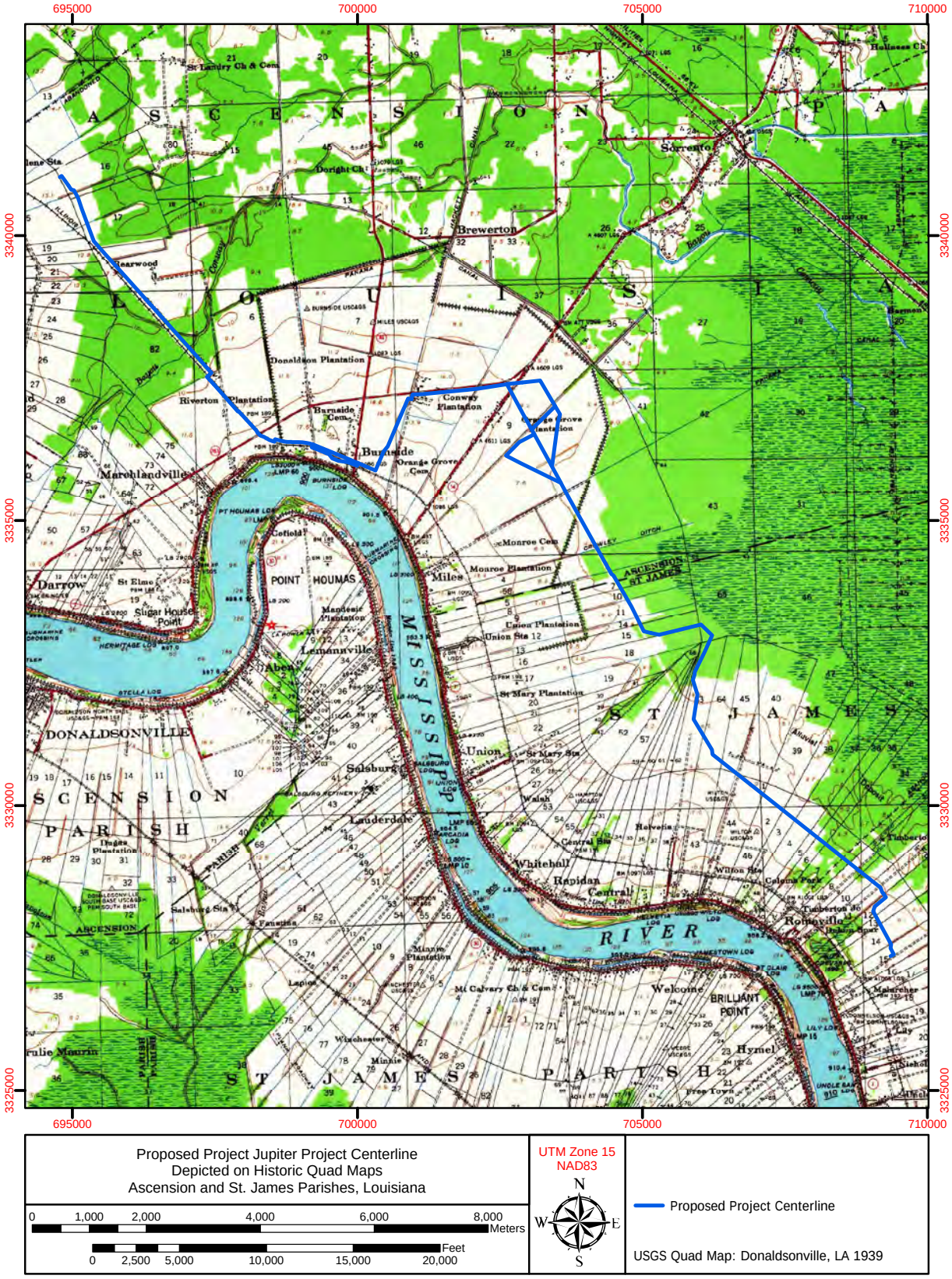

Figure 5 **USGS Donaldsonville, LA 15' (1839) quadrangle map excerpt depicting the location of the proposed Project Jupiter Pipeline project in Ascension and St. James Parishes, Louisiana.**

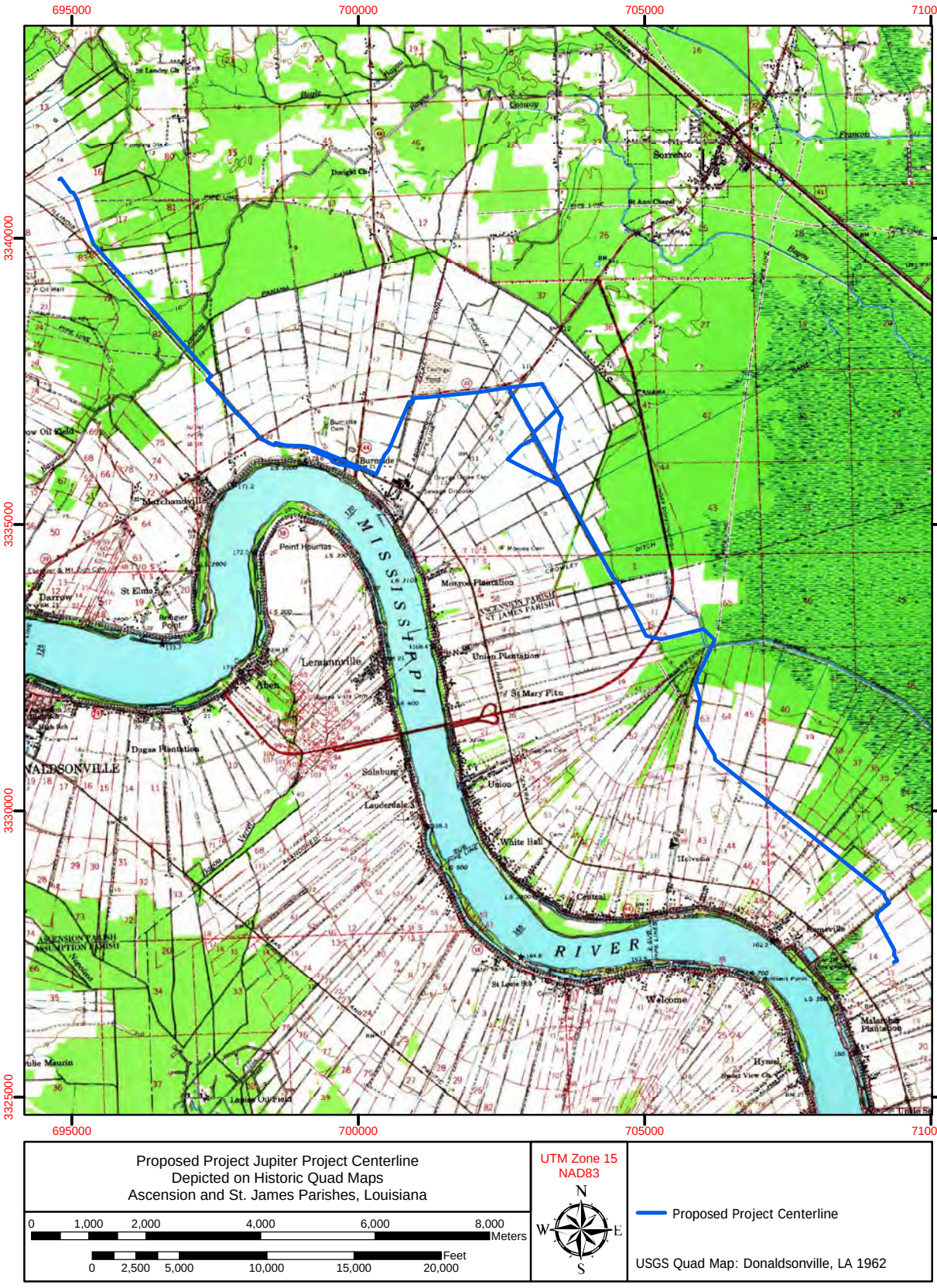

Figure 6 **USGS Donaldsonville, LA 15' (1962) quadrangle map excerpt depicting the location of the proposed Project Jupiter Pipeline project in Ascension and St. James Parishes, Louisiana.**

Table 1 Previously Completed Cultural Resources Investigations within 0.8 km (0.5 mi) of the Project Jupiter project area, in Ascension and St. James Parishes, Louisiana.

Report #	Title (Author/Date)	Sponsoring Agency	Study Type	Methods	Site(s) / Loci / Structures Identified	Recommendations	Notes
22-0728	*Level I Cultural Resources Survey and Assessment for the Proposed Peabody Coal Terminal, St. James Parish, Louisiana* (Carpenter et al. 1981)	Waldemar S. Nelson & Co., Inc., New Orleans, LA	Phase I	Pedestrian survey, shovel testing, architectural survey	Site 16SJ30 revisited	No impact anticipated	
22-1078	*Cultural Resources Survey of the Burnside Revetment Item, Ascension and St. James Parishes, Louisiana* (Goodwin et al. 1986)	U.S. Army Corps of Engineers, New Orleans District	Phase I	Pedestrian survey, shovel testing	None	No further work recommended.	
22-1928	*A Cultural Resources Survey of the Proposed Acadian Bulk Terminal, St. James Parish, Louisiana* (Williams and Athens 1996)	Burk-Kleinpeter, Inc., New Orleans, LA	Phase I	Pedestrian survey, shovel testing	6 sites (16SJ7, 16SJ9, 16SJ15, 16SJ16, 16SJ18, 16SJ57) and 2 structures recorded	Visual impact considerations for structures recommended; no further work recommended at archaeological sites.	
22-2031	*Phase I Cultural Resources Survey and Inventory of the Proposed City of Gonzales Wastewater Facilities Improvement 24" Effluent Force Main Line, Ascension Parish, Louisiana* (Robblee et al. 1997)	Glenn Shaheen & Associates, Inc., Gonzales, LA	Phase I	Pedestrian survey, shovel testing	Site 16AN60 revisited	Avoidance or additional work at portions of Site 16AN60 recommended.	
22-2098	*Phase II Archaeological Assessment of Site 16AN60, Ascension Parish, Louisiana* (Robblee and Davis 1997)	Glenn Shaheen & Associates, Inc., Gonzales, LA	Phase II	Mechanical trenching, unit excavation	Site 16AN60 revisited	Phase II testing exhausted the research potential for the investigated area of the site.	
22-2148	*Phase I Cultural Resources Survey and Inventory of the Proposed Bridgeline Gas Distribution Acadian Extension 6.625 In O.D. Pipeline Project, Ascension and St. James Parishes, Louisiana* (Davies et al. 1998)	Bridgeline Gas Distribution, St. Rose, LA	Phase I	Pedestrian survey, shovel testing	Site 16AN67 recorded; Site 16AN25 revisited	No further work recommended.	
22-2161	*Cultural Resources Survey of the Proposed Route of a Pipeline in Ascension, East Baton Rouge, Iberville, St. James, and West Baton Rouge Parishes, Louisiana* (Jones et al. 1998)	Exxon Pipeline Co., Houston, TX	Phase I and II	Pedestrian survey, shovel testing, auger testing, unit excavation	Site 16IV28 recorded; 3 sites (16EBR41, 16AN1, 16SJ49)	Directional drilling at Site 16AN1 planned; no further work recommended for investigated portions of remaining sites.	
22-2398	*Intensive Cultural Resources Survey of the Proposed Enterprise Products Company Pipeline, Ascension, Assumption, and Iberville Parishes, Louisiana* (Smith et al. 2001)	Mustang Engineering, Inc., Houston, TX	Phase I	Pedestrian survey, shovel testing	3 sites (16AS104-106) recorded; Site 16AN59 revisited	Avoidance or additional work at Site 16AN59 Locus 1 recommended.	
22-3017	*2007 Phase I and II Cultural Resources Investigations at the Proposed Nucor Steel Mill Facility, St. James Parish, Louisiana* (Wells et al. 2011)	Nucor Corporation, Charlotte, NC	Phase I and II	Pedestrian survey, shovel testing, architectural survey, mechanical stripping	4 sites (16SJ20-21, 16SJ30, and 16SJ34) revisited	Avoidance or reburial of remains at Site 16SJ30 recommended; no further work recommended at remaining investigated locations.	Intersects with significant portions of the proposed project area

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Table 1, continued

Report #	Title (Author/Date)	Sponsoring Agency	Study Type	Methods	Site(s) / Loci / Structures Identified	Recommendations	Notes
22-3693	*Phase II National Register Evaluative Testing and Phase III Data Recovery Efforts at Sites 16SJ20 (Locality 46), 16SJ21 (Localities 40 and 41), and 16SJ34 (Locality SR14), Nucor Steel Louisiana, LLC, St. James Parish, Louisiana* (Handly et al. 2015)	Nucor Steel Louisiana LLC, Charlotte, NC	Phase II and III	Pedestrian survey, shovel testing, unit excavation, mechanical excavation	3 sites (16SJ20-21, 16SJ34) revisited	Mitigation of Sites 16SJ20 Locality 46 and 16SJ21 Locality 41 completed; no further work at Site 16SJ34 Locality SR14 recommended.	Localities not within project area
22-3713	*Management Summary - Phase III Mitigation, Locality 41, Site 16SJ21 (Helvetia Plantation), St. James Parish, Louisiana* (Handly, Poche, and Perrault 2011)	Nucor Steel Louisiana LLC, Charlotte, NC	Phase II and III	Pedestrian survey, shovel testing, unit excavation, mechanical excavation	Site 16SJ21 revisited	Preliminary data on Site 16SJ21 presented.	Management summary preceding Report # 22-3693; Localities not within project item
22-3793	*Phase I Cultural Resources Survey of the 23.16 km (14.4 mi) Proposed Convent Dry Gas Pipeline Project, Ascension, St. James, St. John the Baptist, and St. Charles Parishes, Louisiana* (Hale et al. 2011)	T. Baker Smith, Inc., Houma, LA	Phase I	Pedestrian survey, shovel testing	None	No further work recommended.	
22-3812	*Management Summary – Phase II National Register Evaluative Testing, Locality SR14, Site 16SJ34 (St. Rose Plantation), St. James Parish, Louisiana* (Perrault et al. 2012)	Nucor Steel Louisiana LLC, Charlotte, NC	Phase II	Unit excavation	Site 16SJ34 revisited	Preliminary data on Site 16SJ34 presented.	Management summary preceding Report # 22-3693
22-3823	*Management Summary – Phase III Mitigation, Locality 46, Site 16SJ20 (Wilton Plantation), St. James Parish, Louisiana* (Handly, Perrault, et al. 2011)	Nucor Steel Louisiana LLC, Charlotte, NC	Phase III	Unit excavation, mechanical excavation	Site 16SJ20 revisited	Preliminary data on Site 16SJ20 presented.	Management summary preceding Report # 22-3693; Localities not within project item
22-3879	*Phase I Cultural Resources Survey of the Proposed Praxair South Louisiana Hydrogen Pipeline Expansion Project, Ascension, St. James, St. John the Baptist, and St. Charles Parishes, Louisiana* (Kelley 2011)	Ecology and Environments, Inc., Baton Rouge, LA	Phase I	Pedestrian survey, shovel testing, probe testing	2 sites (16AN86 and 16AN87) recorded; 4 sites (16AN31, 16AN32, 16SJ73, 16SC65) revisited	Avoidance or additional work at 16AN87 recommended; no further work recommended at remaining sites.	
22-3984	*Phase I Cultural Resources Survey of 30.8 Acres (12.5 Hectares) Proposed for Industrial Use, Burnside, Ascension Parish, Louisiana* (Shuman, Taylor, and Gabour 2014)	Impala Warehousing (US), LLC, Darrow, LA	Phase I	Shovel testing	None	No further work recommended.	
22-4026	*Phase I Cultural Resources Survey of 437.7 Acres (177.1 Hectares) Proposed for Industrial Use, Burnside, Ascension Parish, Louisiana* (Shuman, Gabour, et al. 2014)	Impala Warehousing (US), LLC, Darrow, LA	Phase I	Shovel testing	Site 16AN89 recorded	Avoidance of Locations 1-3 planned; 100 ft buffer around Orange Grove Cemetery recommended.	

EXHIBIT E

Table 1, continued

Report #	Title (Author/Date)	Sponsoring Agency	Study Type	Methods	Site(s) / Loci / Structures Identified	Recommendations	Notes
22-4031	*Phase I Cultural Resources Survey of 178.2 Acres (72.1 Hectares) Proposed for Industrial Use, Burnside, Ascension Parish, Louisiana* (Shuman and Taylor 2012)	Impala Warehousing (US), LLC, Darrow, LA	Phase I	Shovel testing	Site 16AN89 revisited	Avoidance of tenant house area recommended; no furthre work recommended for remaining project area.	Intersects with significant portions of the proposed project area
22-4043	*Archaeological Investigation and Data Recovery at Wilton Plantation Site (16SJ20), St. James Parish, Louisiana* (Lee et al. 2016)	URS Corporation, Metairie, LA	Phase II and III	Pedestrian survey, shovel testing, unit excavation, mechanical excavation	Site 16SJ20 revisited	Research potential in investigated localities exhausted; no further work recommended.	Localities not within project item
22-4547	*Phase I Cultural Resources Investigation of the Proposed Shell Chemical LP Expansion Project in Ascension Parish, Louisiana* (Mehta et al. 2014)	C-K Associates, LLC, Baton Rouge, LA	Phase I	Pedestrian survey, shovel testing	None	No further work recommended.	
22-4868	*Phase I Cultural Resources Survey of the Proposed Maurepas Pipelines Project, Ascension, St. James, St, John the Baptist, and St. Charles Parishes, Louisiana* (Rothrock and Moreno 2015)	QPS Engineering, LLC (QPS)	Phase I	Pedestrian survey, shovel testing	3 sites (16SC89, 16SJ85-86) and 1 historic standing structure (45-00582) recorded	No further work recommended.	
22-5113	*Monroe/Houmas (Site 16AN31) and Bruslie/Brule (Site 16AN32) Plantations Phase I/II Cultural Resources Investigations Ascension and St. James Parishes, Louisiana* (Port et al. 2015)	Motiva Enterprises, LLC, Convent, LA	Phase I and II	Pedestrian survey, shovel testing, remote sensing survey, mechanical stripping and excavation, unit excavation, cemetery recordation	3 sites (16AN30, 16AN31, 16AN32) revisited	Tracts A1, A2, B, D1, D3-1, and G recommended eligible; Tract C and D2 not fully investigated.	Intersects with significant portions of the proposed project area; project cancelled before evaluations were completed.
22-5128	*Phase I Cultural Resources Survey of the Proposed St. James Pipeline Project, St. James Parish, Louisiana* (Helmer et al. 2016)	QPS Engineering, LLC, The Woodlands, TX	Phase I	Pedestrian survey, shovel testing	4 sites (16SJ90-93) recorded	No further work recommended.	
22-5128-1	*Addendum I to the Phase I Cultural Resources Survey of the Proposed St. James Pipeline Project, St. James Parish, Louisiana* (King 2018)	QPS Engineering, LLC, The Woodlands, TX	Phase I	Pedestrian survey, shovel testing	Site 16SJ49 revisited	No further work recommended.	
22-5170	*A Cultural Resources Survey for a Proposed Lateral Meter and Regulatory Station and Two Compressor Stations in St. James and St. Helena Parishes, Louisiana* (Kennedy and Hearnes 2016)	Williams Gas Pipe Line Company	Phase I	Pedestrian survey, shovel testing, architectural survey	9 structures recorded; Site 16SJ21 revisited	No further work recommended at investigated portions of Site 16SJ21.	
22-5271	*Phase I Cultural Resource Survey - Proposed Shady Grove Property, for Wanhua Chemical US Holding Inc., St. James Parish, Louisiana* (Poche et al. 2016)	Wanhua Chemical US Holding, Inc., Houston, TX	Phase I	Pedestrian survey, shovel testing	4 sites (16SJ94-16SJ97) and 2 historic structures recorded	No further work recommended.	Intersects with significant portions of the proposed project area

EXHIBIT E

Table 1, continued

Report #	Title (Author/Date)	Sponsoring Agency	Study Type	Methods	Site(s) / Loci / Structures Identified	Recommendations	Notes
22-6152	*Phase I Cultural Resources Investigation of the Proposed Wanhua Heavy Haul Road Project Near Romeville in St. James Parish, Louisiana* (Cloy et al. 2019)	Wanhua Chemical US Operations, LLC, Houston, TX	Phase I	Pedestrian survey, shovel testing	None	No further work recommended.	
22-6152-1	*Addendum Report: Phase I Cultural Resources Investigation of the Proposed Wanhua Heavy Haul Road Project Near Romeville in St. James Parish, Louisiana* (Hutchins and Eberwine 2019)	Wanhua Chemical US Operations, LLC, Houston, TX	Phase I	Pedestrian survey, shovel testing	None	No further work recommended.	
22-6174	*Phase I Cultural Resources Survey for the Proposed LA 70 Widening Project from the Sunshine Bridge to LA 22, Ascension and St. James Parishes, Louisiana* (Ryan et al. 2019)	Louisiana DOTD, Baton Rouge, LA	Phase I	Pedestrian survey, shovel testing, architectural survey	8 structures recorded; Site 16AN31 revisited	No further work recommended.	
22-6405	*Phase I Cultural Resources Survey of the Proposed Boardwalk Louisiana Midstream Oxy Convent Brine Pipeline in St. James Parish, Louisiana* (Heller et al. 2020)	Fenstermaker, Houston, TX	Phase I	Pedestrian survey, shovel testing, architectural survey	Site 16SJ120 and 4 structures recorded; 2 sites (16SJ18 and 16SJ55) revisited	Avoidance of Sites 16SJ55 Locus 9A, 16SJ120, and Malarcher House planned; Site 16SJ18 recommended not eligible.	
22-6510	*A Phase I Cultural Resources Survey for the Gulf South Pipeline Company, LLC - Shell Convent Facility Project, St. James Parish, Louisiana* (Jenkins 2020)	Providence Engineering and Environmental Group, LLC, Baton Rouge, LA	Phase I	Pedestrian survey, shovel testing	None	No further work recommended.	
22-6806	*Phase I Cultural Resources Survey of the Proposed 136.4 ha (337 ac) Uncle Sam Stack 5 Expansion Project in St. James Parish, Louisiana* (Heller et al. 2021)	Geosyntec Consultants, Inc., Baton Rouge, LA	Phase I	Pedestrian survey, shovel testing, architectural survey, mechanical excavation	2 sites (16SJ124 and 16SJ125) and 1 structure recorded	No further work at Sites 16SJ124 and 16SJ125 recommended; structure recommended eligible, but no impact anticipated	
22-6827	*A Phase I Cultural Resources Survey for the Occidental Chemical Corporation-Geismar Facility Proposed 16" Effluent Pipeline in Ascension Parish, Louisiana* (Pepperman and Shane 2021)	Providence Engineering and Environmental Group, LLC, Baton Rouge, LA	Phase I	Pedestrian survey, shovel testing, architectural survey	3 sites (16AN136, 16AN137, 16AN138) and 1 railroad spur recorded	No further work recommended.	
22-7044	*Phase I Cultural Resources Survey, Shell Cathedral Project, St. James and Ascension Parishes, Louisiana* (Stanyard et al. 2022)	Shell Global Solutions (US), Inc.	Phase I	Pedestrian survey, shovel testing, architectural survey	3 sites (16SJ128, 16SJ129, 16SJ130) and 9 structures recorded; 2 sites (16AN30 and 16AN31) and 4 structures revisited	Additional work at Sites 16SJ128, 16SJ129, and 16SJ130 recommended; one structure (Sunshine Bridge) previously recommended eligible; no further work at investigated portions of remaining sites recommended and no impact to remaining structures anticipated.	Intersects with significant portions of the proposed project area

EXHIBIT E

Table 1, continued

Report #	Title (Author/Date)	Sponsoring Agency	Study Type	Methods	Site(s) / Loci / Structures Identified	Recommendations	Notes
22-7133	*Phase I Cultural Resources Survey Report, OM2 Project, Ascension Parish, Louisiana* (Morsink 2022)	ECS Southeast, LLP, Baton Rouge, LA	Phase I	Pedestrian survey, shovel testing, auger testing	Site 16AN138 and 2 structures revisited	Architectural survey recommended after contstruction plans are finalized; no further work recommended at Site 16AN138.	
n/a	Report Pending	U.S. Army Corps of Engineers, New Orleans District	Phase I	Pedestrian survey, shovel testing	Sites 16SJ20, 16SJ21	No additional work withing investigated portions of both sites	Investigation completed by RCG&A in 2022; report pending

EXHIBIT E

Table 2 **Previously Recorded Archeological Sites Located within 0.8 km (0.5 mi) of the Project Jupiter project area, in Ascension and St. James Parishes, Louisiana.**

Site #	Site Name	Site Type	Affiliation	Topography	NRHP Assessment	Notes
16AN027	NLU-27	Prehistoric scatter	Prehistoric (Unknown)	Natural Levee	Not Assessed	Shovel tested, but surface artifacts only; presumed destroyed
16AN028	Burnside Cemetery	Historic cemetery	Historic (20th Century)	Natural Levee	Not Assessed	Burials from 1907-1943; damaged crypts
16AN029	Conways Sugar Mill	Possible historic burial, structure remnants, historic deposit	Historic (19th - 20th Century)	Natural Levee	Eligible	Sugar Mill, overseer's house, and slave quarters associated with Houmas Plantation
16AN031	Monroe Plantation	Historic cemetery, historic deposit, prehistoric deposit	Prehistoric (Coles Creek), Historic (19th - Mid 20th Century)	Natural Levee	Eligible	Tracts A1, A2, and G Eligible; Tracts C, D1, D2, D3, E1, E3, F1, F2 Not Eligible; Partially assessed; Cemetery outside of current APE
16AN032	Bruslie Plantation	Historic cemetery, historic deposit	Historic (Late 19th - Early 20th Century	Natural Levee	Eligible	Partially assessed; lies within boundaries of 16AN31
16AN034	Riverton Plantation	Historic scatter	Historic (19th Century)	Natural Levee	Not Assessed	
16AN035	Grand Houmas Village	Historic aborigical burials, historic scatter	Historic Aborigical, Historic (19th Century)	Floodplain	Not Assessed	
16AN060	Houmas Central Sugar Factory	Structure remnants, historic deposit	Historic (19th - Early 20th Century	Natural Levee	Not Assessed	
16AN089	Orange Grove Plantation	Historic cemetery, structure remnants, historic deposit	Historic (19th Century(	Natural Levee	Not Assessed	Cemetery outside of current 0.5mi radius
16SJ20	Wilton Plantation	Structure remnants, historic deposit	Historic (18th Century - present)	Natural Levee	Eligible	Main House and Sugar House areas eligible but partially assessed, Locality 46 not eligible
16SJ21	Helvetia Plantation	Historic structures, structure remnants	Historic (19th - 20th Century)	Natural Levee	Eligible	Helvetia Plantation Front area eligible but partially assessed, Localities 40 and 41 not eligible
16SJ30	Colomb Plantation	Historic cemetery, structure remnants, historic deposit	Historic (Mid 19th - 20th Century)	Natural Levee	Not Assessed	Cemetery outside of current 0.5mi radius
16SJ34	St. Rose Plantation	Structure remnants, historic deposit	Historic (19th - 20th Century)	Natural Levee	Not Eligible	
16SJ97	Area D-01	Historic scatter	Historic (19th - 20th Century)	Natural Levee	Not Eligible	
16SJ120	Malarcher/ St Michael Plantation	Historic deposit	Historic (19th - 20th Century)	Natural Levee	Not Assessed	
16SJ124	CTN022221-01	Historic scatter	Historic (19th - 20th Century)	Natural Levee	Not Assessed	
16SJ125	CTN022221-02	Historic scatter	Historic (Unknown)	Natural Levee	Not Eligible	

Table 3 Previously Recorded Historic Built Resources Located within 150 m (500 ft) of the Project Jupiter project area, in Ascension and St. James Parishes, Louisiana.

LHRI #	USGS 7.5' Quadrangle	Address	Type (Name)	Style	Construction Date	NRHP Eligibility	Recorder (Date)	Notes
03-00664	Gonzales	Corner of Routes 44 and 22, Burnside	Anglo Folk Vernacular	No Style	c.1850	Not Assessed	PBM (1985)	Slave quarters from Monroe Plantation
03-00665	Gonzales	Corner of Routes 44 and 22, Burnside	Creole Cottage	No Style	c.1850	Not Assessed	PBM (1985)	Slave quarters from Helvetia Plantation
03-00666	Gonzales	Corner of Routes 44 and 22, Burnside	no data	Greek Revival	c.1840	Not Assessed	PBM (1985)	School behind St Michael's Church, said to be the first Black Catholic school in area
03-00667	Gonzales	Corner of Routes 44 and 22, Burnside	no data	No Style	c.1900	Not Assessed	PBM (1985)	Post office from Union, LA
03-00668	Gonzales	Corner of Routes 44 and 22, Burnside	Creole Cottage	No Style	c.1850	Not Assessed	PBM (1985)	Slave quarters from Helvetia Plantation
03-00669	Gonzales	Corner of Routes 44 and 22, Burnside	Commercial	Queen Anne	c.1900	Not Assessed	PBM (1985)	Post office and store from Darrow, LA
03-00670	Gonzales	Corner of Routes 44 and 22, Burnside	Creole Cottage	No Style	c.1850	Not Assessed	PBM (1985)	Slave quarters from Helvetia Plantation
03-00717	Gonzales	Approx. 70m North of Bowden road and sugarmill, Gonzales	no data	No Style	no data	Not Eligible	no data	
03-00726	Gonzales	Houmas House, River Road, Burnside	Central hall	Greek Revival	c. 1790, expanded 1840	Listed	Van Horn (1983)	
03-00930	Gonzales	North of Illinois Central Railroad, Geismar	Railroad spur	n/a	c.1961	Not Eligible	2021	
17-05787	Gonzales	Not available. Likely misplotted						

EXHIBIT E

Table 4 Cemeteries Located within 0.8 km (0.5 mi) of the Project Jupiter project area, in Ascension and St. James Parishes, Louisiana.

Site #	Parish	Cemetery Name	Size	Number of Identified Graves (Approximate)	Earliest Known Grave	Latest Known Grave	Current Status	NRHP Assessment	Notes
16AN28	Ascension	Burnside Cemetery	2.7 ha (6.7 ac)	20	1907	1943	Inactive	Not Assessed	Only 6 marked graves; info obtained from site form
16AN35	Ascension	Great Houmas Village	2.4 ha (5.9 ac)	no data	no data	no data	Inactive	Not Assessed	Historic aboriginal
16AN32	Ascension	Bruslie Cemetery	0.3 ha (0.7 ac)	no data	no data	no data	Inactive	Eligible	Portions of site determined Eligible

Table 5 Properties Listed on the National Register of Historic Places and National Register Historic Districts Located within 0.8 km (0.5 mi) of the Project Jupiter project area, in Ascension and St. James Parishes, Louisiana.

Historic Name	NPS #	Address	Date Placed on Register	Level of Significance	Area of Significance	Architectural Style
Houmas House	80001694	1.5 miles northwest of intersection of Highway 22 & 44, Burnside	9/27/1980	National	Architecture, Economics	Greek Revival

EXHIBIT E

Appendix II

Artifact Inventory

EXHIBIT E

Historic Material Recovered during the Investigation

FS	CM	Site	Locus	Segment	Transect	Shovel Test	Meter	North	East	Stratum	Level	Top Elevation	Bottom Elevation	Additional Provenience	Count	Material Class	Material Category	Form	Manufacture/ Ware	Decorative Class	Finish Manufacture	Finish Type	Base	Additional Diagnostic Trait(s)	Additional Description	Recovery Date
01-01	Surface Collection	16AN169	JEP061223-01	JEP061223A	1	38	1110			Surface					2	Ceramic	Architectural Ceramic	Tile	Buff-Bodied	Plain/ Undecorated					possible tin-enameled tile; one side of a fragment has deteriorated glaze	6/12/2023
01-02	Surface Collection	16AN169	JEP061223-01	JEP061223A	1	37	1080			Surface					1	Glass	Aqua	Container	Molded (Mouth-Blown/ Machine)	Plain/ Undecorated						6/12/2023
01-02	Surface Collection	16AN169	JEP061223-01	JEP061223A	1	37	1080			Surface					6	Ceramic	Architectural Ceramic	Tile	Buff-Bodied	Plain/ Undecorated					same tile as FS# 01-01; possible tin-enamaled tile	6/12/2023
01-03	Surface Collection	16AN169	JEP061223-01	JEP061223A	1	34	990			Surface					1	Glass	Aqua	Unspecified Flat Vessel	Indeterminate	Plain/ Undecorated					possible window glass	6/12/2023
01-04	Shovel Test	16AN168	JEP061323-01	JEP061323A	1	4	90			I	2	10	20		1	Ceramic	Earthenware	Container	Pearlware	Plain/ Undecorated						6/14/2023
01-04	Shovel Test	16AN168	JEP061323-01	JEP061323A	1	4	90			I	2	10	20		1	Ceramic	Earthenware	Unspecified Hollow Vessel	Pearlware	Banded (Annular)				Blue Decoration	2 sherds mend	6/14/2023
01-04	Shovel Test	16AN168	JEP061323-01	JEP061323A	1	4	90			I	2	10	20		1	Glass	Aqua	Unspecified Flat Vessel	Indeterminate	Plain/ Undecorated					possible safety glass; cracks on one side of fragment	6/14/2023
01-04	Shovel Test	16AN168	JEP061323-01	JEP061323A	1	4	90			I	2	10	20		1	Glass	Olive	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-05	Shovel Test	16AN168	JEP061323-01	JEP061323A	1	4	90			I	3	20	30		1	Glass	Olive	Container	Molded (Mouth-Blown/ Machine)	Plain/ Undecorated					whittle marks along body	6/14/2023
01-05	Shovel Test	16AN168	JEP061323-01	JEP061323A	1	4	90			I	3	20	30		1	Ceramic	Earthenware	Unspecified Hollow Vessel	Pearlware	Banded (Annular)				Blue Decoration	possibly same vessel as FS# 01-04	6/14/2023
01-05	Shovel Test	16AN168	JEP061323-01	JEP061323A	1	4	90			I	3	20	30		1	Ceramic	Porcelain	Button	Prosser	Plain/ Undecorated					4-holed	6/14/2023
01-05	Shovel Test	16AN168	JEP061323-01	JEP061323A	1	4	90			I	3	20	30		1	Glass	Aqua	Unspecified Flat Vessel	Indeterminate	Plain/ Undecorated					possible safety glass; cracks on one side of fragment	6/14/2023
01-05	Shovel Test	16AN168	JEP061323-01	JEP061323A	1	4	90			I	3	20	30		1	Organic	Shell	Button	Indeterminate	Plain/ Undecorated					2-holed	6/14/2023
01-06	Shovel Test	16AN168	JEP061323-01	JEP061323A	1	4	90			I	4	30	40		2	Glass	Aqua	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-07	Shovel Test	16AN168	JEP061323-01	JEP061323A	1	5	120			I	2	10	20		1	Glass	Solarized (Manganese)	Container	Molded (Mouth-Blown/ Machine)	Embossed					both embossed lettering and design; embossment reads, "...ES..."	6/14/2023
01-08	Shovel Test	16AN168	JEP061323-01	JEP061323A	1	7	180			I	2	10	20		1	Ceramic	Earthenware	Container	Whiteware	Hand Painted, underglaze				Polychrome Decoration		6/14/2023
01-09	Shovel Test	16AN168	JEP061323-01	JEP061323A	1	7	180			I	3	20	30		1	Glass	Olive	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-10	Shovel Test	16AN168	JEP061323-01	JEP061323A	1	8	210			I	1	0	10		1	Ceramic	Earthenware	Container	Pearlware	Plain/ Undecorated						6/14/2023
01-10	Shovel Test	16AN168	JEP061323-01	JEP061323A	1	8	210			I	1	0	10		1	Glass	Aqua	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-11	Shovel Test	16AN168	JEP061323-01	JEP061323A	1	11	300			I	1	0	10		1	Ceramic	Earthenware	Container	Yellowware	Molded				UID Molding or Embossing		6/14/2023
01-12	Surface Collection	16AN168	JEP061323-01	JEP061323A	1	12	318			Surface					5	Glass	Aqua	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-12	Surface Collection	16AN168	JEP061323-01	JEP061323A	1	12	318			Surface					1	Glass	Colorless	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-12	Surface Collection	16AN168	JEP061323-01	JEP061323A	1	12	318			Surface					1	Glass	Colorless	Container	Molded (Mouth-Blown/ Machine)	Plain/ Undecorated			Basal Embossing		basal embossment reads, "...INE..."	6/14/2023
01-12	Surface Collection	16AN168	JEP061323-01	JEP061323A	1	12	318			Surface					1	Ceramic	Earthenware	Container	Pearlware	Plain/ Undecorated						6/14/2023
01-12	Surface Collection	16AN168	JEP061323-01	JEP061323A	1	12	318			Surface					1	Glass	Solarized (Manganese)	Container	Molded (Mouth-Blown/ Machine)	Molded				UID Molding or Embossing		6/14/2023
01-13	Shovel Test	16AN168	JEP061323-01	JEP061323A	2	2	30			I	1	0	10		1	Metal	Ferrous	Nail	Wire	n/a						6/13/2023
01-14	Shovel Test	16AN168	JEP061323-01	JEP061323A	2	3	60			I	1	0	10		1	Glass	Colorless	Container	Indeterminate	Plain/ Undecorated						6/13/2023
01-15	Shovel Test	16AN168	JEP061323-01	JEP061323A	2	3	60			II	2	10	20		1	Metal	Ferrous	Nail	Cut	n/a						6/13/2023
01-15	Shovel Test	16AN168	JEP061323-01	JEP061323A	2	3	60			II	2	10	20		1	Metal	Ferrous	Staple	n/a	n/a					fence staple	6/13/2023
01-15	Shovel Test	16AN168	JEP061323-01	JEP061323A	2	3	60			II	2	10	20		7	Metal	Ferrous	Nail	Wire	n/a						6/13/2023
01-15	Shovel Test	16AN168	JEP061323-01	JEP061323A	2	3	60			II	2	10	20		1	Ceramic	Porcelain	Container	Hard-paste	Plain/ Undecorated						6/13/2023
01-16	Shovel Test	16AN168	JEP061323-01	JEP061323A	2	3	60			II	3	20	30		1	Ceramic	Porcelain	Doll	Hard-paste						bisque porcelain	6/13/2023
01-16	Shovel Test	16AN168	JEP061323-01	JEP061323A	2	3	60			II	3	20	30		3	Ceramic	Porcelain	Button	Prosser	Plain/ Undecorated						6/13/2023
01-16	Shovel Test	16AN168	JEP061323-01	JEP061323A	2	3	60			II	3	20	30		1	Metal	Ferrous	Nail	Wire	n/a						6/13/2023
01-16	Shovel Test	16AN168	JEP061323-01	JEP061323A	2	3	60			II	3	20	30		1	Metal	Ferrous	Misc. Hand Tool	Unidentified	n/a					tool handle, possible wrench	6/13/2023

EXHIBIT E

Historic Material Recovered during the Investigation

FS	CM	Site	Locus	Segment	Transect	Shovel Test	Meter	North	East	Stratum	Level	Top Elevation	Bottom Elevation	Additional Provenience	Count	Material Class	Material Category	Form	Manufacture/ Ware	Decorative Class	Finish Manufacture	Finish Type	Base	Additional Diagnostic Trait(s)	Additional Description	Recovery Date
01-16	Shovel Test	16AN168	JEP061323-01	JEP061323A	2	3	60			II	3	20	30		3	Metal	Ferrous	Nail	Cut	n/a						6/13/2023
01-16	Shovel Test	16AN168	JEP061323-01	JEP061323A	2	3	60			II	3	20	30		1	Metal	Ferrous	Nail	Cut	n/a					sheathing nail	6/13/2023
01-17	Shovel Test	16AN168	JEP061323-01	JEP061323A	2	6	150			I	3	20	30		1	Metal	Ferrous	Indeterminate	Indeterminate	n/a					possible form of nail; large in size	6/13/2023
01-18	Shovel Test	16AN168	JEP061323-01	JEP061323A	2	6	150			I	4	30	40		1	Stone/ Mineral	Chert	Flake	Indeterminate	n/a					possible flake or crushed gravel fragment, 0.72g	6/13/2023
01-18	Shovel Test	16AN168	JEP061323-01	JEP061323A	2	6	150			I	4	30	40		1	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						6/13/2023
01-18	Shovel Test	16AN168	JEP061323-01	JEP061323A	2	6	150			I	4	30	40		1	Metal	Ferrous	Nail	Cut	n/a						6/13/2023
01-19	Shovel Test	16AN168	JEP061323-01	JEP061323A	2	8	210			I	2	10	20		1	Manufacture d/ Synthetic	Concrete	Indeterminate	Indeterminate	Plain/ Undecorated					deteriorated paint on surface	6/13/2023
01-19	Shovel Test	16AN168	JEP061323-01	JEP061323A	2	8	210			I	2	10	20		1	Ceramic	Earthenware	Container	Pearlware	Plain/ Undecorated						6/13/2023
01-19	Shovel Test	16AN168	JEP061323-01	JEP061323A	2	8	210			I	2	10	20		4	Metal	Ferrous	Indeterminate	Indeterminate	n/a						6/13/2023
01-19	Shovel Test	16AN168	JEP061323-01	JEP061323A	2	8	210			I	2	10	20		1	Glass	Colorless	Container	Indeterminate	Plain/ Undecorated						6/13/2023
01-19	Shovel Test	16AN168	JEP061323-01	JEP061323A	2	8	210			I	2	10	20		1	Ceramic	Earthenware	Container	Refined, White-Bodied	Molded				UID Molding or Embossing	blue glaze	6/13/2023
01-20	Shovel Test	16AN168	JEP061323-01	JEP061323A	2	9	240			I	3	20	30		1	Ceramic	Earthenware	Container	Pearlware	Plain/ Undecorated						6/13/2023
01-21	Surface Collection	16AN168	JEP061323-01	JEP061323A	2	12	330			Surface					2	Ceramic	Earthenware	Container	Pearlware	Plain/ Undecorated						6/13/2023
01-21	Surface Collection	16AN168	JEP061323-01	JEP061323A	2	12	330			Surface					2	Glass	Aqua	Container	Indeterminate	Plain/ Undecorated						6/13/2023
01-21	Surface Collection	16AN168	JEP061323-01	JEP061323A	2	12	330			Surface					1	Ceramic	Earthenware	Container	Pearlware	Molded					filigree design	6/13/2023
01-21	Surface Collection	16AN168	JEP061323-01	JEP061323A	2	12	330			Surface					2	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						6/13/2023
01-21	Surface Collection	16AN168	JEP061323-01	JEP061323A	2	12	330			Surface					1	Ceramic	Porcelain	Container	Hard-paste	Plain/ Undecorated						6/13/2023
01-21	Surface Collection	16AN168	JEP061323-01	JEP061323A	2	12	330			Surface					1	Ceramic	Porcelain	Container	Hard-paste	Plain/ Undecorated						6/13/2023
01-21	Surface Collection	16AN168	JEP061323-01	JEP061323A	2	12	330			Surface					1	Ceramic	Earthenware	Container	Pearlware	Plain/ Undecorated						6/13/2023
01-21	Surface Collection	16AN168	JEP061323-01	JEP061323A	2	12	330			Surface					1	Ceramic	Earthenware	Container	Pearlware	Plain/ Undecorated						6/13/2023
01-21	Surface Collection	16AN168	JEP061323-01	JEP061323A	2	12	330			Surface					1	Ceramic	Stoneware	Unspecified Hollow Vessel	Porcelaneous Stoneware	Plain/ Undecorated					possible jar rim	6/13/2023
01-21	Surface Collection	16AN168	JEP061323-01	JEP061323A	2	12	330			Surface					1	Ceramic	Stoneware	Container	Porcelaneous Stoneware	Plain/ Undecorated						6/13/2023
01-21	Surface Collection	16AN168	JEP061323-01	JEP061323A	2	12	330			Surface					1	Ceramic	Stoneware	Container	Porcelaneous Stoneware	Plain/ Undecorated						6/13/2023
01-21	Surface Collection	16AN168	JEP061323-01	JEP061323A	2	12	330			Surface					1	Ceramic	Earthenware	Container	Pearlware	Plain/ Undecorated						6/13/2023
01-22	Surface Collection	16AN89		JEP061423A	B/t 1 & 2	B/t 4 & 5				Surface					2	Ceramic	Earthenware	Container	Pearlware	Plain/ Undecorated						6/14/2023
01-22	Surface Collection	16AN89		JEP061423A	B/t 1 & 2	B/t 4 & 5				Surface					2	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						6/14/2023
01-22	Surface Collection	16AN89		JEP061423A	B/t 1 & 2	B/t 4 & 5				Surface					1	Ceramic	Porcelain	Container	Hard-paste	Plain/ Undecorated						6/14/2023
01-22	Surface Collection	16AN89		JEP061423A	B/t 1 & 2	B/t 4 & 5				Surface					1	Glass	Olive	Bottle	Indeterminate	Plain/ Undecorated	Applied	Grooved Ring				6/14/2023
01-22	Surface Collection	16AN89		JEP061423A	B/t 1 & 2	B/t 4 & 5				Surface					1	Ceramic	Earthenware	Container	Ironstone/ White Granite	Plain/ Undecorated						6/14/2023
01-22	Surface Collection	16AN89		JEP061423A	B/t 1 & 2	B/t 4 & 5				Surface					1	Ceramic	Earthenware	Container	Pearlware	Hand Painted				Green Decoration		6/14/2023
01-22	Surface Collection	16AN89		JEP061423A	B/t 1 & 2	B/t 4 & 5				Surface					1	Glass	Aqua	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-22	Surface Collection	16AN89		JEP061423A	B/t 1 & 2	B/t 4 & 5				Surface					1	Glass	Solarized (Manganese)	Container	Indeterminate	Embossed (Design)				UID Molding or Embossing		6/14/2023
01-22	Surface Collection	16AN89		JEP061423A	B/t 1 & 2	B/t 4 & 5				Surface					1	Glass	Amber	Container	Indeterminate	Embossed (Lettering)				UID Molding or Embossing	embossment reads, "...ET..."; possible Dr. Hostetter's bitters	6/14/2023
01-22	Surface Collection	16AN89		JEP061423A	B/t 1 & 2	B/t 4 & 5				Surface					1	Glass	Milk	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-22	Surface Collection	16AN89		JEP061423A	B/t 1 & 2	B/t 4 & 5				Surface					1	Glass	Solarized (Manganese)	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-22	Surface Collection	16AN89		JEP061423A	B/t 1 & 2	B/t 4 & 5				Surface					1	Glass	Solarized (Manganese)	Bottle	Molded (Mouth-Blown/ Machine)	Plain/ Undecorated	Improved Tooled	Brandy			straight brandy finish	6/14/2023
01-22	Surface Collection	16AN89		JEP061423A	B/t 1 & 2	B/t 4 & 5				Surface					2	Ceramic	Earthenware	Container	Refined, White-Bodied	Plain/ Undecorated						6/14/2023

EXHIBIT E

FS	CM	Site	Locus	Segment	Transect	Shovel Test	Meter	North	East	Stratum	Level	Top Elevation	Bottom Elevation	Additional Provenience	Count	Material Class	Material Category	Form	Manufacture/ Ware	Decorative Class	Finish Manufacture	Finish Type	Base	Additional Diagnostic Trait(s)	Additional Description	Recovery Date
01-23	Surface Collection	16AN89		JEP061423A	1	4	90			Surface					1	Glass	Solarized (Manganese)	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-23	Surface Collection	16AN89		JEP061423A	1	4	90			Surface					2	Glass	Olive	Bottle	Indeterminate	Plain/ Undecorated						6/14/2023
01-23	Surface Collection	16AN89		JEP061423A	1	4	90			Surface					1	Glass	Aqua	Bottle	Indeterminate	Plain/ Undecorated						6/14/2023
01-23	Surface Collection	16AN89		JEP061423A	1	4	90			Surface					3	Glass	Aqua	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-23	Surface Collection	16AN89		JEP061423A	1	4	90			Surface					2	Ceramic	Earthenware	Container	Pearlware	Plain/ Undecorated						6/14/2023
01-23	Surface Collection	16AN89		JEP061423A	1	4	90			Surface					1	Ceramic	Earthenware	Unspecified Hollow Vessel	Ironstone/ White Granite	Plain/ Undecorated						6/14/2023
01-23	Surface Collection	16AN89		JEP061423A	1	4	90			Surface					1	Ceramic	Earthenware	Unspecified Hollow Vessel	Ironstone/ White Granite	Plain/ Undecorated						6/14/2023
01-23	Surface Collection	16AN89		JEP061423A	1	4	90			Surface					1	Ceramic	Earthenware	Unspecified Hollow Vessel	Ironstone/ White Granite	Plain/ Undecorated						6/14/2023
01-23	Surface Collection	16AN89		JEP061423A	1	4	90			Surface					1	Ceramic	Porcelain	Container	Hard-paste	Plain/ Undecorated						6/14/2023
01-23	Surface Collection	16AN89		JEP061423A	1	4	90			Surface					2	Ceramic	Porcelain	Container	Hard-paste	Plain/ Undecorated						6/14/2023
01-23	Surface Collection	16AN89		JEP061423A	1	4	90			Surface					1	Ceramic	Earthenware	Container	Pearlware	Plain/ Undecorated						6/14/2023
01-23	Surface Collection	16AN89		JEP061423A	1	4	90			Surface					1	Glass	Amber	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-23	Surface Collection	16AN89		JEP061423A	1	4	90			Surface					1	Ceramic	Earthenware	Container	Pearlware	Plain/ Undecorated						6/14/2023
01-23	Surface Collection	16AN89		JEP061423A	1	4	90			Surface					2	Glass	Amber	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-23	Surface Collection	16AN89		JEP061423A	1	4	90			Surface					2	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						6/14/2023
01-23	Surface Collection	16AN89		JEP061423A	1	4	90			Surface					2	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						6/14/2023
01-23	Surface Collection	16AN89		JEP061423A	1	4	90			Surface					1	Ceramic	Earthenware	Container	Pearlware	Transfer Printed				Blue Decoration		6/14/2023
01-23	Surface Collection	16AN89		JEP061423A	1	4	90			Surface					1	Ceramic	Earthenware	Container	Whiteware	Sponge/ Spatter						6/14/2023
01-23	Surface Collection	16AN89		JEP061423A	1	4	90			Surface					1	Ceramic	Earthenware	Container	Ironstone/ White Granite	Plain/ Undecorated					Davenport maker's mark	6/14/2023
01-23	Surface Collection	16AN89		JEP061423A	1	4	90			Surface					1	Glass	Colorless	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-23	Surface Collection	16AN89		JEP061423A	1	4	90			Surface					1	Ceramic	Stoneware	Unspecified Hollow Vessel	Porcelaneous Stoneware	Molded				UID Molding or Embossing		6/14/2023
01-23	Surface Collection	16AN89		JEP061423A	1	4	90			Surface					1	Ceramic	Earthenware	Container	Pearlware	Plain/ Undecorated						6/14/2023
01-23	Surface Collection	16AN89		JEP061423A	1	4	90			Surface					4	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						6/14/2023
01-24	Surface Collection	16AN89		JEP061323A	1	5	120			Surface					1	Ceramic	Earthenware	Unspecified Hollow Vessel	Whiteware	Banded (Annular)				Blue Decoration		6/14/2023
01-24	Surface Collection	16AN89		JEP061323A	1	5	120			Surface					1	Ceramic	Earthenware	Container	Pearlware	Transfer Printed				Black Decoration		6/14/2023
01-24	Surface Collection	16AN89		JEP061323A	1	5	120			Surface					1	Ceramic	Earthenware	Container	Whiteware	Banded (Annular)				Black Decoration	London shape	6/14/2023
01-24	Surface Collection	16AN89		JEP061323A	1	5	120			Surface					1	Ceramic	Earthenware	Container	Refined, White-Bodied	Plain/ Undecorated						6/14/2023
01-24	Surface Collection	16AN89		JEP061323A	1	5	120			Surface					1	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						6/14/2023
01-24	Surface Collection	16AN89		JEP061323A	1	5	120			Surface					1	Ceramic	Earthenware	Container	Ironstone/ White Granite	Plain/ Undecorated						6/14/2023
01-24	Surface Collection	16AN89		JEP061323A	1	5	120			Surface					1	Glass	Aqua	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-24	Surface Collection	16AN89		JEP061323A	1	5	120			Surface					1	Glass	Amber	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-24	Surface Collection	16AN89		JEP061323A	1	5	120			Surface					1	Ceramic	Earthenware	Container	Whiteware	Transfer Printed				Red/Maroon Decoration		6/14/2023
01-25	Surface Collection	16AN89		JEP061423A	1	6	155			Surface					1	Ceramic	Earthenware	Cup	Whiteware	Hand Painted				Red/Maroon Decoration		6/14/2023
01-25	Surface Collection	16AN89		JEP061423A	1	6	155			Surface					1	Ceramic	Stoneware	Container	Porcelaneous Stoneware	Plain/ Undecorated						6/14/2023

Historic Material Recovered during the Investigation

FS	CM	Site	Locus	Segment	Transect	Shovel Test	Meter	North	East	Stratum	Level	Top Elevation	Bottom Elevation	Additional Provenience	Count	Material Class	Material Category	Form	Manufacture/ Ware	Decorative Class	Finish Manufacture	Finish Type	Base	Additional Diagnostic Trait(s)	Additional Description	Recovery Date
01-25	Surface Collection	16AN89		JEP061423A	1	6	155			Surface					1	Glass	Cobalt Blue	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-25	Surface Collection	16AN89		JEP061423A	1	6	155			Surface					1	Ceramic	Earthenware	Container	Yellowware	Banded (Annular)					pink and blue bands	6/14/2023
01-25	Surface Collection	16AN89		JEP061423A	1	6	155			Surface					1	Ceramic	Porcelain	Cup	Hard-paste	Plain/ Undecorated					child's tea set cup	6/14/2023
01-25	Surface Collection	16AN89		JEP061423A	1	6	155			Surface					1	Ceramic	Earthenware	Container	Whiteware	Hand Painted				Red/Maroon Decoration		6/14/2023
01-25	Surface Collection	16AN89		JEP061423A	1	6	155			Surface					1	Ceramic	Earthenware	Container	Ironstone/ White Granite	Plain/ Undecorated						6/14/2023
01-25	Surface Collection	16AN89		JEP061423A	1	6	155			Surface					2	Ceramic	Earthenware	Container	Ironstone/ White Granite	Plain/ Undecorated						6/14/2023
01-25	Surface Collection	16AN89		JEP061423A	1	6	155			Surface					2	Ceramic	Earthenware	Container	Pearlware	Plain/ Undecorated						6/14/2023
01-25	Surface Collection	16AN89		JEP061423A	1	6	155			Surface					5	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						6/14/2023
01-25	Surface Collection	16AN89		JEP061423A	1	6	155			Surface					4	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						6/14/2023
01-25	Surface Collection	16AN89		JEP061423A	1	6	155			Surface					1	Glass	Tinted Milk	Container	Molded (Mouth-Blown/ Machine)	Molded				UID Molding or Embossing		6/14/2023
01-25	Surface Collection	16AN89		JEP061423A	1	6	155			Surface					2	Glass	Solarized (Manganese)	Indeterminate	Indeterminate	Plain/ Undecorated						6/14/2023
01-25	Surface Collection	16AN89		JEP061423A	1	6	155			Surface					1	Glass	Milk	Jar	Molded (Mouth-Blown/ Machine)	Plain/ Undecorated						6/14/2023
01-25	Surface Collection	16AN89		JEP061423A	1	6	155			Surface					1	Glass	Olive	Bottle	Indeterminate	Plain/ Undecorated						6/14/2023
01-25	Surface Collection	16AN89		JEP061423A	1	6	155			Surface					1	Glass	Green	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-25	Surface Collection	16AN89		JEP061423A	1	6	155			Surface					1	Glass	Aqua	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-25	Surface Collection	16AN89		JEP061423A	1	6	155			Surface					1	Glass	Colorless	Unspecified Flat Vessel	Molded (Mouth-Blown/ Machine)	Molded					fluted glass	6/14/2023
01-25	Surface Collection	16AN89		JEP061423A	1	6	155			Surface					1	Ceramic	Earthenware	Container	Whiteware	Hand Painted				Blue Decoration		6/14/2023
01-26	Surface Collection	16AN89		JEP061423A	1	7	180			Surface					1	Ceramic	Earthenware	Container	Ironstone/ White Granite	Plain/ Undecorated						6/14/2023
01-26	Surface Collection	16AN89		JEP061423A	1	7	180			Surface					3	Glass	Solarized (Manganese)	Container	Molded (Mouth-Blown/ Machine)	Molded				UID Molding or Embossing		6/14/2023
01-26	Surface Collection	16AN89		JEP061423A	1	7	180			Surface					2	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						6/14/2023
01-26	Surface Collection	16AN89		JEP061423A	1	7	180			Surface					1	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						6/14/2023
01-26	Surface Collection	16AN89		JEP061423A	1	7	180			Surface					1	Ceramic	Earthenware	Unspecified Hollow Vessel	Whiteware	Plain/ Undecorated						6/14/2023
01-26	Surface Collection	16AN89		JEP061423A	1	7	180			Surface					1	Glass	Colorless	Container	Molded (Mouth-Blown/ Machine)	Plain/ Undecorated			Basal Embossing		basal embossment reads "...2..."	6/14/2023
01-26	Surface Collection	16AN89		JEP061423A	1	7	180			Surface					1	Ceramic	Earthenware	Container	Ironstone/ White Granite	Plain/ Undecorated						6/14/2023
01-26	Surface Collection	16AN89		JEP061423A	1	7	180			Surface					2	Ceramic	Earthenware	Container	Pearlware	Plain/ Undecorated						6/14/2023
01-26	Surface Collection	16AN89		JEP061423A	1	7	180			Surface					3	Ceramic	Earthenware	Container	Ironstone/ White Granite	Plain/ Undecorated						6/14/2023
01-26	Surface Collection	16AN89		JEP061423A	1	7	180			Surface					1	Ceramic	Porcelain	Container	Hard-paste	Plain/ Undecorated						6/14/2023
01-26	Surface Collection	16AN89		JEP061423A	1	7	180			Surface					5	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						6/14/2023
01-26	Surface Collection	16AN89		JEP061423A	1	7	180			Surface					1	Ceramic	Stoneware	Container	Buff-Bodied	Plain/ Undecorated						6/14/2023
01-26	Surface Collection	16AN89		JEP061423A	1	7	180			Surface					1	Ceramic	Earthenware	Unspecified Hollow Vessel	Yellowware	Banded (Annular)					yellow and blue bands	6/14/2023
01-26	Surface Collection	16AN89		JEP061423A	1	7	180			Surface					1	Ceramic	Earthenware	Container	Pearlware	Plain/ Undecorated					UID impressed maker's mark	6/14/2023
01-26	Surface Collection	16AN89		JEP061423A	1	7	180			Surface					1	Ceramic	Earthenware	Container	Pearlware	Shell Edge				Blue Decoration		6/14/2023
01-26	Surface Collection	16AN89		JEP061423A	1	7	180			Surface					1	Ceramic	Stoneware	Unspecified Hollow Vessel	Porcelaneous Stoneware	Banded (Annular)				Blue Decoration	blue and black bands	6/14/2023
01-26	Surface Collection	16AN89		JEP061423A	1	7	180			Surface					1	Ceramic	Earthenware	Unspecified Hollow Vessel	Refined, White-Bodied	Plain/ Undecorated						6/14/2023
01-26	Surface Collection	16AN89		JEP061423A	1	7	180			Surface					1	Glass	Amber	Container	Indeterminate	Embossed (Lettering)					embossment reads "...S..."	6/14/2023

EXHIBIT E

Historic Material Recovered during the Investigation

FS	CM	Site	Locus	Segment	Transect	Shovel Test	Meter	North	East	Stratum	Level	Top Elevation	Bottom Elevation	Additional Provenience	Count	Material Class	Material Category	Form	Manufacture/ Ware	Decorative Class	Finish Manufacture	Finish Type	Base	Additional Diagnostic Trait(s)	Additional Description	Recovery Date
01-26	Surface Collection	16AN89		JEP061423A	1	7	180			Surface					1	Glass	Colorless	Container	Molded (Mouth-Blown/ Machine)	Molded					bubble design	6/14/2023
01-26	Surface Collection	16AN89		JEP061423A	1	7	180			Surface					1	Glass	Colorless	Indeterminate	Molded (Mouth-Blown/ Machine)	Molded				UID Molding or Embossing		6/14/2023
01-26	Surface Collection	16AN89		JEP061423A	1	7	180			Surface					1	Ceramic	Porcelain	Container	Hard-paste	Plain/ Undecorated						6/14/2023
01-26	Surface Collection	16AN89		JEP061423A	1	7	180			Surface					5	Glass	Aqua	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-26	Surface Collection	16AN89		JEP061423A	1	7	180			Surface					2	Organic	Shell	Button	Indeterminate	Plain/ Undecorated					1 button missing part of sew-through holes - looks like smiley face	6/14/2023
01-26	Surface Collection	16AN89		JEP061423A	1	7	180			Surface					1	Stone/ Mineral	Graphite	Rod	Indeterminate	n/a					possible battery rod (?)	6/14/2023
01-26	Surface Collection	16AN89		JEP061423A	1	7	180			Surface					1	Glass	Solarized (Manganese)	Container	Molded (Mouth-Blown/ Machine)	Molded					ribbed molding	6/14/2023
01-26	Surface Collection	16AN89		JEP061423A	1	7	180			Surface					1	Glass	Milk	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-26	Surface Collection	16AN89		JEP061423A	1	7	180			Surface					2	Glass	Solarized (Manganese)	Container	Molded (Mouth-Blown/ Machine)	Embossed (Lettering)				UID Molding or Embossing		6/14/2023
01-26	Surface Collection	16AN89		JEP061423A	1	7	180			Surface					3	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						6/14/2023
01-26	Surface Collection	16AN89		JEP061423A	1	7	180			Surface					1	Glass	Milk	Container	Machine Made	Molded				UID Molding or Embossing		6/14/2023
01-26	Surface Collection	16AN89		JEP061423A	1	7	180			Surface					1	Glass	Colorless	Container	Molded (Mouth-Blown/ Machine)	Embossed (Lettering)				UID Molding or Embossing		6/14/2023
01-26	Surface Collection	16AN89		JEP061423A	1	7	180			Surface					1	Glass	Milk	Container	Molded (Mouth-Blown/ Machine)	Molded					Ribbed	6/14/2023
01-26	Surface Collection	16AN89		JEP061423A	1	7	180			Surface					1	Glass	Aqua	Bottle	Indeterminate	Plain/ Undecorated						6/14/2023
01-26	Surface Collection	16AN89		JEP061423A	1	7	180			Surface					1	Glass	Solarized (Manganese)	Stemware	Molded (Mouth-Blown/ Machine)	Plain/ Undecorated						6/14/2023
01-26	Surface Collection	16AN89		JEP061423A	1	7	180			Surface					2	Glass	Solarized (Manganese)	Container	Molded (Mouth-Blown/ Machine)	Plain/ Undecorated						6/14/2023
01-26	Surface Collection	16AN89		JEP061423A	1	7	180			Surface					1	Glass	Aqua	Indeterminate	Indeterminate	Plain/ Undecorated						6/14/2023
01-26	Surface Collection	16AN89		JEP061423A	1	7	180			Surface					4	Glass	Amber	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-26	Surface Collection	16AN89		JEP061423A	1	7	180			Surface					2	Glass	Cobalt Blue	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-26	Surface Collection	16AN89		JEP061423A	1	7	180			Surface					2	Glass	Olive	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-26	Surface Collection	16AN89		JEP061423A	1	7	180			Surface					4	Glass	Colorless	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-26	Surface Collection	16AN89		JEP061423A	1	7	180			Surface					1	Glass	Colorless	Jar	Machine Made	Plain/ Undecorated	Machine-Made	Large Mouth External Threaded				6/14/2023
01-26	Surface Collection	16AN89		JEP061423A	1	7	180			Surface					6	Glass	Solarized (Manganese)	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-27	Surface Collection	16AN89		JEP061323A	1	8	210			Surface					1	Ceramic	Earthenware	Container	Ironstone/ White Granite	Plain/ Undecorated						6/14/2023
01-27	Surface Collection	16AN89		JEP061323A	1	8	210			Surface					1	Glass	Colorless	Container	Machine Made	Plain/ Undecorated			Stippling			6/14/2023
01-27	Surface Collection	16AN89		JEP061323A	1	8	210			Surface					1	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						6/14/2023
01-27	Surface Collection	16AN89		JEP061323A	1	8	210			Surface					1	Ceramic	Earthenware	Container	Ironstone/ White Granite	Plain/ Undecorated						6/14/2023
01-27	Surface Collection	16AN89		JEP061323A	1	8	210			Surface					4	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						6/14/2023
01-27	Surface Collection	16AN89		JEP061323A	1	8	210			Surface					1	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						6/14/2023
01-27	Surface Collection	16AN89		JEP061323A	1	8	210			Surface					1	Ceramic	Earthenware	Container	Ironstone/ White Granite	Plain/ Undecorated						6/14/2023
01-27	Surface Collection	16AN89		JEP061323A	1	8	210			Surface					2	Glass	Cobalt Blue	Jar	Molded (Mouth-Blown/ Machine)	Plain/ Undecorated			Basal Embossing		Vick's VapoRub jars; separate vessels	6/14/2023
01-27	Surface Collection	16AN89		JEP061323A	1	8	210			Surface					1	Glass	Milk	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-27	Surface Collection	16AN89		JEP061323A	1	8	210			Surface					1	Glass	Amber	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-27	Surface Collection	16AN89		JEP061323A	1	8	210			Surface					1	Glass	Olive	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-27	Surface Collection	16AN89		JEP061323A	1	8	210			Surface					2	Glass	Colorless	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-27	Surface Collection	16AN89		JEP061323A	1	8	210			Surface					1	Glass	Red	Jewelry	Indeterminate	Plain/ Undecorated					glass stone with metal casing; possible jewelry or button (?)	6/14/2023

EXHIBIT E

Historic Material Recovered during the Investigation

FS	CM	Site	Locus	Segment	Transect	Shovel Test	Meter	North	East	Stratum	Level	Top Elevation	Bottom Elevation	Additional Provenience	Count	Material Class	Material Category	Form	Manufacture/ Ware	Decorative Class	Finish Manufacture	Finish Type	Base	Additional Diagnostic Trait(s)	Additional Description	Recovery Date
01-27	Surface Collection	16AN89		JEP061323A	1	8	210			Surface					1	Glass	Green	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-28	Surface Collection	16AN89		JEP061423A	1	9	240			Surface					1	Glass	Aqua	Container	Molded (Mouth-Blown/ Machine)	Plain/ Undecorated						6/14/2023
01-28	Surface Collection	16AN89		JEP061423A	1	9	240			Surface					1	Ceramic	Porcelain	Doll	Hard-paste	Plain/ Undecorated					doll leg	6/14/2023
01-28	Surface Collection	16AN89		JEP061423A	1	9	240			Surface					1	Glass	Milk	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-28	Surface Collection	16AN89		JEP061423A	1	9	240			Surface					1	Glass	Milk	Container	Molded (Mouth-Blown/ Machine)	Molded				UID Molding or Embossing		6/14/2023
01-29	Surface Collection	16AN89		JEP061423A	1	10	270			Surface					1	Ceramic	Earthenware	Container	Ironstone/ White Granite	Decal				Ghost		6/14/2023
01-29	Surface Collection	16AN89		JEP061423A	1	10	270			Surface					1	Glass	Amber	Container	Molded (Mouth-Blown/ Machine)	Plain/ Undecorated						6/14/2023
01-30	Surface Collection	16AN89		JEP061423A	2	2	30			Surface					1	Glass	Aqua	Container	Indeterminate	Plain/ Undecorated					very small fragment	6/14/2023
01-30	Surface Collection	16AN89		JEP061423A	2	2	30			Surface					1	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated					very small fragment	6/14/2023
01-31	Surface Collection	16AN89		JEP061423A	2	3	60			Surface					2	Glass	Aqua	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-31	Surface Collection	16AN89		JEP061423A	2	3	60			Surface					1	Ceramic	Earthenware	Container	Ironstone/ White Granite	Plain/ Undecorated						6/14/2023
01-31	Surface Collection	16AN89		JEP061423A	2	3	60			Surface					1	Ceramic	Earthenware	Container	Pearlware	Edge Decorated				Blue Decoration		6/14/2023
01-31	Surface Collection	16AN89		JEP061423A	2	3	60			Surface					1	Ceramic	Earthenware	Container	Pearlware	Plain/ Undecorated						6/14/2023
01-31	Surface Collection	16AN89		JEP061423A	2	3	60			Surface					4	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						6/14/2023
01-31	Surface Collection	16AN89		JEP061423A	2	3	60			Surface					3	Glass	Solarized (Manganese)	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-31	Surface Collection	16AN89		JEP061423A	2	3	60			Surface					1	Glass	Olive	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-31	Surface Collection	16AN89		JEP061423A	2	3	60			Surface					1	Glass	Amber	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-31	Surface Collection	16AN89		JEP061423A	2	3	60			Surface					1	Glass	Solarized (Manganese)	Stemware	Molded (Mouth-Blown/ Machine)	Plain/ Undecorated						6/14/2023
01-31	Surface Collection	16AN89		JEP061423A	2	3	60			Surface					1	Glass	Aqua	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-32	Surface Collection	16AN89		JEP061423A	2	4	90			Surface					1	Ceramic	Earthenware	Unspecified Hollow Vessel	Pearlware	Banded (Annular)				Blue Decoration		6/14/2023
01-32	Surface Collection	16AN89		JEP061423A	2	4	90			Surface					1	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						6/14/2023
01-32	Surface Collection	16AN89		JEP061423A	2	4	90			Surface					1	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						6/14/2023
01-32	Surface Collection	16AN89		JEP061423A	2	4	90			Surface					1	Ceramic	Earthenware	Container	Pearlware	Plain/ Undecorated						6/14/2023
01-32	Surface Collection	16AN89		JEP061423A	2	4	90			Surface					1	Glass	Solarized (Manganese)	Container	Press Molded	Pressed Glass						6/14/2023
01-32	Surface Collection	16AN89		JEP061423A	2	4	90			Surface					1	Glass	Olive	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-32	Surface Collection	16AN89		JEP061423A	2	4	90			Surface					1	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						6/14/2023
01-33	Surface Collection	16AN89		JEP061423A	2	5	128			Surface					1	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						6/14/2023
01-33	Surface Collection	16AN89		JEP061423A	2	5	128			Surface					1	Ceramic	Stoneware	Unspecified Hollow Vessel	Porcelaneous Stoneware	Banded (Annular)				Blue Decoration	possibly sponged as well (?)	6/14/2023
01-33	Surface Collection	16AN89		JEP061423A	2	5	128			Surface					1	Ceramic	Earthenware	Container	Whiteware	Hand Painted				Polychrome Decoration		6/14/2023
01-33	Surface Collection	16AN89		JEP061423A	2	5	128			Surface					1	Glass	Milk	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-33	Surface Collection	16AN89		JEP061423A	2	5	128			Surface					1	Glass	Colorless	Container	Machine Made	Plain/ Undecorated			Stippling		embossed and stippled; embossment reads either "9" or "6"	6/14/2023
01-33	Surface Collection	16AN89		JEP061423A	2	5	128			Surface					1	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						6/14/2023
01-34	Shovel Test	16AN89		JEP061423A	2	5	128			I	1	0	10		1	Ceramic	Stoneware	Container	Porcelaneous Stoneware	Plain/ Undecorated						6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Ceramic	Earthenware	Container	Whiteware	Decal				Ghost	floral decal design	6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Ceramic	Earthenware	Container	Whiteware	Cut Sponge				Polychrome Decoration		6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					4	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						6/14/2023

EXHIBIT E

Historic Material Recovered during the Investigation

FS	CM	Site	Locus	Segment	Transect	Shovel Test	Meter	North	East	Stratum	Level	Top Elevation	Bottom Elevation	Additional Provenience	Count	Material Class	Material Category	Form	Manufacture/ Ware	Decorative Class	Finish Manufacture	Finish Type	Base	Additional Diagnostic Trait(s)	Additional Description	Recovery Date
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					7	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					3	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					4	Ceramic	Earthenware	Container	Pearlware	Plain/ Undecorated						6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					2	Ceramic	Earthenware	Container	Pearlware	Plain/ Undecorated						6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Glass	Olive	Bottle	Indeterminate	Plain/ Undecorated			Basal Embossing		embossment reads "5"	6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Ceramic	Earthenware	Container	Whiteware	Molded				UID Molding or Embossing		6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Metal	Ferrous	Indeterminate	Indeterminate	n/a					possible hinge or handle	6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Ceramic	Earthenware	Container	Pearlware	Indeterminate				Green Decoration		6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Ceramic	Earthenware	Unspecified Hollow Vessel	Whiteware	Banded (Annular)				Brown Decoration		6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Ceramic	Earthenware	Container	Whiteware	Banded (Annular)				Red/Maroon Decoration		6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated					UID maker's mark	6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Ceramic	Earthenware	Container	Pearlware	Plain/ Undecorated					UID cartouche-style maker's mark	6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Glass	Milk	Jar	Machine Made	Molded			Basal Embossing	UID Molding or Embossing	mends	6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Ceramic	Earthenware	Unspecified Hollow Vessel	Whiteware	Flow Printed				Blue Decoration		6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					2	Ceramic	Stoneware	Container	Buff-Bodied	Plain/ Undecorated					UID glaze made from cobalt	6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					4	Ceramic	Earthenware	Container	Ironstone/ White Granite	Plain/ Undecorated						6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					4	Ceramic	Earthenware	Container	Ironstone/ White Granite	Plain/ Undecorated						6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Ceramic	Stoneware	Container	Porcelaneous Stoneware	Plain/ Undecorated						6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Ceramic	Stoneware	Container	Porcelaneous Stoneware	Plain/ Undecorated						6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Ceramic	Earthenware	Unspecified Hollow Vessel	Ironstone/ White Granite	Molded					paneled molding	6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Ceramic	Stoneware	Container	Buff-Bodied	Plain/ Undecorated					blue band runs through middle fo paste; beige wash on interior	6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Ceramic	Earthenware	Container	Whiteware	Transfer Printed				Black Decoration		6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Ceramic	Earthenware	Container	Refined, White-Bodied	Plain/ Undecorated						6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Ceramic	Earthenware	Container	Whiteware	Hand Painted				Red/Maroon Decoration		6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					2	Ceramic	Porcelain	Container	Hard-paste	Plain/ Undecorated						6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Ceramic	Porcelain	Container	Hard-paste	Molded				UID Molding or Embossing		6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Ceramic	Porcelain	Container	Hard-paste	Plain/ Undecorated						6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Ceramic	Porcelain	Container	Hard-paste	Plain/ Undecorated						6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					4	Ceramic	Earthenware	Container	Whiteware	Transfer Printed				Blue Decoration	2 sherds possibly from same vessel	6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Ceramic	Earthenware	Unspecified Hollow Vessel	Whiteware	Molded				UID Molding or Embossing		6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Ceramic	Stoneware	Container	Porcelaneous Stoneware	Indeterminate				Blue Decoration		6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Glass	Solarized (Manganese)	Container	Post Bottom Mold	Plain/ Undecorated						6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Glass	Amber	Bottle	Molded (Mouth-Blown/ Machine)	Plain/ Undecorated						6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Glass	Colorless	Container	Molded (Mouth-Blown/ Machine)	Plain/ Undecorated			Basal Embossing		embossment reads, "...2.../65-6..."	6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					3	Glass	Colorless	Container	Indeterminate	Plain/ Undecorated						6/14/2023

EXHIBIT E

Historic Material Recovered during the Investigation

FS	CM	Site	Locus	Segment	Transect	Shovel Test	Meter	North	East	Stratum	Level	Top Elevation	Bottom Elevation	Additional Provenience	Count	Material Class	Material Category	Form	Manufacture/ Ware	Decorative Class	Finish Manufacture	Finish Type	Base	Additional Diagnostic Trait(s)	Additional Description	Recovery Date
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Glass	Olive	Bottle	Indeterminate	Plain/ Undecorated	Applied	Mineral				6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Glass	Solarized (Manganese)	Bottle	Molded (Mouth-Blown/ Machine)	Plain/ Undecorated					flask-style base	6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Ceramic	Earthenware	Container	Whiteware	Flow Printed				Blue Decoration		6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					5	Glass	Amber	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Glass	Solarized (Manganese)	Bottle	Molded (Mouth-Blown/ Machine)	Plain/ Undecorated	Tooled					6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					2	Glass	Colorless	Container	Machine Made	Plain/ Undecorated	Machine-Made	Threaded Finish, UID				6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Glass	Solarized (Manganese)	Container	Molded (Mouth-Blown/ Machine)	Plain/ Undecorated			Basal Embossing	UID Molding or Embossing	possible post-bottom or 2-piece mold vessel; embossment is a possible "v"	6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Glass	Solarized (Manganese)	Indeterminate	Indeterminate	Plain/ Undecorated						6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Glass	Tinted Milk	Container	Molded (Mouth-Blown/ Machine)	Molded				UID Molding or Embossing	lavender milk glass	6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Glass	Tinted Milk	Container	Indeterminate	Plain/ Undecorated					blue milk glass	6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					2	Glass	Solarized (Manganese)	Container	Molded (Mouth-Blown/ Machine)	Plain/ Undecorated						6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					13	Glass	Solarized (Manganese)	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					2	Ceramic	Porcelain	Button	Prosser	Plain/ Undecorated					4-holed	6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Glass	Solarized (Manganese)	Tumbler/ Drinking Glass	Molded (Mouth-Blown/ Machine)	Plain/ Undecorated						6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					3	Glass	Milk	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Glass	Olive	Bottle	Indeterminate	Plain/ Undecorated	Indeterminate	Champagne				6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Glass	Solarized (Manganese)	Bottle	Indeterminate	Plain/ Undecorated	Indeterminate	Patent			wide patent finish	6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Glass	Olive	Bottle	Indeterminate	Plain/ Undecorated						6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Glass	Amber	Container	Indeterminate	Plain/ Undecorated					UID finish type	6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					2	Glass	Milk	Container	Molded (Mouth-Blown/ Machine)	Molded				UID Molding or Embossing		6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Glass	Cobalt Blue	Container	Molded (Mouth-Blown/ Machine)	Plain/ Undecorated			Basal Embossing		embossment reads, "...va..."; possible Vick's Vapo Rub jar	6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Glass	Cobalt Blue	Container	Press Molded	Pressed Glass					leaf and stipple design	6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					2	Glass	Cobalt Blue	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Glass	Aqua	Container	Indeterminate	Embossed (Lettering)				UID Molding or Embossing		6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Glass	Aqua	Bottle Stopper	Molded (Mouth-Blown/ Machine)	Embossed (Lettering)					Lea & Perrins Sauce stopper	6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					5	Glass	Olive	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Glass	Aqua	Container	Molded (Mouth-Blown/ Machine)	Molded					ribbed design	6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Glass	Aqua	Bottle	Indeterminate	Plain/ Undecorated					UID finish type	6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Glass	Amber	Bottle	Indeterminate	Plain/ Undecorated					flared finish	6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					1	Glass	Aqua	Container	Molded (Mouth-Blown/ Machine)	Plain/ Undecorated						6/14/2023
01-35	Surface Collection	16AN89		JEP061423A	2	6	150			Surface					8	Glass	Aqua	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-36	Surface Collection	16AN89		JEP061423A	2	7	180			Surface					2	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						6/14/2023
01-36	Surface Collection	16AN89		JEP061423A	2	7	180			Surface					1	Glass	Colorless	Bottle	Machine Made	Plain/ Undecorated	Machine-Made	Prescription	Basal Embossing		embossment reads, "(arch) TCW CO// 15 04// USA (inverted arch)"	6/14/2023
01-36	Surface Collection	16AN89		JEP061423A	2	7	180			Surface					1	Glass	Green	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-36	Surface Collection	16AN89		JEP061423A	2	7	180			Surface					1	Ceramic	Porcelain	Container	Hard-paste	Plain/ Undecorated						6/14/2023

EXHIBIT E

Historic Material Recovered during the Investigation

FS	CM	Site	Locus	Segment	Transect	Shovel Test	Meter	North	East	Stratum	Level	Top Elevation	Bottom Elevation	Additional Provenience	Count	Material Class	Material Category	Form	Manufacture/ Ware	Decorative Class	Finish Manufacture	Finish Type	Base	Additional Diagnostic Trait(s)	Additional Description	Recovery Date
01-36	Surface Collection	16AN89		JEP061423A	2	7	180			Surface					2	Glass	Milk	Unspecified Hollow Vessel	Molded (Mouth-Blown/ Machine)	Molded				UID Molding or Embossing		6/14/2023
01-37	Surface Collection	16AN89		JEP061423A	2	8	210			Surface					1	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						6/14/2023
01-37	Surface Collection	16AN89		JEP061423A	2	8	210			Surface					1	Glass	Amber	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-37	Surface Collection	16AN89		JEP061423A	2	8	210			Surface					1	Metal	Ferrous	Horseshoe	Undetermined	n/a						6/14/2023
01-38	Surface Collection	16AN89		JEP061423A	2	9	240			Surface					1	Glass	Milk	Lid	Machine Made	Embossed (Lettering)					embossment reads, "CAP"	6/14/2023
01-38	Surface Collection	16AN89		JEP061423A	2	9	240			Surface					1	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						6/14/2023
01-38	Surface Collection	16AN89		JEP061423A	2	9	240			Surface					1	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						6/14/2023
01-38	Surface Collection	16AN89		JEP061423A	2	9	240			Surface					1	Glass	Green	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-38	Surface Collection	16AN89		JEP061423A	2	9	240			Surface					1	Glass	Aqua	Bottle	Indeterminate	Plain/ Undecorated					UID finish type	6/14/2023
01-38	Surface Collection	16AN89		JEP061423A	2	9	240			Surface					1	Glass	Aqua	Container	Indeterminate	Applied Color Label					deteriorated ACL; reads, "REG…//6…"	6/14/2023
01-38	Surface Collection	16AN89		JEP061423A	2	9	240			Surface					1	Glass	Colorless	Container	Indeterminate	Plain/ Undecorated						6/14/2023
01-38	Surface Collection	16AN89		JEP061423A	2	9	240			Surface					1	Ceramic	Porcelain	Container	Hard-paste	Hand Painted				Blue Decoration	shares similarities with Kraak porcelain (?)	6/14/2023
01-39	Surface Collection	16AN89		JEP061423A	J1	1	0			Surface					1	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						6/14/2023
01-39	Surface Collection	16AN89		JEP061423A	J1	1	0			Surface					1	Ceramic	Earthenware	Container	Yellowware	Molded				UID Molding or Embossing		6/14/2023
01-39	Surface Collection	16AN89		JEP061423A	J1	1	0			Surface					2	Ceramic	Earthenware	Container	Pearlware	Plain/ Undecorated						6/14/2023
01-39	Surface Collection	16AN89		JEP061423A	J1	1	0			Surface					1	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						6/14/2023
01-40	Delineation Shovel Test	16AN169	JEP061223-01	JEP060523A				910	980	Surface					1	Glass	Aqua	Container	Molded (Mouth-Blown/ Machine)	Plain/ Undecorated			Basal Embossing		embossment reads, "…BAT…"	6/16/2023
01-40	Delineation Shovel Test	16AN169	JEP061223-01	JEP060523A				910	980	Surface					1	Ceramic	Architectural Ceramic	Tile	Buff-Bodied	Plain/ Undecorated					seems like same tile from FS# 01-01 and FS# 01-02	6/16/2023
01-41	Delineation Shovel Test	16AN169	JEP061223-01	JEP060523A				910	990	Surface					2	Ceramic	Architectural Ceramic	Tile	Buff-Bodied	Plain/ Undecorated					same tile as FS# 01-01 and FS#01-02	6/16/2023
01-41	Delineation Shovel Test	16AN169	JEP061223-01	JEP060523A				910	990	Surface					1	Manufactured/ Synthetic	Misc. Plastic	Flat	Indeterminate	Plain/ Undecorated						6/16/2023
01-42	Delineation Shovel Test	16AN169	JEP061223-01	JEP060523A				930	990	Surface					1	Glass	Aqua	Bottle	Molded (Mouth-Blown/ Machine)	Plain/ Undecorated			Basal Embossing		embossment reads, "…GE…"; possibly same vessel as FS# 01-40	6/16/2023
01-42	Delineation Shovel Test	16AN169	JEP061223-01	JEP060523A				930	990	Surface					1	Ceramic	Architectural Ceramic	Tile	Buff-Bodied	Plain/ Undecorated					same tile as FS# 01-01, 01-02, and 01-41	6/16/2023
01-43	Delineation Shovel Test	16AN169	JEP061223-01	JEP060523A				950	980	Surface					1	Ceramic	Architectural Ceramic	Tile	Buff-Bodied	Plain/ Undecorated					same tile as FS# 01-01, 01-02, and 01-41, etc.	6/15/2023
01-44	Delineation Shovel Test	16AN169	JEP061223-01	JEP060523A				950	990	Surface					4	Ceramic	Architectural Ceramic	Tile	Buff-Bodied	Plain/ Undecorated					same tile as FS# 01-01, 01-02, and 01-41, etc.	6/16/2023
01-45	Delineation Shovel Test	16AN169	JEP061223-01	JEP060523A				974	983	Surface					2	Ceramic	Architectural Ceramic	Tile	Buff-Bodied	Plain/ Undecorated					same tile as FS# 01-01, 01-02, and 01-41, etc.	6/15/2023
01-46	Delineation Shovel Test	16AN169	JEP061223-01	JEP060523A				970	1009	Surface					1	Ceramic	Architectural Ceramic	Tile	Buff-Bodied	Plain/ Undecorated					same tile as FS# 01-01, 01-02, and 01-41, etc.	6/15/2023
01-47	Delineation Shovel Test	16AN169	JEP061223-01	JEP060523A				1000	990	Surface					1	Glass	Aqua	Container	Indeterminate	Plain/ Undecorated						6/15/2023
01-47	Delineation Shovel Test	16AN169	JEP061223-01	JEP060523A				1000	990	Surface					2	Ceramic	Architectural Ceramic	Tile	Buff-Bodied	Plain/ Undecorated					same tile as FS# 01-01, 01-02, and 01-41, etc.	6/15/2023
01-48	Delineation Shovel Test	16AN169	JEP061223-01	JEP060523A				1000	990	I	1	0	10		1	Ceramic	Architectural Ceramic	Tile	Buff-Bodied	Plain/ Undecorated					same tile as FS# 01-01, 01-02, and 01-41, etc.	6/15/2023
01-49	Surface Collection	16AN32		JEP063023A	1	11	300			Surface					2	Ceramic	Earthenware	Container	Pearlware	Plain/ Undecorated						6/30/2023
01-50	Surface Collection	16AN32		JEP063023A	2	9	240			Surface					1	Ceramic	Earthenware	Container	Ironstone/ White Granite	Plain/ Undecorated						6/30/2023
01-51	Surface Collection	16AN32		JEP063023A	2	18	510			Surface					1	Glass	Olive	Container	Indeterminate	Plain/ Undecorated						7/10/2023
01-52	Delineation Shovel Test	16AN89		JEP061423A				940	1010	Surface					1	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						7/18/2023
01-53	Delineation Shovel Test	16AN89		JEP061423A				968	965	Surface					1	Ceramic	Earthenware	Unspecified Hollow Vessel	Yellowware	Banded (Annular)					blue and pink bands; possibly same vessel as FS# 01-25	7/18/2023
01-53	Delineation Shovel Test	16AN89		JEP061423A				968	965	Surface					4	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						7/18/2023

EXHIBIT E

Historic Material Recovered during the Investigation

FS	CM	Site	Locus	Segment	Transect	Shovel Test	Meter	North	East	Stratum	Level	Top Elevation	Bottom Elevation	Additional Provenience	Count	Material Class	Material Category	Form	Manufacture/ Ware	Decorative Class	Finish Manufacture	Finish Type	Base	Additional Diagnostic Trait(s)	Additional Description	Recovery Date
01-53	Delineation Shovel Test	16AN89		JEP061423A				968	965	Surface					1	Glass	Olive	Bottle	Indeterminate	Plain/ Undecorated						7/18/2023
01-53	Delineation Shovel Test	16AN89		JEP061423A				968	965	Surface					1	Glass	Milk	Container	Indeterminate	Plain/ Undecorated						7/18/2023
01-53	Delineation Shovel Test	16AN89		JEP061423A				968	965	Surface					1	Ceramic	Earthenware	Container	Pearlware	Plain/ Undecorated						7/18/2023
01-54	Delineation Shovel Test	16AN89		JEP061423A				970	1010	Surface					1	Ceramic	Porcelain	Container	Hard-paste	Plain/ Undecorated						7/18/2023
01-54	Delineation Shovel Test	16AN89		JEP061423A				970	1010	Surface					1	Glass	Colorless	Bottle	Machine Made	Plain/ Undecorated			Basal Embossing		embossment reads, "2-9..."; stippling on base	7/18/2023
01-54	Delineation Shovel Test	16AN89		JEP061423A				970	1010	Surface					1	Ceramic	Earthenware	Container	Whiteware	Molded					beaded molding	7/18/2023
01-54	Delineation Shovel Test	16AN89		JEP061423A				970	1010	Surface					1	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						7/18/2023
01-54	Delineation Shovel Test	16AN89		JEP061423A				970	1010	Surface					1	Ceramic	Stoneware	Unspecified Hollow Vessel	Buff-Bodied	Plain/ Undecorated					possibly same vessel as FS# 01-35	7/18/2023
01-55	Delineation Shovel Test	16AN89		JEP061423A				985	965	Surface					1	Ceramic	Earthenware	Container	Ironstone/ White Granite	Plain/ Undecorated						7/18/2023
01-55	Delineation Shovel Test	16AN89		JEP061423A				985	965	Surface					5	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						7/18/2023
01-55	Delineation Shovel Test	16AN89		JEP061423A				985	965	Surface					1	Glass	Selenium/ Arsenic (Straw Tint)	Container	Indeterminate	Plain/ Undecorated						7/18/2023
01-55	Delineation Shovel Test	16AN89		JEP061423A				985	965	Surface					1	Ceramic	Earthenware	Unspecified Hollow Vessel	Ironstone/ White Granite	Plain/ Undecorated						7/18/2023
01-55	Delineation Shovel Test	16AN89		JEP061423A				985	965	Surface					1	Ceramic	Earthenware	Container	Whiteware	Annular (Unspecified)					black, green, and white bands	7/18/2023
01-55	Delineation Shovel Test	16AN89		JEP061423A				985	965	Surface					1	Glass	Cobalt Blue	Container	Indeterminate	Plain/ Undecorated						7/18/2023
01-55	Delineation Shovel Test	16AN89		JEP061423A				985	965	Surface					2	Glass	Aqua	Container	Indeterminate	Plain/ Undecorated						7/18/2023
01-55	Delineation Shovel Test	16AN89		JEP061423A				985	965	Surface					1	Glass	Aqua	Container	Indeterminate	Embossed (Lettering)					embossment reads, "...G..."	7/18/2023
01-55	Delineation Shovel Test	16AN89		JEP061423A				985	965	Surface					1	Ceramic	Earthenware	Container	Whiteware	Hand Painted				Blue Decoration		7/18/2023
01-55	Delineation Shovel Test	16AN89		JEP061423A				985	965	Surface					1	Glass	Milk	Container	Indeterminate	Plain/ Undecorated						7/18/2023
01-55	Delineation Shovel Test	16AN89		JEP061423A				985	965	Surface					2	Glass	Milk	Jar	Machine Made	Molded				UID Molding or Embossing	possibly same vessel as FS# 01-35	7/18/2023
01-55	Delineation Shovel Test	16AN89		JEP061423A				985	965	Surface					1	Ceramic	Earthenware	Container	Ironstone/ White Granite	Plain/ Undecorated						7/18/2023
01-55	Delineation Shovel Test	16AN89		JEP061423A				985	965	Surface					1	Ceramic	Porcelain	Container	Hard-paste	Plain/ Undecorated						7/18/2023
01-56	Delineation Shovel Test	16AN89		JEP061423A				1000	1010	Surface					1	Ceramic	Porcelain	Container	Hard-paste	Plain/ Undecorated						7/18/2023
01-56	Delineation Shovel Test	16AN89		JEP061423A				1000	1010	Surface					1	Glass	Olive	Container	Indeterminate	Plain/ Undecorated						7/18/2023
01-56	Delineation Shovel Test	16AN89		JEP061423A				1000	1010	Surface					1	Glass	Solarized (Manganese)	Container	Indeterminate	Plain/ Undecorated						7/18/2023
01-57	Delineation Shovel Test	16AN89		JEP061423A				1000	1015	Surface					1	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						7/18/2023
01-57	Delineation Shovel Test	16AN89		JEP061423A				1000	1015	Surface					1	Ceramic	Earthenware	Container	Ironstone/ White Granite	Plain/ Undecorated						7/18/2023
01-57	Delineation Shovel Test	16AN89		JEP061423A				1000	1015	Surface					1	Ceramic	Porcelain	Container	Hard-paste	Decal				Ghost		7/18/2023
01-57	Delineation Shovel Test	16AN89		JEP061423A				1000	1015	Surface					1	Glass	Colorless	Indeterminate	Indeterminate	Plain/ Undecorated					very small shard	7/18/2023
01-58	Delineation Shovel Test	16AN89		JEP061423A				1000	1015	I	2	10	20		1	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						7/18/2023
01-59	Delineation Shovel Test	16AN89		JEP061423A				1022	1010	Surface					1	Glass	Tinted Milk	Container	Indeterminate	Plain/ Undecorated					blue milk glass	7/18/2023
01-59	Delineation Shovel Test	16AN89		JEP061423A				1022	1010	Surface					1	Ceramic	Earthenware	Container	Ironstone/ White Granite	Decal				Ghost		7/18/2023
01-59	Delineation Shovel Test	16AN89		JEP061423A				1022	1010	Surface					1	Ceramic	Earthenware	Container	Whiteware	Banded (Annular)				Black Decoration	London shape	7/18/2023
01-59	Delineation Shovel Test	16AN89		JEP061423A				1022	1010	Surface					1	Ceramic	Earthenware	Container	Ironstone/ White Granite	Indeterminate				Blue Decoration		7/18/2023
01-59	Delineation Shovel Test	16AN89		JEP061423A				1022	1010	Surface					1	Ceramic	Earthenware	Container	Whiteware	Cut Sponge				Polychrome Decoration	floral design	7/18/2023
01-59	Delineation Shovel Test	16AN89		JEP061423A				1022	1010	Surface					1	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						7/18/2023

EXHIBIT E

Historic Material Recovered during the Investigation

FS	CM	Site	Locus	Segment	Transect	Shovel Test	Meter	North	East	Stratum	Level	Top Elevation	Bottom Elevation	Additional Provenience	Count	Material Class	Material Category	Form	Manufacture/ Ware	Decorative Class	Finish Manufacture	Finish Type	Base	Additional Diagnostic Trait(s)	Additional Description	Recovery Date
01-59	Delineation Shovel Test	16AN89		JEP061423A				1022	1010	Surface					1	Glass	Olive	Container	Indeterminate	Plain/ Undecorated						7/18/2023
01-59	Delineation Shovel Test	16AN89		JEP061423A				1022	1010	Surface					1	Glass	Aqua	Container	Indeterminate	Plain/ Undecorated						7/18/2023
01-60	Delineation Shovel Test	16AN89		JEP061423A				1075	965	Surface					1	Glass	Olive	Container	Indeterminate	Plain/ Undecorated						7/18/2023
01-60	Delineation Shovel Test	16AN89		JEP061423A				1075	965	Surface					1	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						7/18/2023
01-60	Delineation Shovel Test	16AN89		JEP061423A				1075	965	Surface					1	Ceramic	Earthenware	Container	Pearlware	Plain/ Undecorated						7/18/2023
01-60	Delineation Shovel Test	16AN89		JEP061423A				1075	965	Surface					1	Ceramic	Earthenware	Container	Creamware	Plain/ Undecorated						7/18/2023
01-60	Delineation Shovel Test	16AN89		JEP061423A				1075	965	Surface					1	Ceramic	Earthenware	Container	Whiteware	Hand Painted				Polychrome with Black Stem(s)		7/18/2023
01-60	Delineation Shovel Test	16AN89		JEP061423A				1075	965	Surface					5	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						7/18/2023
01-60	Delineation Shovel Test	16AN89		JEP061423A				1075	965	Surface					1	Ceramic	Earthenware	Container	Whiteware	Cut Sponge				Polychrome Decoration		7/18/2023
01-61	Delineation Shovel Test	16AN89		JEP061423A				1075	965	I	2	10	20		1	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						7/18/2023
01-62	Delineation Shovel Test	16AN89		JEP061423A				1085	970	Surface					1	Ceramic	Earthenware	Container	Ironstone/ White Granite	Plain/ Undecorated						7/18/2023
01-62	Delineation Shovel Test	16AN89		JEP061423A				1085	970	Surface					1	Ceramic	Porcelain	Container	Hard-paste	Plain/ Undecorated						7/18/2023
01-62	Delineation Shovel Test	16AN89		JEP061423A				1085	970	Surface					1	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						7/18/2023
01-62	Delineation Shovel Test	16AN89		JEP061423A				1085	970	Surface					1	Ceramic	Earthenware	Container	Whiteware	Annular (Unspecified)					brown and blue bands	7/18/2023
01-62	Delineation Shovel Test	16AN89		JEP061423A				1085	970	Surface					1	Ceramic	Earthenware	Container	Whiteware	Shell Edge				Blue Decoration		7/18/2023
01-62	Delineation Shovel Test	16AN89		JEP061423A				1085	970	Surface					1	Ceramic	Earthenware	Unspecified Hollow Vessel	Whiteware	Molded						7/18/2023
01-63	Surface Collection	16AN169	JEP061223-01	JEP061223A				970	980	Surface					1	Glass	Aqua	Bottle	Machine Made	Plain/ Undecorated	Machine-Made	Crown				9/18/2023
01-64	Delineation Shovel Test	16AN169	JEP061223-01	JEP061223A				970	980	I	3	20	30		1	Metal	Ferrous	Nail	Wrought or Cut	n/a						9/18/2023
01-65	Surface Collection	16AN89		AAC120523A	1	16	150			Surface				within 5m radius	1	Glass	Milk	Container	Molded (Mouth-Blown/ Machine)	Molded					ribbed molding	12/5/2023
01-65	Surface Collection	16AN89		AAC120523A	1	16	150			Surface				within 5m radius	2	Ceramic	Earthenware	Container	Ironstone/ White Granite	Plain/ Undecorated						12/5/2023
01-65	Surface Collection	16AN89		AAC120523A	1	16	150			Surface				within 5m radius	1	Glass	Milk	Container	Molded (Mouth-Blown/ Machine)	Molded					molded lines along body	12/5/2023
01-65	Surface Collection	16AN89		AAC120523A	1	16	150			Surface				within 5m radius	1	Ceramic	Earthenware	Unspecified Hollow Vessel	Ironstone/ White Granite	Plain/ Undecorated						12/5/2023
01-65	Surface Collection	16AN89		AAC120523A	1	16	150			Surface				within 5m radius	1	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						12/5/2023
01-65	Surface Collection	16AN89		AAC120523A	1	16	150			Surface				within 5m radius	2	Glass	Colorless	Container	Indeterminate	Plain/ Undecorated						12/5/2023
01-66	Surface Collection	16AN89		AAC120523A	1	18	170			Surface				within 5m radius	1	Glass	Amber	Container	Indeterminate	Plain/ Undecorated						12/5/2023
01-66	Surface Collection	16AN89		AAC120523A	1	18	170			Surface				within 5m radius	1	Glass	Colorless	Container	Indeterminate	Plain/ Undecorated						12/5/2023
01-66	Surface Collection	16AN89		AAC120523A	1	18	170			Surface				within 5m radius	1	Ceramic	Earthenware	Unspecified Hollow Vessel	Ironstone/ White Granite	Plain/ Undecorated						12/5/2023
01-66	Surface Collection	16AN89		AAC120523A	1	18	170			Surface				within 5m radius	1	Glass	Aqua	Container	Molded (Mouth-Blown/ Machine)	Plain/ Undecorated						12/5/2023
01-66	Surface Collection	16AN89		AAC120523A	1	18	170			Surface				within 5m radius	1	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						12/5/2023
01-66	Surface Collection	16AN89		AAC120523A	1	18	170			Surface				within 5m radius	1	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						12/5/2023
01-66	Surface Collection	16AN89		AAC120523A	1	18	170			Surface				within 5m radius	1	Ceramic	Earthenware	Unspecified Hollow Vessel	Red-Bodied/Redware	Trailed Slip						12/5/2023
01-67	Surface Collection	16AN89		AAC120523A	1	19	180			Surface				within 5m radius	1	Glass	Aqua	Container	Indeterminate	Plain/ Undecorated						12/5/2023
01-67	Surface Collection	16AN89		AAC120523A	1	19	180			Surface				within 5m radius	1	Ceramic	Earthenware	Container	Ironstone/ White Granite	Plain/ Undecorated						12/5/2023
01-67	Surface Collection	16AN89		AAC120523A	1	19	180			Surface				within 5m radius	1	Ceramic	Earthenware	Container	Ironstone/ White Granite	Molded					molded lines along rim	12/5/2023
01-67	Surface Collection	16AN89		AAC120523A	1	19	180			Surface				within 5m radius	1	Ceramic	Earthenware	Container	Whiteware	Plain/ Undecorated						12/5/2023

EXHIBIT E

Historic Material Recovered during the Investigation

FS	CM	Site	Locus	Segment	Transect	Shovel Test	Meter	North	East	Stratum	Level	Top Elevation	Bottom Elevation	Additional Provenience	Count	Material Class	Material Category	Form	Manufacture/ Ware	Decorative Class	Finish Manufacture	Finish Type	Base	Additional Diagnostic Trait(s)	Additional Description	Recovery Date
01-67	Surface Collection	16AN89		AAC120523A	1	19	180			Surface				within 5m radius	1	Glass	Selenium/ Arsenic (Straw Tint)	Bottle	Molded (Mouth-Blown/ Machine)	Plain/ Undecorated						12/5/2023
01-67	Surface Collection	16AN89		AAC120523A	1	19	180			Surface				within 5m radius	1	Glass	Solarized (Manganese)	Bottle	Machine Made	Plain/ Undecorated	Machine-Made	Brandy				12/5/2023
01-67	Surface Collection	16AN89		AAC120523A	1	19	180			Surface				within 5m radius	1	Glass	Solarized (Manganese)	Container	Indeterminate	Plain/ Undecorated						12/5/2023
01-67	Surface Collection	16AN89		AAC120523A	1	19	180			Surface				within 5m radius	1	Glass	Milk	Container	Molded (Mouth-Blown/ Machine)	Molded					ribbed molding	12/5/2023
01-67	Surface Collection	16AN89		AAC120523A	1	19	180			Surface				within 5m radius	1	Glass	Amber	Container	Molded (Mouth-Blown/ Machine)	Plain/ Undecorated						12/5/2023
01-67	Surface Collection	16AN89		AAC120523A	1	19	180			Surface				within 5m radius	1	Glass	Colorless	Container	Indeterminate	Plain/ Undecorated						12/5/2023
01-68	Surface Collection	16AN89		AAC120523A	1	25	240			Surface				within 5m radius	1	Glass	Cobalt Blue	Container	Molded (Mouth-Blown/ Machine)	Plain/ Undecorated			Basal Embossing		basal embossment reads, "...S // ...3 // ...UB"	12/5/2023
067	Surface Collection		AMH032723-02	AMH032423A	2	20	660			Surface					1	Metal	Ferrous	Horseshoe	Typical for Type	n/a					bent out of shape	3/27/2023
068	Surface Collection		AMH032723-02	AMH032423A	Between 2 and 3		650			Surface					1	Glass	Colorless	Bottle	Machine-Made, Owens-type	Plain/ Undecorated			Owens Scar		Owens Illinois "I inside an O" maker's mark on base; embossment reads "D-1 / 60 61 / 7"	3/27/2023
069	Surface Collection	16AN89	AMH032923-01	AMH032723A	3		426			Surface					1	Ceramic	Earthenware	Plate	Whiteware	Molded		Scalloped			floral design	3/29/2023
071	Surface Collection		AMH032923-02	AMH032723A	4		650			Surface					1	Glass	Aqua	Bottle	Machine Made	Indeterminate			Stippling		on base: "87 90", stippling and parison mold seams	3/29/2023
076	Surface Collection	16AN89	AMH032923-07	AMH032723A	4	8	197			Surface					1	Ceramic	Earthenware	Unspecified Flat Vessel	Whiteware	Decal				Ghost	unscalloped molded edge without color; floral decal (ghost) decoration	3/29/2023

Faunal Material Recovered during the Investigation

FS	CM	Site	Locus	Segment	Transect	Shovel Test	Meter	Stratum	Level	Top Elevation	Bottom Elevation	Additional Provenience	Count	Wt (g)	Taxonomic Class	Common Name	Thermal Alteration	Butchering	Additional Description	Recovery Date
01-05	Shovel Test	16AN168	JEP061323-01	JEP061323A	1	4	90	I	3	20	30		16	10.78	Birds	UID Bird	Unburned	None		6/14/2023
01-06	Shovel Test	16AN168	JEP061323-01	JEP061323A	1	4	90	I	4	30	40		1	0.34	Birds	UID Bird	Unburned			6/14/2023
01-18	Shovel Test	16AN168	JEP061323-01	JEP061323A	2	6	150	I	4	30	40		2	1.76	Mammals	UID Mammal	Partial Burning			6/13/2023
01-22	Surface Collection	16AN89		JEP061423A	B/t 1 & 2	B/t 4 & 5		Surface					1	4.19	Mammals	UID Mammal	Unburned			6/14/2023

EXHIBIT E

APPENDIX III

SHOVEL TEST LOG

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
AAC120523A	Transect 1, Shovel Test 1 @ 0m	0-35 cmbs: gray (10YR 5/1) clay	35-50 cmbs: pale brown (10YR 6/3) clay	n/a	Negative
AAC120523A	Transect 1, Shovel Test 2 @ 10m	n/a	n/a	n/a	Not Excavated
AAC120523A	Transect 1, Shovel Test 3 @ 20m	n/a	n/a	n/a	Not Excavated
AAC120523A	Transect 1, Shovel Test 4 @ 30m	0-15 cmbs: gray (10YR 5/1) clay	15-50 cmbs: pale brown (10YR 6/3) clay mottled with strong brown (7.5YR 4/6) iron staining (about 20%)	n/a	Negative
AAC120523A	Transect 1, Shovel Test 5 @ 40m	n/a	n/a	n/a	Not Excavated
AAC120523A	Transect 1, Shovel Test 6 @ 50m	0-50 cmbs: gray (10YR 5/1) clay with 2% brick flecking	n/a	n/a	Negative
AAC120523A	Transect 1, Shovel Test 7 @ 60m	0-50 cmbs: gray (10YR 5/1) clay	n/a	n/a	Negative
AAC120523A	Transect 1, Shovel Test 8 @ 70m	0-30 cmbs: dark gray (10YR 4/1) clay with 10% brick and charcoal flecking	30-50 cmbs: pale brown (10YR 6/3) silty clay with 10% brick and charcoal flecking	n/a	Negative
AAC120523A	Transect 1, Shovel Test 9 @ 80m	0-30 cmbs: gray (10YR 5/1) clay	30-50 cmbs: pale brown (10YR 6/3) clay	n/a	Negative
AAC120523A	Transect 1, Shovel Test 10 @ 90m	0-30 cmbs: gray 10YR 5/1) clay	30-50 cmbs: pale brown (10YR 6/3) clay	n/a	Negative
AAC120523A	Transect 1, Shovel Test 11 @ 100m	n/a	n/a	n/a	Not Excavated
AAC120523A	Transect 1, Shovel Test 12 @ 110m	n/a	n/a	n/a	Not Excavated
AAC120523A	Transect 1, Shovel Test 13 @ 120m	n/a	n/a	n/a	Not Excavated
AAC120523A	Transect 1, Shovel Test 14 @ 130m	n/a	n/a	n/a	Not Excavated
AAC120523A	Transect 1, Shovel Test 15 @ 140m	n/a	n/a	n/a	Not Excavated
AAC120523A	Transect 1, Shovel Test 16 @ 150m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: dark gray (10YR 4/1) clay with soft brick chunks	n/a	Surface Collection
AAC120523A	Transect 1, Shovel Test 17 @ 160m	n/a	n/a	n/a	Not Excavated
AAC120523A	Transect 1, Shovel Test 18 @ 170m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: grayish brown (10YR 5/2) clay	n/a	Surface Collection
AAC120523A	Transect 1, Shovel Test 19 @ 180m	0-40 cmbs: dark gray (10YR 4/1) clay with 10% brick flecking	40-50 cmbs: grayish brown (10YR 5/2) clay	n/a	Surface Collection
AAC120523A	Transect 1, Shovel Test 20 @ 190m	n/a	n/a	n/a	Not Excavated
AAC120523A	Transect 1, Shovel Test 21 @ 200m	0-15 cmbs: dark gray (10YR 4/1) clay	15-50 cmbs: pale brown (10YR 6/3) clay	n/a	Negative
AAC120523A	Transect 1, Shovel Test 22 @ 210m	0-15 cmbs: dark gray (10YR 4/1) clay	15-50 cmbs: pale brown (10YR 6/3) clay	n/a	Negative
AAC120523A	Transect 1, Shovel Test 23 @ 220m	n/a	n/a	n/a	Not Excavated
AAC120523A	Transect 1, Shovel Test 24 @ 230m	0-50 cmbs: dark gray (10YR 4/1) clay compact	n/a	n/a	Positive
AAC120523A	Transect 1, Shovel Test 25 @ 240m	0-30 cmbs: gray (10YR 5/1) silty clay	30-50 cmbs: pale brown (10YR 6/3) silty clay	n/a	Surface Collection
AAC120523A	Transect 1, Shovel Test 26 @ 250m	n/a	n/a	n/a	Not Excavated
AAC120523A	Transect 1, Shovel Test 27 @ 260m	0-35 cmbs: gray (10YR 5/1) clay	35-50 cmbs: pale brown (10YR 6/3) silty clay mottled with strong brown (7.5YR 4/6) iron (5%)	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
AAC120523A	Transect 1, Shovel Test 28 @ 270m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: pale brown (10YR 6/3) silty clay mottled with strong brown (7.5YR 4/6) iron (5%)	n/a	Negative
AAC120523A	Transect 1, Shovel Test 29 @ 280m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: pale brown (10YR 6/3) silty clay mottled with iron staining (5%)	n/a	Negative
AR-1	Transect 1, Shovel Test 1 @ 300m	0-50 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 5/6) clay wet	n/a	n/a	Negative
AR-1	Transect 1, Shovel Test 2 @ 330m	0-50 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 5/6) Fe	n/a	n/a	Negative
AR-1	Transect 1, Shovel Test 3 @ 360m	0-50 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 5/6) Fe	n/a	n/a	Negative
AR-1	Transect 1, Shovel Test 4 @ 390m	0-50 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 5/6) Fe	n/a	n/a	Negative
AR-1	Transect 1, Shovel Test 5 @ 420m	0-50 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 5/6) clay	n/a	n/a	Negative
AR-1	Transect 1, Shovel Test 6 @ 450m	0-50 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 5/6) clay	n/a	n/a	Negative
AR-1	Transect 1, Shovel Test 7 @ 480m	0-50 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 5/6) clay	n/a	n/a	Negative
AR-1	Transect 1, Shovel Test 8 @ 510m	0-50 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 5/6) clay	n/a	n/a	Negative
AR-1	Transect 1, Shovel Test 9 @ 540m	0-50 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 5/6) clay	n/a	n/a	Negative
AR-1	Transect 1, Shovel Test 10 @ 570m	n/a	n/a	n/a	Not Excavated
AR-1	Transect 1, Shovel Test 11 @ 600m	n/a	n/a	n/a	Not Excavated
AR-1	Transect 1, Shovel Test 12 @ 630m	n/a	n/a	n/a	Not Excavated
AR-1	Transect 1, Shovel Test 13 @ 660m	n/a	n/a	n/a	Not Excavated
AR-1	Transect 1, Shovel Test 14 @ 690m	n/a	n/a	n/a	Not Excavated
AR-1	Transect 1, Shovel Test 15 @ 720m	0-50 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 5/8) iron staining	n/a	n/a	Negative
AR-1	Transect 1, Shovel Test 16 @ 750m	n/a	n/a	n/a	Not Excavated
AR-1	Transect 1, Shovel Test 17 @ 780m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
AR-1	Transect 1, Shovel Test 18 @ 810m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
AR-1	Transect 1, Shovel Test 19 @ 840m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
AR-1	Transect 1, Shovel Test 20 @ 863m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
AR-12	Transect 1, Shovel Test 1 @ 1650m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
AR-12	Transect 1, Shovel Test 2 @ 1700m	0-50 cmbs: dark grayish brown (10YR 4/2) clay very compact	n/a	n/a	Negative
AR-12	Transect 1, Shovel Test 3 @ 1750m	0-50 cmbs: dark grayish brown (10YR 4/2) clay 5% shell and gravel from nearby road	n/a	n/a	Negative
AR-12	Transect 1, Shovel Test 4 @ 1800m	0-15 cmbs: dark grayish brown (10YR 4/2) clay 5% shell and gravel	15-50 cmbs: grayish brown (10YR 5/2) clay	n/a	Negative
AR-12	Transect 1, Shovel Test 5 @ 1850m	0-50 cmbs: dark grayish brown (10YR 4/2) clay 5% gravel/shell	n/a	n/a	Negative
AR-12	Transect 1, Shovel Test 6 @ 1900m	0-15 cmbs: dark grayish brown (10YR 4/2) clay	15-50 cmbs: grayish brown (10YR 5/2) clay loam mottled with strong brown (7.5YR 5/8) iron (15%)	n/a	Negative
AR-12	Transect 1, Shovel Test 7 @ 1950m	0-10 cmbs: dark grayish brown (10YR 4/2) clay wet	10-50 cmbs: grayish brown (10YR 5/2) clay loam mottled with strong brown (7.5YR 5/8) iron (15%)	n/a	Negative
AR-12	Transect 1, Shovel Test 8 @ 2000m	0-30 cmbs: dark grayish brown (10YR 4/2) clay	30-50 cmbs: grayish brown (10YR 5/2) clay very compact mottled with strong brown (7.5YR 5/8) iron (10%)	n/a	Negative
AR-12	Transect 1, Shovel Test 9 @ 2050m	0-15 cmbs: dark grayish brown (10YR 4/2) clay 5% gravel/shell	15-50 cmbs: grayish brown (10YR 5/2) clay 5% gravel/shell	n/a	Negative
AR-12	Transect 1, Shovel Test 10 @ 2100m	0-20 cmbs: dark grayish brown (10YR 4/2) clay	20-50 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 5/8) iron (5%)	n/a	Negative
AR-12	Transect 1, Shovel Test 11 @ 2150m	0-15 cmbs: dark grayish brown (10YR 4/2) clay	15-50 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 5/8) iron (5%)	n/a	Negative
AR-12	Transect 1, Shovel Test 12 @ 2200m	0-30 cmbs: dark grayish brown (10YR 4/2) clay	30-50 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 5/8) iron (5%)	n/a	Negative
AR-12	Transect 1, Shovel Test 13 @ 2250m	0-50 cmbs: dark gray (10YR 4/1) silty clay	n/a	n/a	Negative
AR-15	Transect 1, Shovel Test 1 @ 380m	0-50 cmbs: grayish brown (10YR 5/2) clay mottled with reddish yellow (7.5YR 6/8) iron stain 5% gravel/shell	n/a	n/a	Negative
AR-15	Transect 1, Shovel Test 2 @ 430m	0-50 cmbs: grayish brown (10YR 5/2) clay mottled with reddish yellow (7.5YR 6/8) iron stain (10%) 5% gravel	n/a	n/a	Negative
AR-15	Transect 1, Shovel Test 3 @ 480m	0-50 cmbs: grayish brown (10YR 5/2) clay mottled with reddish yellow (7.5YR 6/8) iron stain	n/a	n/a	Negative
AR-15	Transect 1, Shovel Test 4 @ 530m	0-50 cmbs: grayish brown (10YR 5/2) clay sticky 2% shell	n/a	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
AR-15	Transect 1, Shovel Test 5 @ 558m	0-50 cmbs: grayish brown (10YR 5/2) clay mottled with iron stain 5% gravel/shell fill	n/a	n/a	Negative
AR-16	Transect 1, Shovel Test 1 @ 15m	0-50 cmbs: dark grayish brown (10YR 4/2) clay 2% shell	n/a	n/a	Negative
AR-16	Transect 1, Shovel Test 2 @ 65m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
AR-16	Transect 1, Shovel Test 3 @ 115m	0-50 cmbs: dark grayish brown (10YR 4/2) clay 2% shell	n/a	n/a	Negative
AR-16	Transect 1, Shovel Test 4 @ 152m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
AR-2	Transect 1, Shovel Test 1 @ 0m	n/a	n/a	n/a	Not Excavated
AR-2	Transect 1, Shovel Test 2 @ 30m	0-50 cmbs: dark grayish brown clay mottled with strong brown (7.5YR 5/8) Fe	n/a	n/a	Negative
AR-2	Transect 1, Shovel Test 3 @ 90m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
AR-2	Transect 1, Shovel Test 4 @ 120m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
AR-2	Transect 1, Shovel Test 5 @ 150m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
AR-2	Transect 1, Shovel Test 6 @ 173m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
AR-3	Transect 1, Shovel Test 1 @ 0m	n/a	n/a	n/a	Not Excavated
AR-3	Transect 1, Shovel Test 2 @ 50m	n/a	n/a	n/a	Not Excavated
AR-4	Transect 1, Shovel Test 1 @ 800m	0-15 cmbs: brown (10YR 4/3) clay loam	15-50 cmbs: grayish brown (10YR 5/2) clay loam mottled with strong brown (7.5YR 5/6) 2%	n/a	Negative
AR-4	Transect 1, Shovel Test 2 @ 850m	0-50 cmbs: dark grayish brown (10YR 4/2) clay loam mottled with strong brown (7.5YR 5/6) iron (10%)	n/a	n/a	Negative
AR-4	Transect 1, Shovel Test 3 @ 895m	0-50 cmbs: dark grayish brown (10YR 4/2) clay loam mottled with strong brown (7.5YR 5/6) iron (10%)	n/a	n/a	Negative
AR-5	Transect 1, Shovel Test 1 @ 0m	0-50 cmbs: brown (10YR 4/3) clay loam	n/a	n/a	Negative
AR-5	Transect 1, Shovel Test 2 @ 50m	0-25 cmbs: brown (10YR 4/3) clay loam	25-50 cmbs: very pale brown (10YR 7/4) silt loam mottled with strong brown (7.5YR 5/6) iron (5%)	n/a	Negative
AR-5	Transect 1, Shovel Test 3 @ 100m	0-40 cmbs: brown (10YR 4/3) clay loam	40-50 cmbs: gray (10YR 6/1) clay mottled with brownish yellow (10YR 6/6) sandy clay	n/a	Negative
AR-6	Transect 1, Shovel Test 1 @ 0m	0-10 cmbs: brown (10YR 4/3) clay loam	10-50 cmbs: grayish brown (10YR 5/2) silty clay loam mottled with very pale brown (10YR 7/4) silty clay loam	n/a	Negative
AR-9	Transect 1, Shovel Test 1 @ 1150m	0-50 cmbs: dark grayish brown (10YR 4/2) clay mottled with gray (10YR 6/1) clay (50%) with iron stain	n/a	n/a	Negative
AR-9	Transect 1, Shovel Test 2 @ 1200m	0-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) iron (10%)	n/a	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
AR-9	Transect 1, Shovel Test 3 @ 1250m	0-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) iron (10%)	n/a	n/a	Negative
AR-9	Transect 1, Shovel Test 4 @ 1300m	0-50 cmbs: gray (10YR 5/1) clay loam mottled with strong brown (7.5YR 5/6) iron (15%)	n/a	n/a	Negative
AR-9	Transect 1, Shovel Test 5 @ 1350m	0-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) iron stain	n/a	n/a	Negative
AR-9	Transect 1, Shovel Test 6 @ 1400m	0-50 cmbs: dark grayish brown (10YR 4/2) clay 2% brick flecking	n/a	n/a	Negative
AR-9	Transect 1, Shovel Test 7 @ 1450m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
AR-9	Transect 1, Shovel Test 8 @ 1500m	0-20 cmbs: dark grayish brown (10YR 4/2) clay	20-50 cmbs: dark Greenish gray (Gley 1 4/5G) very clayey	n/a	Negative
AR-9	Transect 1, Shovel Test 9 @ 1550m	0-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) iron stain	n/a	n/a	Negative
AR-9	Transect 1, Shovel Test 10 @ 1600m	n/a	n/a	n/a	Not Excavated
AR-9	Transect 1, Shovel Test 11 @ 1650m	0-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) iron stain very sticky and compact	n/a	n/a	Negative
AR-9	Transect 1, Shovel Test 12 @ 1700m	0-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) iron stain	n/a	n/a	Negative
AR-9	Transect 1, Shovel Test 13 @ 1750m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/6) iron (10%) compact	n/a	n/a	Negative
AR-9	Transect 1, Shovel Test 14 @ 1800m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/6) iron (10%)	n/a	n/a	Negative
AR-9	Transect 1, Shovel Test 15 @ 1850m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/6) iron (10%) compact	n/a	n/a	Negative
AR-9	Transect 1, Shovel Test 16 @ 1900m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/6) iron (10%)	n/a	n/a	Negative
AWG111523A	Transect 1, Shovel Test 1 @ 25m	0-25 cmbs: gray (10YR 5/1) silty clay wet	n/a	n/a	Negative
AWG111523A	Transect 1, Shovel Test 2 @ 75m	0-25 cmbs: gray (10YR 5/1) silty clay hydric	n/a	n/a	Negative
AWG111523A	Transect 1, Shovel Test 3 @ 125m	0-25 cmbs: gray (10YR 5/1) silty clay hydric soils	n/a	n/a	Negative
AWG111523A	Transect 1, Shovel Test 4 @ 175m	0-35 cmbs: gray (10YR 5/1) silty clay	n/a	n/a	Negative
AWG111523A	Transect 1, Shovel Test 5 @ 225m	0-25 cmbs: gray (10YR 5/1) silty clay hydric	n/a	n/a	Negative
AWG111523A	Transect 1, Shovel Test 6 @ 275m	0-25 cmbs: gray (10YR 5/1) silty clay hydric clays	n/a	n/a	Negative
AWG111523A	Transect 1, Shovel Test 7 @ 325m	0-25 cmbs: gray (10YR 5/1) silty clay	n/a	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
AWG111523A	Transect 1, Shovel Test 8 @ 375m	0-25 cmbs: gray (10YR 5/1) silty clay	n/a	n/a	Negative
AWG111523A	Transect 1, Shovel Test 9 @ 425m	0-30 cmbs: gray (10YR 5/1) hydric clay	n/a	n/a	Negative
AWG111523A	Transect 1, Shovel Test 10 @ 475m	0-30 cmbs: gray (10YR 5/1) hydric clay	n/a	n/a	Negative
AWG111523A	Transect 1, Shovel Test 11 @ 525m	0-25 cmbs: gray (10YR 5/1) silty clay hydric	n/a	n/a	Negative
AWG111523A	Transect 1, Shovel Test 12 @ 575m	0-40 cmbs: gray (10YR 5/1) hydric clay	n/a	n/a	Negative
AWG111523A	Transect 1, Shovel Test 13 @ 625m	0-25 cmbs: gray (10YR 5/1) hydric clay	n/a	n/a	Negative
AWG111523A	Transect 1, Shovel Test 14 @ 675m	0-25 cmbs: very dark gray (10YR 3/1) silty clay hydric	n/a	n/a	Negative
AWG111523A	Transect 1, Shovel Test 15 @ 725m	0-50 cmbs: gray (10YR 5/1) clay hydric	n/a	n/a	Negative
AWG111523A	Transect 1, Shovel Test 16 @ 775m	0-25 cmbs: gray (10YR 5/1) clay	n/a	n/a	Negative
AWG111523A	Transect 1, Shovel Test 17 @ 825m	0-25 cmbs: very dark gray (10YR 3/1) silty clay with iron stain	n/a	n/a	Negative
AWG111523A	Transect 1, Shovel Test 18 @ 875m	0-30 cmbs: gray (10YR 5/1) silty clay, water	n/a	n/a	Negative
AWG111523A	Transect 1, Shovel Test 19 @ 925m	0-50 cmbs: gray (10YR 5/1) silty clay	n/a	n/a	Negative
AWG111523A	Transect 1, Shovel Test 20 @ 975m	0-30 cmbs: gray (10YR 5/1) silty clay	n/a	n/a	Negative
AWG111523A	Transect 1, Shovel Test 21 @ 1025m	0-25 cmbs: gray (10YR 5/1) silty clay	n/a	n/a	Negative
AWG111523A	Transect 1, Shovel Test 22 @ 1075m	0-30 cmbs: gray (10YR 5/1) silty clay	n/a	n/a	Negative
AWG111523A	Transect 1, Shovel Test 23 @ 1125m	0-25 cmbs: gray (10YR 5/1) silty clay	n/a	n/a	Negative
AWG111523A	Transect 1, Shovel Test 24 @ 1175m	0-25 cmbs: gray (10YR 5/1) silty clay	n/a	n/a	Negative
AWG111523A	Transect 1, Shovel Test 25 @ 1225m	0-25 cmbs: gray (10YR 5/1) hydric clay	n/a	n/a	Negative
AWG111523A	Transect 1, Shovel Test 26 @ 1275m	0-20 cmbs: gray (10YR 5/1) silty clay hydric	n/a	n/a	Negative
AWG111523A	Transect 1, Shovel Test 27 @ 1325m	0-25 cmbs: gray (10YR 5/1) silty clay hydric	n/a	n/a	Negative
AWG111523A	Transect 1, Shovel Test 28 @ 1375m	0-25 cmbs: gray (10YR 5/1) silty clay hydric	n/a	n/a	Negative
AWG111523A	Transect 1, Shovel Test 29 @ 1425m	0-25 cmbs: gray (10YR 5/1) silty clay with iron stain	n/a	n/a	Negative
AWG111523A	Transect 1, Shovel Test 30 @ 1475m	0-25 cmbs: gray (10YR 5/1) silty clay	n/a	n/a	Negative
AWG111523A	Transect 1, Shovel Test 31 @ 1525m	0-25 cmbs: gray (10YR 5/1) silty clay	n/a	n/a	Negative
AWG111523A	Transect 1, Shovel Test 32 @ 1575m	0-25 cmbs: gray (10YR 5/1) silty clay	n/a	n/a	Negative
AWG111523A	Transect 1, Shovel Test 33 @ 1625m	0-25 cmbs: gray (10YR 5/1) silty clay	n/a	n/a	Negative
AWG111523A	Transect 1, Shovel Test 34 @ 1675m	0-10 cmbs: gray (10YR 5/1) silty clay	n/a	n/a	Negative
AWG111523A	Transect 1, Shovel Test 35 @ 1725m	0-25 cmbs: gray (10YR 5/1) silty clay	n/a	n/a	Negative
AWG111523A	Transect 1, Shovel Test 36 @ 1745m	0-15 cmbs: gray (10YR 5/1) silty clay	n/a	n/a	Negative
AWG111623A	Transect 1, Shovel Test 1 @ 0m	0-50 cmbs: gray (10YR 5/1) hydric clay	n/a	n/a	Negative
AWG111623A	Transect 1, Shovel Test 2 @ 50m	0-50 cmbs: gray (10YR 5/1) clay hydric soils	n/a	n/a	Negative
AWG111623A	Transect 1, Shovel Test 3 @ 100m	0-50 cmbs: gray (10YR 5/10 clay with iron stain	n/a	n/a	Negative

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
AWG111623A	Transect 1, Shovel Test 4 @ 150m	0-50 cmbs: gray (10YR 5/1) clay FeO2	n/a	n/a	Negative
AWG111623A	Transect 1, Shovel Test 5 @ 200m	0-50 cmbs: gray (10YR 5/1) hydric clay with iron stain	n/a	n/a	Negative
AWG111623A	Transect 1, Shovel Test 6 @ 250m	0-50 cmbs: gray (10YR 5/1) clay poorly consolidated FeO2 stained red ox concentrations strong brown (7.5YR 5/8)	n/a	n/a	Negative
AWG111623A	Transect 1, Shovel Test 7 @ 300m	0-50 cmbs: gray (10YR 5/1) clay with iron stain	n/a	n/a	Negative
AWG111623A	Transect 1, Shovel Test 8 @ 350m	0-50 cmbs: gray (10YR 5/1) clay with iron stain	n/a	n/a	Negative
AWG111623A	Transect 1, Shovel Test 9 @ 400m	0-50 cmbs: gray (10YR 5/1) clay	n/a	n/a	Negative
AWG111623A	Transect 1, Shovel Test 10 @ 450m	0-50 cmbs: gray (10YR 5/1) clay with iron stain	n/a	n/a	Negative
AWG111623A	Transect 1, Shovel Test 11 @ 500m	0-50 cmbs: gray (10YR 5/1) clay with iron stain	n/a	n/a	Negative
AWG111623A	Transect 1, Shovel Test 12 @ 550m	0-50 cmbs: gray (10YR 5/1) clay with iron stain	n/a	n/a	Negative
AWG111623A	Transect 1, Shovel Test 13 @ 600m	0-50 cmbs: dark gray (10YR 4/1) silty clay without staining irondepletions	n/a	n/a	Negative
AWG111623A	Transect 1, Shovel Test 14 @ 650m	0-50 cmbs: dark gray (10YR 4/1) clay with iron stain	n/a	n/a	Negative
AWG111623A	Transect 1, Shovel Test 15 @ 700m	0-50 cmbs: dark gray (10YR 4/1) clay with iron stain	n/a	n/a	Negative
AWG111623A	Transect 1, Shovel Test 16 @ 750m	0-50 cmbs: dark gray (10YR 4/1) clay heavy FeO2 stains	n/a	n/a	Negative
AWG111623A	Transect 1, Shovel Test 17 @ 800m	0-50 cmbs: dark gray (10YR 4/1) clay with iron stain	n/a	n/a	Negative
AWG111623A	Transect 1, Shovel Test 18 @ 850m	0-50 cmbs: dark gray (10YR 4/1) clay with iron stain	n/a	n/a	Negative
AWG111623A	Transect 1, Shovel Test 19 @ 900m	0-50 cmbs: dark gray (10YR 4/1) clay with iron stain	n/a	n/a	Negative
AWG111623A	Transect 1, Shovel Test 20 @ 950m	0-50 cmbs: dark gray (10YR 4/1) clay with iron stain	n/a	n/a	Negative
AWG111623A	Transect 1, Shovel Test 21 @ 1000m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/6) iron (20%)	n/a	n/a	Negative
AWG111623A	Transect 1, Shovel Test 22 @ 1050m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/6) iron (20%)	n/a	n/a	Negative
AWG111623A	Transect J, Shovel Test J1	0-30 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Negative
AWG111623A	Transect J, Shovel Test J2	0-30 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Negative
AWG111623A	Transect J, Shovel Test J3	0-40 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Negative
AWG111623A	Transect J, Shovel Test J4	0-35 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Negative
AWG111623A	Transect J, Shovel Test J5	0-50 cmbs: gray (10YR 5/1) clay with iron stain	n/a	n/a	Negative
AWG111623A	Transect J, Shovel Test J6	0-50 cmbs: gray (10YR 5/1) clay with iron stain	n/a	n/a	Negative
AWG111823A	Transect J, Shovel Test J1	0-50 cmbs: brown (10YR 5/3) silt loam	n/a	n/a	Negative
AWG111823A	Transect J, Shovel Test J2	0-25 cmbs: brown (10YR 5/3) silt loam	25-50 cmbs: light brownish gray (10YR 6/2) silty clay with iron stain	n/a	Negative
AWG111823A	Transect J, Shovel Test J3	0-50 cmbs: brown (10YR 5/3) silt loam	n/a	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
AWG111823A	Transect J, Shovel Test J4	0-30 cmbs: brown (10YR 5/3) silt loam	30-50 cmbs: light brownish gray (10YR 6/2) silty clay with iron stain	n/a	Negative
AWG111823A	Transect J, Shovel Test J5	0-50 cmbs: dark grayish brown (10YR 4/2) clay with iron stain	n/a	n/a	Negative
AWG111823A	Transect J, Shovel Test J6	0-50 cmbs: dark grayish brown (10YR 4/2) clay with iron stain	n/a	n/a	Negative
AWG111823A	Transect 1, Shovel Test 1 @ 0m	n/a	n/a	n/a	Not Excavated
AWG111823A	Transect 1, Shovel Test 2 @ 50m	0-50 cmbs: dark grayish brown (10YR 4/2) sandy loam	n/a	n/a	Negative
AWG111823A	Transect 1, Shovel Test 3 @ 100m	0-50 cmbs: dark grayish brown (10YR 4/2) sandy loam	n/a	n/a	Negative
AWG111823A	Transect 1, Shovel Test 4 @ 150m	0-50 cmbs: dark grayish brown (10YR 4/2) silt loam	n/a	n/a	Negative
AWG111823A	Transect 1, Shovel Test 5 @ 200m	0-50 cmbs: dark grayish brown (10YR 4/2) sandy silt loam	n/a	n/a	Negative
AWG111823A	Transect 1, Shovel Test 6 @ 250m	n/a	n/a	n/a	Not Excavated
AWG111823A	Transect 1, Shovel 7 @ 300m	0-50 cmbs: dark gray (10YR 4/1) clay with FeO2 (about 50)	n/a	n/a	Negative
AWG111823A	Transect 1, Shovel Test 8 @ 350m	0-30 cmbs: very dark gray (10YR 3/1) silty clay	30-50 cmbs: light brownish gray (10YR 6/2) silty clay	n/a	Negative
AWG111823A	Transect 1, Shovel Test 9 @ 400m	0-35 cmbs: dark gray (10YR 4/1) silty clay	35-50 cmbs: gray (10YR 6/1) silty clay with iron stain	n/a	Negative
AWG111823A	Transect 1, Shovel Test 10 @ 450m	0-35 cmbs: dark gray (10YR 4/1) silty clay	35-50 cmbs: gray (10YR 6/1) silty clay with iron stain	n/a	Negative
AWG111823A	Transect 1, Shovel Test 11 @ 500m	0-30 cmbs: dark gray (10YR 4/1) silty clay	30-50 cmbs: gray (10YR 6/1) silty clay with iron stain	n/a	Negative
AWG111823A	Transect 1, Shovel Test 12 @ 550m	0-25 cmbs: dark grayish brown (10YR 4/2) sand silt loam	25-50 cmbs: yellowish brown (10YR 5/4) sand silty clay moist ped coatings	n/a	Negative
AWG111823A	Transect 1, Shovel Test 13 @ 600m	0-20 cmbs: dark gray (10YR 4/1) silty clay	20-50 cmbs: light brownish gray (10YR 6/2) silty clay with iron stain	n/a	Negative
AWG111823A	Transect 1, Shovel Test 14 @ 650m	0-20 cmbs: dark gray (10YR 4/1) silty clay	20-50 cmbs: light brownish gray (10YR 6/2) silty clay with iron stain	n/a	Negative
AWG111823A	Transect 1, Shovel Test 15 @ 700m	0-25 cmbs: dark grayish brown (10YR 4/2) silty clay	25-50 cmbs: light brownish gray (10YR 6/2) silty clay	n/a	Negative
AWG111823A	Transect 1, Shovel Test 16 @ 750m	0-35 cmbs: dark grayish brown (10YR 4/2) silty clay	35-50 cmbs: light brownish gray (10YR 6/2) silty clay	n/a	Negative
AWG111823A	Transect 1, Shovel Test 17 @ 800m	0-50 cmbs: very dark gray (10YR 3/1) clay	n/a	n/a	Negative
AWG111823A	Transect 1, Shovel Test 18 @ 850m	0-50 cmbs: very dark gray (10YR 3/1) clay	n/a	n/a	Negative
AWG111823A	Transect 1, Shovel Test 19 @ 900m	0-30 cmbs: very dark gray (10YR 3/1) clay	30-50 cmbs: gray (10YR 6/1) clay with iron stain	n/a	Negative
AWG111823A	Transect 1, Shovel Test 20 @ 950m	0-50 cmbs: very dark gray (10YR 3/1) clay	n/a	n/a	Negative
AWG111823A	Transect 1, Shovel Test 21 @ 1000m	0-50 cmbs: very dark gray (10YR 3/1) clay	n/a	n/a	Negative
JEP011824A	Transect 1, Shovel Test 1 @ 0m	0-30 cmbs: dark gray (10YR 4/1) silty clay	30-50 cmbs: gray (10YR 5/1) silty clay mottled with strong brown (7.5YR 4/6) iron staining (10%)	n/a	Negative
JEP011824A	Transect 1, Shovel Test 2 @ 30m	0-50 cmbs: dark gray 19YR 4/1) silty clay	n/a	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP011824B	Transect 1, Shovel Test 1 @ 10m	0-50 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Negative
JEP011824B	Transect 1, Shovel Test 2 @ 30m	0-50 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Negative
JEP011824C	Transect 1, Shovel Test 1 @ 10m	0-50 cmbs: dark gray (10YR 4/1) silty clay mottled with strong brown (7.5YR 4/6) 20%	n/a	n/a	Negative
JEP011824C	Transect 1, Shovel Test 2 @ 30m	0-50 cmbs: dark gray (10YR 4/1) silty clay	n/a	n/a	Negative
JEP011824C	Transect 1, Shovel Test 3 @ 60m	0-30 cmbs: dark gray (10YR 4/1) silty clay	30-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/8) iron (5%)	n/a	Negative
JEP011824C	Transect 1, Shovel Test 4 @ 90m	0-20 cmbs: dark gray (10YR 4/1) silty clay	20-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/8) iron (5%)	n/a	Negative
JEP011824C	Transect 1, Shovel Test 5 @ 120m	0-50 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Negative
JEP011824C	Transect 1, Shovel Test 6 @ 150m	0-35 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/8) iron (5%)	35-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/8) iron (5%)	n/a	Negative
JEP011824C	Transect 1, Shovel Test 7 @ 180m	0-30 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/8) iron (5%)	30-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/8) iron (5%)	n/a	Negative
JEP011824C	Transect 1, Shovel Test 8 @ 210m	0-20 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/8) iron (5%)	20-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/8) iron (5%)	n/a	Negative
JEP011824C	Transect 1, Shovel Test 9 @ 240m	0-50 cmbs: gray (10YR 5/1) silty clay	n/a	n/a	Negative
JEP011824C	Transect 1, Shovel Test 10 @ 268m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 4/6) 10%	n/a	n/a	Negative
JEP011824C	Transect J, Shovel Test J1	0-25 cmbs: dark gray (10YR 4/1) clay	25-50 cmbs: brown (10YR 5/3) clay	n/a	Negative
JEP011824C	Transect J, Shovel Test J2	0-50 cmbs: dark brownish gray (10YR 4/2) clay mottled with strong brown (7.5YR 4/6) iron staining 20%	n/a	n/a	Negative
JEP011824D	Transect 1, Shovel Test 1 @ 0m	n/a	n/a	n/a	Not Excavated
JEP011824D	Transect 1, Shovel Test 2 @ 30m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/8) iron (5%) 2% brick flecking	n/a	n/a	Negative
JEP011824D	Transect 1, Shovel Test 3 @ 40m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/8) iron (5%)	n/a	n/a	Negative
JEP011824D	Transect 1, Shovel Test 4 @ 50m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/8) iron (5%)	n/a	n/a	Negative
JEP011824D	Transect 1, Shovel Test 5 @ 60m	0-50 cmbs: dark gray (10YR 4/1) silty clay 2% brick flecking	n/a	n/a	Negative
JEP011824D	Transect 1, Shovel Test 6 @ 70m	0-50 cmbs: dark gray (10YR 4/1) silty clay with 2% brick fleck	n/a	n/a	Negative
JEP011824D	Transect 1, Shovel Test 7 @ 80m	0-50 cmbs: dark gray (10YR 4/1) silty clay	n/a	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP011824D	Transect J, Shovel Test J1	n/a	n/a	n/a	Not Excavated
JEP011824D	Transect J, Shovel Test J2	n/a	n/a	n/a	Not Excavated
JEP011824E	Transect 1, Shovel Test 1 @ 0m	n/a	n/a	n/a	Not Excavated
JEP011824E	Transect 1, Shovel Test 2 @ 10m	n/a	n/a	n/a	Not Excavated
JEP011824E	Transect 1, Shovel Test 3 @ 20m	n/a	n/a	n/a	Not Excavated
JEP011824E	Transect 1, Shovel Test 4 @ 30m	n/a	n/a	n/a	Not Excavated
JEP011824E	Transect 1, Shovel Test 5 @ 40m	0-15 cmbs: dark gray (10YR 4/1) clay	15-35 cmbs: brown (10YR 5/3) clay	n/a	Negative
JEP011824E	Transect 1, Shovel Test 6 @ 50m	n/a	n/a	n/a	Not Excavated
JEP011824E	Transect 1, Shovel Test 7 @ 60m	n/a	n/a	n/a	Not Excavated
JEP011824E	Transect 1, Shovel Test 8 @ 70m	n/a	n/a	n/a	Not Excavated
JEP011824E	Transect 1, Shovel Test 9 @ 80m	0-20 cmbs: dark grayish brown (10YR 4/2) silty clay loam	20-50 cmbs: dark grayish brown (10YR 4/2) silty clay with 40% soft brick flecking	n/a	Negative
JEP011824E	Transect 1, Shovel Test 10 @ 90m	0-20 cmbs: dark grayish brown (10YR 4/2) silty clay loam	20-50 cmbs: gray (10YR 6/1) silty clay loam mottled with strong brown (7.5YR 5/8) iron (5%)	n/a	Negative
JEP011824E	Transect 1, Shovel Test 11 @ 100m	0-20 cmbs: dark grayish brown (10YR 4/2) silty clay loam	20-50 cmbs: gray (10YR 6/1) silty clay loam mottled with strong brown (7.5YR 5/8) iron (5%)	n/a	Negative
JEP011824E	Transect 1, Shovel Test 12 @ 130m	0-50 cmbs: dark grayish brown (10YR 4/2) silty clay loam	n/a	n/a	Negative
JEP011824E	Transect 1, Shovel Test 13 @ 160m	0-35 cmbs: dark grayish brown (10YR 4/2) silty clay	35-50 cmbs: gray (10YR 5/1) silty clay loam mottled with strong brown (7.5YR 5/8) iron (5%)	n/a	Negative
JEP011824E	Transect 1, Shovel Test 14 @ 190m	0-30 cmbs: dark grayish brown (10YR 4/2) silty clay	30-50 cmbs: gray (10YR 5/1) silty clay loam mottled with strong brown (7.5YR 5/8) iron (5%)	n/a	Negative
JEP011824E	Transect 1, Shovel Test 15 @ 220m	0-30 cmbs: dark grayish brown (10YR 4/2) silty clay	30-50 cmbs: gray (10YR 5/1) silty clay loam mottled with strong brown (7.5YR 5/8) iron (5%)	n/a	Negative
JEP011824E	Transect 1, Shovel Test 16 @ 250m	0-20 cmbs: dark grayish brown (10YR 4/2) silty clay	20-50 cmbs: gray (10YR 5/1) silty clay loam mottled with strong brown (7.5YR 5/8) iron (20%)	n/a	Negative
JEP011824E	Transect 1, Shovel Test 17 @ 280m	0-50 cmbs: dark gray (10YR 4/1) silty clay	n/a	n/a	Negative
JEP011824E	Transect 1, Shovel Test 18 @ 310m	0-20 cmbs: dark grayish brown (10YR 4/2) silty clay loam	20-50 cmbs: gray (10YR 6/1) silty clay with strong brown (7.5YR 4/6) iron staining (20%)	n/a	Negative
JEP011824E	Transect 1, Shovel Test 19 @ 340m	n/a	n/a	n/a	Not Excavated
JEP011824E	Transect 1, Shovel Test 20 @ 370m	0-20 cmbs: dark grayish brown (10YR 4/2) silty clay loam	20-50 cmbs: gray (10YR 6/1) silty clay with strong brown (7.5YR 4/6) iron staining (20%)	n/a	Negative
JEP011824E	Transect 1, Shovel Test 21 @ 400m	0-35 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Negative

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP011824E	Transect 1, Shovel Test 22 @ 430m	0-15 cmbs: dark grayish brown (10YR 4/2) silty clay	15-50 cmbs: gray (10YR 6/1) clay with strong brown (7.5YR 4/6) iron staining (20%)	n/a	Negative
JEP011824E	Transect 1, Shovel Test 23 @ 460m	0-20 cmbs: dark grayish brown (10YR 4/2) silty clay	20-50 cmbs: gray (10YR 6/1) clay with strong brown (7.5YR 4/6) iron staining (20%)	n/a	Negative
JEP011824E	Transect 1, Shovel Test 24 @ 490m	n/a	n/a	n/a	Not Excavated
JEP011824E	Transect 1, Shovel Test 25 @ 520m	n/a	n/a	n/a	Not Excavated
JEP011824E	Transect 1, Shovel Test 26 @ 550m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP011824E	Transect 1, Shovel Test 27 @ 580m	0-30 cmbs: dark grayish brown (10YR 4/2) clay	30-50 cmbs: gray (10YR 6/1) silty clay mottled with strong brown (7.5YR 5/6) iron (30%)	n/a	Negative
JEP011824E	Transect 1, Shovel Test 28 @ 610m	0-40 cmbs: dark grayish brown (10YR 4/2) clay	40-50 cmbs: gray (10YR 6/1) silty clay mottled with strong brown (7.5YR 5/6) iron (30%)	n/a	Negative
JEP011824E	Transect 1, Shovel Test 29 @ 633m	n/a	n/a	n/a	Not Excavated
JEP011824E	Transect J1, Shovel Test 1 @ 0m	0-40 cmbs: dark gray (10YR 4/1) clay	40-50 cmbs: gray (10YR 5/1) silty clay mottled with strong brown (7.5YR 5/6) iron (10%)	n/a	Negative
JEP011824E	Transect J1, Shovel Test 2 @ 30m	0-50 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Negative
JEP011824E	Transect J1, Shovel Test 3 @ 60m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/8) iron (5%)	n/a	n/a	Negative
JEP011824E	Transect J1, Shovel Test 4 @ 90m	0-50 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Negative
JEP011824E	Transect J2, Shovel Test 1 @ 0m	0-50 cmbs: dark grayish brown (10YR 4/2) clay mottled with strong brown (7.5YR 5/8) 2%	n/a	n/a	Negative
JEP011824E	Transect J2, Shovel Test 2 @ 30m	0-50 cmbs: dark grayish brown (10YR 4/2) clay mottled with strong brown (7.5YR 5/8) iron (5%)	n/a	n/a	Negative
JEP011824E	Transect J2, Shovel Test 3 @ 60m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP011924A	Transect J, Shovel Test J1	0-50 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Negative
JEP060423A	Transect 1, Shovel Test 1 @ 0m	0-50 cmbs: gray (10YR 6/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay	n/a	n/a	Negative
JEP060423A	Transect 1, Shovel Test 2 @ 30m	0-50 cmbs: gray (10YR 5/1) silty clay mottled with strong brown (7.5YR 5/6)	n/a	n/a	Negative
JEP060423A	Transect 1, Shovel Test 3 @ 60m	0-50 cmbs: gray (10YR 5/1) silty clay mottled with strong brown (7.5YR 5/6)	n/a	n/a	Negative
JEP060423A	Transect 1, Shovel Test 4 @ 90m	0-50 cmbs: gray (10YR 5/1) silty clay mottled with strong brown (7.5YR 5/6)	n/a	n/a	Negative
JEP060423A	Transect 1, Shovel Test 5 @ 120m	0-25 cmbs: dark gray (10YR 4/1) silty clay mottled wiith strong brown (7.5YR 5/8) Fe	25-50 cmbs: gray (10YR 6/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay	n/a	Negative
JEP060423A	Transect 1, Shovel Test 6 @ 150m	0-10 cmbs: brown (10YR 4/3) silty clay	10-50 cmbs: gray (10YR 6/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP060423A	Transect 1, Shovel Test 7 @ 180m	0-20 cmbs: dark grayish brown (10YR 4/2) silty clay	20-50 cmbs: gray (10YR 6/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay	n/a	Negative
JEP060423A	Transect 1, Shovel Test 8 @ 210m	0-20 cmbs: dark grayish brown (10YR 4/2) silty clay	20-50 cmbs: gray (10YR 6/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay	n/a	Negative
JEP060423A	Transect 1, Shovel Test 9 @ 240m	0-50 cmbs: light brownish gray (10YR 6/2) clay mottled with strong brown (7.5YR 5/8) iron compact	n/a	n/a	Negative
JEP060423A	Transect 2, Shovel Test 1 @ 0m	0-20 cmbs: dark grayish brown (10YR 4/2) silty clay	20-50 cmbs: gray (10YR 6/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay	n/a	Negative
JEP060423A	Transect 2, Shovel Test 2 @ 30m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP060423A	Transect 2, Shovel Test 3 @ 60m	0-50 cmbs: dark grayish brown (10YR 4/2) clay dry and compact	n/a	n/a	Negative
JEP060423A	Transect 2, Shovel Test 4 @ 90m	0-50 cmbs: dark gray (10YR 4/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay	n/a	n/a	Negative
JEP060423A	Transect 2, Shovel Test 5 @ 120m	n/a	n/a	n/a	Not Excavated
JEP060423A	Transect 2, Shovel Test 6 @ 150m	0-20 cmbs: dark gray (10YR 4/1) clay	20-50 cmbs: gray (10YR 5/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay	n/a	Negative
JEP060423A	Transect 2, Shovel Test 7 @ 180m	0-15 cmbs: grayish brown (10YR 5/2) silty clay	15-50 cmbs: gray (10YR 6/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay	n/a	Negative
JEP060423B	Transect J, Shovel Test J1	0-20 cmbs: grayish brown (10YR 5/2) silty clay	20-50 cmbs: gray (10YR 6/1) clay mottled with strong brown (7.5YR 5/6) clay	n/a	Negative
JEP060423B	Transect J1, Shovel Test 1 @ 0m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/8) ironvery dry and compact	n/a	n/a	Negative
JEP060423B	Transect J1, Shovel Test 2 @ 30m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/8) very compact	n/a	n/a	Negative
JEP060423B	Transect J1, Shovel Test 3 @ 60m	0-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/8) ironvery dry and compact	n/a	n/a	Negative
JEP060423B	Transect J1, Shovel Test 4 @ 90m	n/a	n/a	n/a	Not Excavated
JEP060423B	Transect J1, Shovel Test 5 @ 120m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/6) compact	n/a	n/a	Negative
JEP060423B	Transect 1, Shovel Test 1 @ 0m	0-15 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6)	n/a	n/a	Negative
JEP060423B	Transect 1, Shovel Test 2 @ 30m	0-20 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) very dry and compact	n/a	n/a	Negative
JEP060423B	Transect 1, Shovel Test 3 @ 60m	0-20 cmbs: very dark gray (10YR 3/1) clay mottled with strong brown (7.5YR 5/6) very compact	n/a	n/a	Negative
JEP060423B	Transect 1, Shovel Test 4 @ 90m	n/a	n/a	n/a	Not Excavated

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP060423B	Transect 1, Shovel Test 5 @ 120m	0-50 cmbs: grayish brown (10YR 5/2) clay very dry and compact	n/a	n/a	Negative
JEP060423B	Transect 1, Shovel Test 6 @ 150m	0-20 cmbs: grayish brown (10YR 5/2) clay	20-50 cmbs: gray (10YR 6/1) clay mottled with strong brown (7.5YR 5/6) clay	n/a	Negative
JEP060423B	Transect 1, Shovel Test 7 @ 180m	0-50 cmbs: gray (10YR 6/1) clay mottled with strong brown (7.5YR 5/6) clay compact	n/a	n/a	Negative
JEP060423B	Transect 1, Shovel Test 8 @ 210m	0-50 cmbs: gray (10YR 6/1) clay mottled with strong brown (7.5YR 5/6) clay	n/a	n/a	Negative
JEP060423B	Transect 1, Shovel Test 9 @ 240m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP060423B	Transect 1, Shovel Test 10 @ 270m	0-50 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 5/6) clay	n/a	n/a	Negative
JEP060423B	Transect 1, Shovel Test 11 @ 300m	0-50 cmbs: grayish brown (10YR 5/2) silty clay mottled with strong brown (7.5YR 5/6) silty clay	n/a	n/a	Negative
JEP060423B	Transect 1, Shovel Test 12 @ 330m	0-50 cmbs: grayish brown (10YR 5/2) silty clay mottled with strong brown (7.5YR 5/6) silty clay	n/a	n/a	Negative
JEP060423B	Transect 1, Shovel Test 13 @ 360m	0-50 cmbs: gray (10YR 5/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay dry	n/a	n/a	Negative
JEP060423B	Transect 1, Shovel Test 14 @ 390m	0-50 cmbs: gray (10YR 5/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay	n/a	n/a	Negative
JEP060423B	Transect 1, Shovel Test 15 @ 420m	0-50 cmbs: gray (10YR 5/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay dry and compact	n/a	n/a	Negative
JEP060423B	Transect 1, Shovel Test 16 @ 450m	0-50 cmbs: gray (10YR 5/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay dry	n/a	n/a	Negative
JEP060423B	Transect 1, Shovel Test 17 @ 480m	0-10 cmbs: gray (10YR 5/1) silty clay	10-50 cmbs: light brownish gray (10YR 6/2) silty clay mottled with strong brown (7.5YR 5/6) silty clay	n/a	Negative
JEP060423B	Transect 1, Shovel Test 18 @ 510m	0-50 cmbs: grayish brown (10YR 5/2) silty clay	n/a	n/a	Negative
JEP060423B	Transect 1, Shovel Test 19 @ 540m	0-25 cmbs: dark grayish brown (10YR 4/2) silty clay	25-50 cmbs: light gray (10YR 7/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay (50%)	n/a	Negative
JEP060423B	Transect 1, Shovel Test 20 @ 570m	0-20 cmbs: grayish brown (10YR 5/2) silty clay	20-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) clay	n/a	Negative
JEP060423B	Transect 1, Shovel Test 21 @ 600m	0-30 cmbs: dark grayish brown (10YR 4/2) clay	30-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) clay	n/a	Negative
JEP060423B	Transect 1, Shovel Test 22 @ 630m	0-15 cmbs: dark grayish brown (10YR 4/2) clay	15-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) clay	n/a	Negative
JEP060423B	Transect 1, Shovel Test 23 @ 660m	0-30 cmbs: dark grayish brown (10YR 4/2) clay	30-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) clay	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP060423B	Transect 1, Shovel Test 24 @ 690m	0-30 cmbs: dark grayish brown (10YR 4/2) clay	30-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) clay	n/a	Negative
JEP060423B	Transect 1, Shovel Test 25 @ 720m	0-30 cmbs: dark grayish brown (10YR 4/2) clay	30-50 cmbs: gray (10YR 5/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay (50%)	n/a	Negative
JEP060423B	Transect 1, Shovel Test 26 @ 750m	0-20 cmbs: dark grayish brown (10YR 4/2) clay	20-50 cmbs: gray (10YR 5/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay (50%) compact	n/a	Negative
JEP060423B	Transect 1, Shovel Test 27 @ 780m	0-30 cmbs: dark grayish brown (10YR 4/2) clay	30-50 cmbs: gray (10YR 5/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay (50%)	n/a	Negative
JEP060423B	Transect 1, Shovel Test 28 @ 810m	0-50 cmbs: gray (10YR 5/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay (50%)	n/a	n/a	Negative
JEP060423B	Transect 2, Shovel Test 1 @ 0m	0-50 cmbs: grayish brown (10YR 5/2) clay very dry and compact	n/a	n/a	Negative
JEP060423B	Transect 2, Shovel Test 2 @ 30m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP060423B	Transect 2, Shovel Test 3 @ 60m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP060423B	Transect 2, Shovel Test 4 @ 90m	0-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6)	n/a	n/a	Negative
JEP060423B	Transect 2, Shovel Test 5 @ 120m	0-50 cmbs: gray (10YR 6/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay very dry and compact	n/a	n/a	Negative
JEP060423B	Transect 2, Shovel Test 6 @ 150m	0-20 cmbs: grayish brown (10YR 5/2) clay loam	20-50 cmbs: gray (10YR 6/1) silty clay mottled with strong brown (7.5YR 5/6)	n/a	Negative
JEP060423B	Transect 2, Shovel Test 7 @ 180m	0-30 cmbs: grayish brown (10YR 5/2) clay loam	30-50 cmbs: gray (10YR 6/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay	n/a	Negative
JEP060423B	Transect 2, Shovel Test 8 @ 210m	0-20 cmbs: dark gray (10YR 4/1) clay	20-40 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 5/6) clay	n/a	Negative
JEP060423B	Transect 2, Shovel Test 9 @ 240m	0-30 cmbs: grayish brown (10YR 5/2) clay loam	30-50 cmbs: gray (10YR 6/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay	n/a	Negative
JEP060423B	Transect 2, Shovel Test 10 @ 270m	0-30 cmbs: dark grayish brown (10YR 4/2) silty clay	30-50 cmbs: grayish brown (10YR 5/2) silty clay	n/a	Negative
JEP060423B	Transect 2, Shovel Test 11 @ 300m	0-25 cmbs: grayish brown (10YR 5/2) silty clay	25-50 cmbs: gray (10YR 6/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay	n/a	Negative
JEP060423B	Transect 2, Shovel Test 12 @ 330m	0-50 cmbs: gray (10YR 5/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay	n/a	n/a	Negative
JEP060423B	Transect 2, Shovel Test 13 @ 360m	0-35 cmbs: dark grayish brown (10YR 4/2) clay mottled with strong brown (7.5YR 5/8) Fe	35-50 cmbs: gray (10YR 5/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay (50%)	n/a	Negative
JEP060423B	Transect 2, Shovel Test 14 @ 390m	0-20 cmbs: dark grayish brown (10YR 4/2) silty clay	20-50 cmbs: gray (10YR 6/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP060423B	Transect 2, Shovel Test 15 @ 420m	0-30 cmbs: dark grayish brown (10YR 4/2) clay	30-50 cmbs: gray (10YR 6/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay (50%)	n/a	Negative
JEP060423B	Transect 2, Shovel Test 16 @ 450m	0-40 cmbs: dark gray (10YR 4/1) silty clay	40-50 cmbs: gray (10YR 6/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay	n/a	Negative
JEP060423B	Transect 2, Shovel Test 17 @ 480m	0-30 cmbs: dark grayish brown (10YR 4/2) clay dry	30-50 cmbs: grayish brown (10YR 5/2) silty clay	n/a	Negative
JEP060423B	Transect 2, Shovel Test 18 @ 510m	0-20 cmbs: dark grayish brown (10YR 4/2) silty clay	20-50 cmbs: gray (10YR 6/1) silty clay mottled with strong brown (7.5YR 5/6)	n/a	Negative
JEP060423B	Transect 2, Shovel Test 19 @ 540m	0-35 cmbs: grayish brown (10YR 5/2) clay loam	35-50 cmbs: gray (10YR 6/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay (50%) 1% brick flecking	n/a	Negative
JEP060423B	Transect 2, Shovel Test 20 @ 570m	0-20 cmbs: dark grayish brown (10YR 4/2) silty clay	20-50 cmbs: brown (10YR 5/3) silty clay	n/a	Negative
JEP060423B	Transect 2, Shovel Test 21 @ 600m	0-50 cmbs: grayish brown (10YR 5/2) silty clay mottled with strong brown (7.5YR 5/6) silty clay	n/a	n/a	Negative
JEP060423B	Transect 2, Shovel Test 22 @ 630m	0-50 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 5/6)	n/a	n/a	Negative
JEP060423B	Transect 2, Shovel Test 23 @ 660m	0-10 cmbs: dark grayish brown (10YR 4/2) clay	10-50 cmbs: grayish brown (10YR 5/2) silty clay mottled with strong brown (7.5YR 5/6) silty clay loam	n/a	Negative
JEP060423B	Transect 2, Shovel Test 24 @ 685m	0-15 cmbs: grayish brown (10YR 5/2) clay	15-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/6) clay compact	n/a	Negative
JEP060523A	Transect J1, Shovel Test 1 @ 0m	n/a	n/a	n/a	Not Excavated
JEP060523A	Transect J1, Shovel Test 2 @ 30m	0-10 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Negative
JEP060523A	Transect J1, Shovel Test 3 @ 60m	0-15 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP060523A	Transect J2, Shovel Test 1 @ 0m	n/a	n/a	n/a	Not Excavated
JEP060523A	Transect J2, Shovel Test 2 @ 30m	0-10 cmbs: dark grayish brown (10YR 4/2) clay 50% gravel	n/a	n/a	Negative
JEP060523A	Transect J2, Shovel Test 3 @ 60m	0-15 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP060523A	Transect J3, Shovel Test 1 @ 0m	n/a	n/a	n/a	Not Excavated
JEP060523A	Transect J3, Shovel Test 2 @ 30m	n/a	n/a	n/a	Not Excavated
JEP060523A	Transect J3, Shovel Test 3 @ 60m	n/a	n/a	n/a	Not Excavated
JEP060523A	Transect J3, Shovel Test 4 @ 87m	n/a	n/a	n/a	Not Excavated
JEP060523A	Transect J4, Shovel Test 1 @ 0m	0-50 cmbs: pale brown (10YR 6/3) silty clay loam	n/a	n/a	Negative
JEP060523A	Transect J4, Shovel Test 2 @ 30m	0-30 cmbs: brown (10YR 5/3) silty clay	n/a	n/a	Negative
JEP060523A	Transect J4, Shovel Test 3 @ 45m	0-15 cmbs: brown (10YR 5/3) silty clay 80% shell	n/a	n/a	Negative
JEP060523A	Transect J5, Shovel Test 1 @ 0m	0-10 cmbs: dark gray (10YR 4/1) silty clay	10-50 cmbs: pale brown (10YR 6/3) silty clay	n/a	Negative
JEP060523A	Transect J5, Shovel Test 2 @ 30m	0-50 cmbs: light brownish gray (10YR 6/2) clay sticky	n/a	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP060523A	Transect J5, Shovel Test 3 @ 60m	0-20 cmbs: dark gray (10YR 4/1) silty clay	20-50 cmbs: light brownish gray (10YR 6/2) silty clay compact	n/a	Negative
JEP060523A	Transect J5, Shovel Test 4 @ 90m	0-50 cmbs: light grayish brown (10YR 6/2) clay compact	n/a	n/a	Negative
JEP060523A	Transect J5, Shovel Test 5 @ 120m	0-35 cmbs: grayish brown (10YR 5/2) silty clay	35-50 cmbs: gray (10YR 6/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay (50%)	n/a	Negative
JEP060523A	Transect J5, Shovel Test 6 @ 150m	0-15 cmbs: light brownish gray (10YR 6/2) clay compact	n/a	n/a	Negative
JEP060523A	Transect J5, Shovel Test 7 @ 180m	0-20 cmbs: gray (10YR 5/1) clay	20-50 cmbs: light brownish gray (10YR 6/2) clay cmopact	n/a	Negative
JEP060523A	Transect J5, Shovel Test 8 @ 210m	0-20 cmbs: dark grayish brown silty clay	20-50 cmbs: brown (10YR 5/3) silty clay	n/a	Negative
JEP060523A	Transect J6, Shovel Test 1 @ 0m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: gray (10YR 6/1) clay mottled with strong brown (7.5YR 5/6) clay (50%)	n/a	Negative
JEP060523A	Transect J6, Shovel Test 2 @ 30m	0-50 cmbs: dark gray (10YR 4/1) clay 10% shell and gravel	n/a	n/a	Negative
JEP060523A	Transect J6, Shovel Test 3 @ 60m	0-20 cmbs: brown (10YR 4/3) silty clay	20-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) Fe	n/a	Negative
JEP060523A	Transect 1, Shovel Test 1 @ 0m	n/a	n/a	n/a	Not Excavated
JEP060523A	Transect 1, Shovel Test 2 @ 30m	n/a	n/a	n/a	Not Excavated
JEP060523A	Transect 1, Shovel Test 3 @ 60m	0-20 cmbs: dark grayish brown (10YR 4/2) clay with 50% gravel	n/a	n/a	Negative
JEP060523A	Transect 1, Shovel Test 4 @ 90m	0-10 cmbs: dark grayish brown (10YR 4/2) clay	10-15 cmbs: gray (10YR 6/1) clay	n/a	Negative
JEP060523A	Transect 1, Shovel Test 5 @ 120m	0-15 cmbs: grayish brown (10YR 5/2) clay	15-30 cmbs: pale brown (10YR 6/3) silty clay mottled with strong brown (7.5YR 5/6) silty clay (50%)	n/a	Negative
JEP060523A	Transect 1, Shovel Test 6 @ 150m	0-10 cmbs: grayish brown (10YR 5/2) clay compact 50% gravel	n/a	n/a	Negative
JEP060523A	Transect 1, Shovel Test 7 @ 180m	0-10 cmbs: grayish brown (10YR 5/2) clay	10-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/8) Fe	n/a	Negative
JEP060523A	Transect 1, Shovel Test 8 @ 210m	0-10 cmbs: dark grayish brown (10YR 4/2) clay 60% gravel	n/a	n/a	Negative
JEP060523A	Transect 1, Shovel Test 9 @ 240m	0-10 cmbs: dark grayish brown (10YR 4/2) clay 70% gravel	n/a	n/a	Negative
JEP060523A	Transect 1, Shovel Test 10 @ 270m	0-15 cmbs: dark grayish brown (10YR 4/2) clay 70% gravel	n/a	n/a	Negative
JEP060523A	Transect 1, Shovel Test 11 @ 300m	0-10 cmbs: grayish brown (10YR 5/2) clay 60% gravel	n/a	n/a	Negative
JEP060523A	Transect 1, Shovel Test 12 @ 330m	0-50 cmbs: dark grayish brown (10YR 4/2) clay compact	n/a	n/a	Negative
JEP060523A	Transect 1, Shovel Test 13 @ 360m	0-50 cmbs: dark grayish brown (10YR 4/2) silty clay loam	n/a	n/a	Negative
JEP060523A	Transect 1, Shovel Test 14 @ 390m	0-50 cmbs: dark grayish brown (10YR 4/2) silt loam	n/a	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP060523A	Transect 1, Shovel Test 15 @ 420m	0-30 cmbs: dark grayish brown (10YR 4/2) silt loam	30-50 cmbs: light brownish gray (10YR 6/2) silt loam	n/a	Negative
JEP060523A	Transect 1, Shovel Test 16 @ 450m	0-20 cmbs: dark grayish brown (10YR 4/2) silt loam	20-50 cmbs: brown (10YR 5/3) silty clay	n/a	Negative
JEP060523A	Transect 1, Shovel Test 17 @ 480m	0-10 cmbs: dark grayish brown (10YR 4/2) silty clay loam	10-50 cmbs: light brownish gray (10YR 6/2) silty clay loam	n/a	Negative
JEP060523A	Transect 1, Shovel Test 18 @ 510m	0-15 cmbs: dark grayish brown (10YR 4/2) silt loam	15-50 cmbs: light brownish gray (10YR 6/2) silty clay loam	n/a	Negative
JEP060523A	Transect 1, Shovel Test 19 @ 540m	0-30 cmbs: dark grayish brown (10YR 4/2) silt loam	30-50 cmbs: grayish brown (10YR 5/2) silt loam	n/a	Negative
JEP060523A	Transect 1, Shovel Test 20 @ 570m	0-50 cmbs: dark grayish brown (10YR 4/2) silt loam	n/a	n/a	Negative
JEP060523A	Transect 1, Shovel Test 21 @ 600m	0-20 cmbs: dark grayish brown (10YR 4/2) silt loam	20-50 cmbs: light brownish gray (10YR 6/2) silty clay loam	n/a	Negative
JEP060523A	Transect 1, Shovel Test 22 @ 630m	0-30 cmbs: dark grayish brown (10YR 4/2) silty clay loam	30-50 cmbs: brown (10YR 5/3) silty clay loam	n/a	Negative
JEP060523A	Transect 1, Shovel Test 23 @ 660m	0-20 cmbs: brown (10YR 5/3) silt loam	20-50 cmbs: light yellowish brown (10YR 6/4) silt loam	n/a	Negative
JEP060523A	Transect 1, Shovel Test 24 @ 690m	0-20 cmbs: dark grayish brown (10YR 4/2) silty clay loam	20-50 cmbs: light brownish gray (10YR 6/2) silty clay loam	n/a	Negative
JEP060523A	Transect 1, Shovel Test 25 @ 720m	0-50 cmbs: grayish brown (10YR 5/2) silty clay loam	n/a	n/a	Negative
JEP060523A	Transect 1, Shovel Test 26 @ 750m	0-50 cmbs: grayish brown (10YR 5/2) silty clay	n/a	n/a	Negative
JEP060523A	Transect 1, Shovel Test 27 @ 780m	n/a	n/a	n/a	Not Excavated
JEP060523A	Transect 1, Shovel Test 28 @ 810m	0-50 cmbs: dark grayish brown (10YR 4/2) silty clay	n/a	n/a	Negative
JEP060523A	Transect 1, Shovel Test 29 @ 840m	0-20 cmbs: dark gray (10YR 4/1) clay compact	20-50 cmbs: pale brown (10YR 6/3) silty clay compact	n/a	Negative
JEP060523A	Transect 1, Shovel Test 30 @ 870m	0-20 cmbs: gray (10YR 5/1) silty clay	20-50 cmbs: brown (10YR 5/3) silty clay	n/a	Negative
JEP060523A	Transect 1, Shovel Test 31 @ 900m	0-20 cmbs: dark gray (10YR 4/1) silty clay	20-50 cmbs: brown (10YR 5/3) silty clay	n/a	Negative
JEP060523A	Transect 1, Shovel Test 32 @ 930m	0-30 cmbs: brown (10YR 4/3) clay compact	30-50 cmbs: grayish brown (10YR 5/2) silty clay compact	n/a	Negative
JEP060523A	Transect 1, Shovel Test 33 @ 960m	0-50 cmbs: dark grayish brown (10YR 4/2) silty clay	n/a	n/a	Negative
JEP060523A	Transect 1, Shovel Test 34 @ 990m	0-30 cmbs: gray (10YR 5/1) silty clay	30-50 cmbs: dark grayish brown (10YR 4/2) silty clay	n/a	Surface Collection
JEP060523A	Transect 1, Shovel Test 35 @ 1020m	0-50 cmbs: dark grayish brown (10YR 4/2) silty clay mottled with strong brown (7.5YR 5/6) ironvery dry and compact	n/a	n/a	Negative
JEP060523A	Transect 1, Shovel Test 36 @ 1050m	0-50 cmbs: grayish brown (10YR 5/2) silty clay mottled with strong brown (7.5yR5/6) silty clay 5% brick frags	n/a	n/a	Negative
JEP060523A	Transect 1, Shovel Test 37 @ 1080m	0-50 cmbs: brown (10YR 5/3) silty clay	n/a	n/a	Surface Collection
JEP060523A	Transect 1, Shovel Test 38 @ 1110m	0-10 cmbs: brown (10YR 5/3) silty clay	10-50 cmbs: dark gray (10YR 4/1) silty clay mottled with strong brown (7.5YR 5/8) irondry and compact	n/a	Surface Collection
JEP060523A	Transect 1, Shovel Test 39 @ 1140m	0-20 cmbs: grayish brown (10YR 5/2) silty clay	20-50 cmbs: dark gray (10YR 4/1) silty clay mottled with strong brown (7.5YR 5/6)	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP060523A	Transect 1, Shovel Test 40 @ 1170m	0-10 cmbs: gray (10YR 5/1) silty clay	10-50 cmbs: dark grayish brown (10YR 4/2) silty clay mottled with reddish yellow (7.5YR 6/6) iron staining	n/a	Negative
JEP060523A	Transect 1, Shovel Test 41 @ 1200m	0-20 cmbs: dark gray (10YR 4/1) clay very compact	20-50 cmbs: gray (10YR 5/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay	n/a	Negative
JEP060523A	Transect 1, Shovel Test 42 @ 1230m	0-20 cmbs: gray (10YR 6/1) silty clay	20-50 cmbs: dark grayish brown (10YR 4/2) silty clay	n/a	Negative
JEP060523A	Transect 1, Shovel Test 43 @ 1260m	0-15 cmbs: dark grayish brown (10YR 4/2) clay	15-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6)	n/a	Negative
JEP060523A	Transect 1, Shovel Test 44 @ 1290m	0-25 cmbs: dark gray (10YR 4/1) clay	25-30 cmbs: light gray (10YR 7/1) sand and yellowish brown (10YR 5/6) sand	n/a	Negative
JEP060523A	Transect 1, Shovel Test 45 @ 1320m	0-20 cmbs: gray (10YR 6/1) silty clay	20-50 cmbs: brown (10YR 5/3) silty clay	n/a	Negative
JEP060523A	Transect 1, Shovel Test 46 @ 1350m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/6) clay compact	n/a	n/a	Negative
JEP060523A	Transect 1, Shovel Test 47 @ 1380m	0-50 cmbs: dark gray 10YR 4/1) clay mottled with strong brown 7.5YR 5/6)	n/a	n/a	Negative
JEP060523A	Transect 1, Shovel Test 48 @ 1410m	0-10 cmbs: gray (10YR 5/1) silty clay	10-50 cmbs: dark gray (Gley 1 4/N) clay	n/a	Negative
JEP060523A	Transect 1, Shovel Test 49 @ 1440m	0-20 cmbs: gray (10YR 6/1) clay mottled with strong brown (7.5YR 5/6)	20-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/6) compact	n/a	Negative
JEP060523A	Transect 1, Shovel Test 50 @ 1470m	0-30 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/6)	30-50 cmbs: gray (10YR 6/1) clay mottled with strong brown (7.5YR 5/6)	n/a	Negative
JEP060523A	Transect 1, Shovel Test 51 @ 1500m	0-10 cmbs: gray (10YR 5/1) silty clay	10-50 cmbs: dark gray (Gley 1 4/N) clay	n/a	Negative
JEP060523A	Transect 1, Shovel Test 52 @ 1530m	0-50 cmbs: dark grayish Bbrown (10YR 4/2) silty clay	n/a	n/a	Negative
JEP060523A	Transect 1, Shovel Test 53 @ 1560m	0-20 cmbs: dark gray (10YR 4/1) clay sticky and compact	20-50 cmbs: gray (10YR 6/1) clay mottled with strong brown (7.5YR 5/6) clay sticky and compact	n/a	Negative
JEP060523A	Transect 1, Shovel Test 54 @ 1590m	0-20 cmbs: gray (10YR 5/1) silty clay	20-50 cmbs: dark grayish brown (10YR 4/2) silty clay	n/a	Negative
JEP060523A	Transect 1, Shovel Test 55 @ 1620m	0-30 cmbs: gray (10YR 5/1) silty clay	30-50 cmbs: dark grayish brown (10YR 4/2) silty clay	n/a	Negative
JEP060523A	Transect 1, Shovel Test 56@ 1650m	0-50 cmbs: dark grayish brown (10YR 4/2) silty clay	n/a	n/a	Negative
JEP060523A	Transect 2, Shovel Test 1 @ 0m	n/a	n/a	n/a	Not Excavated
JEP060523A	Transect 2, Shovel Test 2 @ 30m	0-15 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP060523A	Transect 2, Shovel Test 3 @ 60m	0-5 cmbs: dark grayish brown (10YR 4/2) clay 70% gravel	n/a	n/a	Negative
JEP060523A	Transect 2, Shovel Test 4 @ 90m	0-10 cmbs: dark grayish brown (10YR 4/2) clay	10-50 cmbs: light brownish gray (10YR 6/2) clay	n/a	Negative
JEP060523A	Transect 2, Shovel Test 5 @ 120m	0-10 cmbs: grayish brown (10YR 5/2) clay compact	10-15 cmbs: pale brown (10YR 6/3) clay very compact	n/a	Negative
JEP060523A	Transect 2, Shovel Test 6 @ 150m	0-5 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP060523A	Transect 2, Shovel Test 7 @ 180m	0-10 cmbs: grayish Bbrown (10YR 5/2) clay	10-50 cmbs: light brownish gray (10YR 6/2) clay very dry and compact	n/a	Negative
JEP060523A	Transect 2, Shovel Test 8 @ 210m	0-10 cmbs: grayish brown (10YR 5/2) clay	10-20 cmbs: light brownish gray (10YR 6/2) clay	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP060523A	Transect 2, Shovel Test 9 @ 240m	0-10 cmbs: grayish brown (10YR 5/2) clay	10-15 cmbs: light brownish gray (10YR 6/2) clay 50% gravel very compact	n/a	Negative
JEP060523A	Transect 2, Shovel Test 10 @ 270m	0-10 cmbs: grayish brown (10YR 5/2) clay	10-20 cmbs: brown (10YR 5/3) clay 50% gravel very compact	n/a	Negative
JEP060523A	Transect 2, Shovel Test 11 @ 300m	n/a	n/a	n/a	Not Excavated
JEP060523A	Transect 2, Shovel Test 12 @ 330m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP060523A	Transect 2, Shovel Test 13 @ 360m	0-50 cmbs: brown (10YR 5/3) silty clay loam	n/a	n/a	Negative
JEP060523A	Transect 2, Shovel Test 14 @ 390m	0-50 cmbs: light brownish gray (10YR 6/2) silt loam	n/a	n/a	Negative
JEP060523A	Transect 2, Shovel Test 15 @ 420m	0-50 cmbs: light brownish gray (10YR 6/2) silt loam	n/a	n/a	Negative
JEP060523A	Transect 2, Shovel Test 16 @ 450m	0-30 cmbs: dark grayish brown (10YR 4/2) silt loam	30-50 cmbs: light brownish gray (10YR 6/2) silty clay loam	n/a	Negative
JEP060523A	Transect 2, Shovel Test 17 @ 480m	0-50 cmbs: brown (10YR 4/3) silt loam	n/a	n/a	Negative
JEP060523A	Transect 2, Shovel Test 18 @ 510m	0-35 cmbs: dark grayish brown (10YR 4/2) silty clay loam	35-50 cmbs: light brownish gray (10YR 6/2) silty clay loam	n/a	Negative
JEP060523A	Transect 2, Shovel Test 19 @ 540m	0-10 cmbs: dark grayish brown (10YR 4/2) silty clay loam	10-50 cmbs: brown (10YR 5/3) silty clay loam	n/a	Negative
JEP060523A	Transect 2, Shovel Test 20 @ 570m	0-20 cmbs: dark grayish brown (10YR 4/2) silty clay loam	20-50 cmbs: light brownish gray (10YR 6/2) silty clay	n/a	Negative
JEP060523A	Transect 2, Shovel Test 21 @ 600m	0-50 cmbs: dark grayish brown (10YR 4/2) silty clay loam	n/a	n/a	Negative
JEP060523A	Transect 2, Shovel Test 22 @ 630m	0-10 cmbs: dark grayish brown (10YR 4/2) silty clay loam	10-50 cmbs: light brownish gray (10YR 6/2) silty clay loam	n/a	Negative
JEP060523A	Transect 2, Shovel Test 23 @ 660m	0-20 cmbs: dark grayish brown (10YR 4/2) silty clay loam	20-50 cmbs: light brownish gray (10YR 6/2) silty clay loam	n/a	Negative
JEP060523A	Transect 2, Shovel Test 24 @ 690m	0-20 cmbs: dark grayish brown (10YR 4/2) silty clay loam	20-50 cmbs: light brownish gray (10YR 6/2) silty clay loam	n/a	Negative
JEP060523A	Transect 2, Shovel Test 25 @ 720m	0-50 cmbs: dark grayish brown (10YR 4/2) silty clay	n/a	n/a	Negative
JEP060523A	Transect 2, Shovel Test 26 @ 750m	0-50 cmbs: dark grayish brown (10YR 4/2) silty clay loam	n/a	n/a	Negative
JEP060523A	Transect 2, Shovel Test 27 @ 780m	0-50 cmbs: dark grayish brown (10YR 4/2) silty clay	n/a	n/a	Negative
JEP060523A	Transect 2, Shovel Test 28 @ 810m	0-50 cmbs: very dark gray (10YR 3/1) clay very compact	n/a	n/a	Negative
JEP060523A	Transect 2, Shovel Test 29 @ 840m	0-50 cmbs: gray (10YR 5/1) silty clay	n/a	n/a	Negative
JEP060523A	Transect 2, Shovel Test 30 @ 870m	0-50 cmbs: light brownish gray (10YR 6/2) silty clay very dry and compact	n/a	n/a	Negative
JEP060523A	Transect 2, Shovel Test 31 @ 900m	0-50 cmbs: light brownish gray (10YR 6/2) silty clay	n/a	n/a	Negative
JEP060523A	Transect 2, Shovel Test 32 @ 930m	0-10 cmbs: gray (10YR 5/1) silty clay	10-50 cmbs: dark gray (10YR 4/1) silty clay	n/a	Negative
JEP060523A	Transect 2, Shovel Test 33 @ 960m	0-50 cmbs: dark grayish brown (10YR 4/2) clay mottled with strong brown (7.5YR 5/6) Fe	n/a	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP060523A	Transect 2, Shovel Test 34 @ 990m	0-15 cmbs: gray (10YR 5/1) clay	15-50 cmbs: dark grayish brown (10YR 4/2) clay mottled with strong brown (7.5YR 5/6) Fe	n/a	Negative
JEP060523A	Transect 2, Shovel Test 35 @ 1020m	0-20 cmbs: gray (10YR 6/1) silty clay	20-50 cmbs: brown (10YR 5/3) silty clay	n/a	Negative
JEP060523A	Transect 2, Shovel Teset 36 @ 1050m	0-50 cmbs: gray (10YR 6/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay (50%)	n/a	n/a	Negative
JEP060523A	Transect 2, Shovel Test 37 @ 1080m	0-30 cmbs: gray (10YR 5/1) silty clay	30-50 cmbs: dark grayish brown (10YR 4/2) silty clay	n/a	Negative
JEP060523A	Transect 2, Shovel Test 38 @ 1110m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/6) clay	n/a	Negative
JEP060523A	Transect 2, Shovel Test 39 @ 1140m	0-50 cmbs: dark gray (10YR 4/1) clay very compact	n/a	n/a	Negative
JEP060523A	Transect 2, Shovel Test 40 @ 1170m	0-20 cmbs: gray (10YR 5/1) silty clay	20-50 cmbs: dark grayish brown (10YR 4/2) silty clay	n/a	Negative
JEP060523A	Transect 2, Shovel Test 41 @ 1200m	0-20 cmbs: dark gray (10YR 4/1) clay	20-50 cmbs: gray (10YR 5/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay	n/a	Negative
JEP060523A	Transect 2, Shovel Test 42 @ 1230m	0-30 cmbs: dark gray (10YR 4/1) clay 1% brick flecking	30-50 cmbs: gray (10YR 6/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay (50%)	n/a	Negative
JEP060523A	Transect 2, Shovel Test 43 @ 1260m	0-20 cmbs: gray (10YR 5/1) silty clay	20-50 cmbs: dark gray (10YR 4/1) silty clay mottled with reddish yellow (7.5YR 6/6) iron staining	n/a	Negative
JEP060523A	Transect 2, Shovel Test 44 @ 1290m	0-10 cmbs: dark gray (10YR 4/1) clay	10-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6)	n/a	Negative
JEP060523A	Transect 2, Shovel Test 45 @ 1320m	0-20 cmbs: dark gray (10YR 4/1) clay	20-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) silty clay	n/a	Negative
JEP060523A	Transect 2, Shovel Test 46 @ 1350m	0-10 cmbs: gray (10YR 5/1) silty clay	10-50 cmbs: dark grayish brown (10YR 4/2) silty clay mottled with reddish yellow (7.5YR 6/6) iron staining	n/a	Negative
JEP060523A	Transect 2, Shovel Test 47 @ 1380m	0-10 cmbs: dark gray (10YR 4/1) silty clay	10-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/8) clay	n/a	Negative
JEP060523A	Transect 2, Shovel Test 48 @ 1410m	0-20 cmbs: dark grayish brown (10YR 4/2) silty clay	20-50 cmbs: dark gray (Gley 1 4/N) clay	n/a	Negative
JEP060523A	Transect 2, Shovel Test 49 @ 1440m	0-50 cmbs: dark gray (10YR 4/1) silty clay	n/a	n/a	Negative
JEP060523A	Transect 2, Shovel Test 50 @ 1470m	0-30 cmbs: dark gray (10YR 4/1) silty clay	30-50 cmbs: dark gray (Gley 1 4/N) clay	n/a	Negative
JEP060523A	Transect 2, Shovel Test 51 @ 1500m	0-20 cmbs: light brownish gray (10YR 6/2) silty clay	20-50 cmbs: gray (10YR 5/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay	n/a	Negative
JEP060523A	Transect 2, Shovel Test 52 @ 1530m	0-10 cmbs: gray (10YR 6/1) silty clay	10-50 cmbs: dark grayish brown (10YR 4/2) silty clay	n/a	Negative
JEP060523A	Transect 2, Shovel Test 53 @ 1560m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/6) Fe	n/a	n/a	Negative
JEP060523A	Transect 2, Shovel Test 54 @ 1590m	0-50 cmbs: gray (10YR 5/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay	n/a	n/a	Negative
JEP060523A	Transect 2, Shovel Test 55 @ 1610m	0-40 cmbs: dark gray (10YR 4/1) silty clay	40-50 cmbs: dark gray (Gley 1 4/N) clay	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP061323A	Transect J, Shovel Test J1	0-50 cmbs: dark grayish brown (10YR 4/2) clay compact	n/a	n/a	Negative
JEP061323A	Transect J, Shovel Test J2	0-50 cmbs: grayish brown (10YR 5/2) silty clay dry and compact	n/a	n/a	Negative
JEP061323A	Transect 1, Shovel Test 1 @ 0m	0-50 cmbs: dark gray (10YR 4/1) silty clay	n/a	n/a	Negative
JEP061323A	Transect 1, Shovel Test 2 @ 30m	0-50 cmbs: grayish brown (10YR 5/2) silty clay loam	n/a	n/a	Negative
JEP061323A	Transect 1, Shovel Test 3 @ 60m	0-50 cmbs: grayish brown (10YR 5/2) silty clay loam	n/a	n/a	Negative
JEP061323A	Transect 1, Shovel Test 4 @ 90m	0-40 cmbs: dark gray (10YR 4/1) silty clay	40-50 cmbs: pale brown (10YR 6/3) clay loam	n/a	Positive
JEP061323A	Transect 1, Shovel Test 5 @ 120m	0-50 cmbs: dark grayish brown (10YR 4/2) silty clay	n/a	n/a	Positive
JEP061323A	Transect 1, Shovel Test 6 @ 150m	0-20 cmbs: gray (10YR 5/1) clay very compact	20-50 cmbs: dark grayish brown (10YR 4/2) silty clay very compact	n/a	Negative
JEP061323A	Transect 1, Shovel Test 7 @ 180m	0-30 cmbs: gray (10YR 5/1) silty clay	30-50 cmbs: pale brown (10YR 6/3) clay loam	n/a	Positive
JEP061323A	Transect 1, Shovel Test 8 @ 210m	0-40 cmbs: dark gray (10YR 4/1) silty clay	40-50 cmbs: brown (10YR 5/3) silty clay	n/a	Positive
JEP061323A	Transect 1, Shovel Test 9 @ 240m	0-20 cmbs: brown (10YR 4/3) silty clay loam	n/a	n/a	Negative
JEP061323A	Transect 1, Shovel Test 10 @ 270m	0-20 cmbs: gray (10YR 5/1) silty clay	20-50 cmbs: pale brown (10YR 6/3) silty clay compact and dry	n/a	Negative
JEP061323A	Transect 1, Shovel Test 11 @ 300m	0-30 cmbs: dark gray (10YR 4/1) silty clay	30-50 cmbs: brown (10YR 5/3) silty clay	n/a	Positive
JEP061323A	Transect 1, Shovel Test 12 @ 318m	0-50 cmbs: grayish brown (10YR 5/2) silty clay 10% brick frags	n/a	n/a	Surface Collection
JEP061323A	Transect 2, Shovel Test 1 @ 0m	n/a	n/a	n/a	Not Excavated
JEP061323A	Transect 2, Shovel Test 2 @ 30m	0-30 cmbs: dark gray (10YR 4/1) silty clay	n/a	n/a	Positive
JEP061323A	Transect 2, Shovel Test 3 @ 60m	0-10 cmbs: very dark grayish brown (10YR 3/2) silty clay 15% brick frags, mortar	10-30 cmbs: dark gray (10YR 4/1) silty clay 15% brick frags, mortar	n/a	Positive
JEP061323A	Transect 2, Shovel Test 4 @ 90m	0-30 cmbs: dark grayish brown (10YR 4/2) silty clay	30-50 cmbs: gray (10YR 5/1) silty clay	n/a	Negative
JEP061323A	Transect 2, Shovel Test 5 @ 120m	0-50 cmbs: very dark gray (10YR 3/1) silty clay	n/a	n/a	Negative
JEP061323A	Transect 2, Shovel Test 6 @ 150m	0-40 cmbs: dark grayish brown (10YR 4/2) silty clay loam, 20-30 cmbs 20% shell	40-50 cmbs: pale brown (10YR 6/3) silty clay 5% brick frags and shell	n/a	Positive
JEP061323A	Transect 2, Shovel Test 7 @ 180m	0-50 cmbs: dark grayish brown (10YR 4/2) silty clay loam 40% brick frags	n/a	n/a	Negative
JEP061323A	Transect 2, Shovel Test 8 @ 210m	0-50 cmbs: dark gray (10YR 4/1) silty clay	n/a	n/a	Positive
JEP061323A	Transect 2, Shovel Test 9 @ 240m	0-30 cmbs: dark grayish brown (10YR 4/2) silty clay	30-50 cmbs: light brownish gray (10YR 6/2) clay	n/a	Positive
JEP061323A	Transect 2, Shovel Test 10 @ 270m	0-30 cmbs: dark grayish brown (10YR 4/2) clay	30-50 cmbs: light brownish gray (10YR 6/2) clay	n/a	Negative
JEP061323A	Transect 2, Shovel Test 11 @ 300m	0-50 cmbs: very dark gray (10YR 3/1) silty clay	n/a	n/a	Negative
JEP061323A	Transect 2, Shovel Test 12 @ 330m	0-50 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Surface Collection
JEP061423A	Transect J1, Shovel Test 1 @ 0m	0-20 cmbs: gray (10YR 6/1) silty clay	20-50 cmbs: dark gray (10YR 4/1) silty clay	n/a	Surface Collection

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP061423A	Transect J1, Shovel Test 2 @ 30m	n/a	n/a	n/a	Not Excavated
JEP061423A	Transect J1, Shovel Test 3 @ 60m	n/a	n/a	n/a	Not Excavated
JEP061423A	Transect 1, Shovel Test 1 @ 0m	0-20 cmbs: dark gray (10YR 4/1) silty clay	20-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6)	n/a	Negative
JEP061423A	Transect 1, Shovel Test 2 @ 30m	0-30 cmbs: gray (10YR 5/1) silty clay	30-50 cmbs: dark gray (Gley 1 4/N) clay	n/a	Negative
JEP061423A	Transect 1, Shovel Test 3 @ 60m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/8) dark iron staining	n/a	n/a	Negative
JEP061423A	Transect 1, Shovel Test 4 @ 90m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/8)	n/a	n/a	Surface Collection
JEP061423A	Transect 1, Shovel Test 5 @ 120m	0-10 cmbs: gray (10YR 6/1) silty clay	10-50 cmbs: brown (10YR 5/3) silty clay	n/a	Surface Collection
JEP061423A	Transect 1, Shovel Test 6 @ 150m	0-20 cmbs: dark grayish brown (10YR 4/2) clay	20-50 cmbs: gray (10YR 6/1) clay mottled with strong brown (7.5YR 5/6) clay (50%)	n/a	Surface Collection
JEP061423A	Transect 1, Shovel Test 7 @ 180m	0-20 cmbs: dark grayish brown (10YR 4/2) clay	20-50 cmbs: gray (10YR 6/1) clay mottled with strong brown (7.5YR 5/6) clay (50%)	n/a	Surface Collection
JEP061423A	Transect 1, Shovel Test 8 @ 210m	0-10 cmbs: gray (10YR 6/1) silty clay	10-30 cmbs: brown (10YR 5/3) silty clay	n/a	Surface Collection
JEP061423A	Transect 1, Shovel Test 9 @ 240m	0-30 cmbs: dark grayish brown (10YR 4/2) clay	30-50 cmbs: gray (10YR 6/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay	n/a	Surface Collection
JEP061423A	Transect 1, Shovel Test 10 @ 270m	0-20 cmbs: dark gray (10YR 4/1) clay	20-50 cmbs: grayish brown (10YR 5/2) clay	n/a	Surface Collection
JEP061423A	Transect 1, Shovel Test 11 @ 300m	0-20 cmbs: gray (10YR 6/1) silty clay	20-50 cmbs: brown (10YR 5/3) silty clay	n/a	Negative
JEP061423A	Transect 1, Shovel Test 12 @ 330m	0-10 cmbs: brown (10YR 4/3) silty clay	10-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/8) Fe	n/a	Negative
JEP061423A	Transect 1, Shovel Test 13 @ 360m	0-40 cmbs: dark grayish brown (10YR 4/2) silty clay	40-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP061423A	Transect 1, Shovel Test 14 @ 390m	0-20 cmbs: gray (10YR 6/1) silty clay	20-50 cmbs: dark grayish brown (10YR 4/2) silty clay	n/a	Negative
JEP061423A	Transect 1, Shovel Test 15 @ 420m	0-20 cmbs: dark grayish brown (10YR 4/2) clay	20-50 cmbs: gray (10YR 5/1) silty clay mottled with strong brown (7.5YR 5/6) clay	n/a	Negative
JEP061423A	Transect 1, Shovel Test 16 @ 450m	0-20 cmbs: dark grayish brown (10YR 4/2) clay	20-50 cmbs: gray (10YR 5/1) silty clay mottled with strong brown (7.5YR 5/6) clay	n/a	Negative
JEP061423A	Transect 1, Shovel Test 17 @ 480m	0-10 cmbs: gray (10YR 6/1) silty clay	10-40 cmbs: brown (10YR 5/3) silty clay	n/a	Negative
JEP061423A	Transect 1, Shovel Test 18 @ 510m	0-20 cmbs: brown (10YR 5/2) silty clay	20-50 cmbs: gray (10YR 6/1) clay mottled with strong brown (7.5YR 5/6) clay loam	n/a	Negative
JEP061423A	Transect 1, Shovel Test 19 @ 540m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/8)	n/a	n/a	Negative
JEP061423A	Transect 1, Shovel Test 20 @ 570m	0-30 cmbs: gray (10YR 5/1) silty clay	30-50 cmbs: dark gray (10YR 4/1) silty clay	n/a	Negative
JEP061423A	Transect 1, Shovel Test 21 @ 600m	0-20 cmbs: dark grayish brown (10YR 4/2) clay	20-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) silty clay	n/a	Negative
JEP061423A	Transect 1, Shovel Test 22 @ 630m	0-30 cmbs: dark grayish brown (10YR 4/2) clay	30-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) silty clay	n/a	Negative
JEP061423A	Transect 1, Shovel Test 23 @ 660m	0-20 cmbs: gray (10YR 5/1) silty clay	20-50 cmbs: dark grayish brown (10YR 4/2) silty clay	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP061423A	Transect 1, Shovel Test 24 @ 690m	0-20 cmbs: dark grayish brown (10YR 4/2) clay	20-50 cmbs: gray (10YR 6/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay (50%)	n/a	Negative
JEP061423A	Transect 1, Shovel Test 25 @ 720m	0-20 cmbs: dark gray (10YR 4/1) silty clay	20-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6)	n/a	Negative
JEP061423A	Transect 1, Shovel Test 26 @ 750m	0-50 cmbs: brown (10YR 5/3) silty clay	n/a	n/a	Negative
JEP061423A	Transect 1, Shovel Test 27 @ 780m	0-20 cmbs: dark gray (10YR 4/1) clay very compact and dry	20-50 cmbs: gray (10YR 6/1) clay mottled with strong brown (7.5YR 5/6) iron compact	n/a	Negative
JEP061423A	Transect 1, Shovel Test 28 @ 810m	0-20 cmbs: dark gray (10YR 4/1) clay	20-50 cmbs: gray (10YR 6/1) clay mottled with strong brown (7.5YR 5/6) Fe	n/a	Negative
JEP061423A	Transect 2, Shovel Test 1 @ 0m	0-20 cmbs: gray (10YR 6/1) silty clay	20-50 cmbs: dark gray (10YR 4/1) silty clay	n/a	Negative
JEP061423A	Transect 2, Shovel Test 2 @ 30m	0-50 cmbs: dark grayish brown (10YR 4/2) clay mottled with strong brown (7.5YR 5/8) Fe	n/a	n/a	Surface Collection
JEP061423A	Transect 2, Shovel Test 3 @ 60m	0-30 cmbs: dark grayish brown (10YR 4/2) silty clay	30-50 cmbs: gray (10YR 5/1) clay	n/a	Surface Collection
JEP061423A	Transect 2, Shovel Test 4 @ 90m	0-10 cmbs: gray (10YR 6/1) silty clay	10-50 cmbs: dark grayish brown (10YR 4/2) silty clay	n/a	Surface Collection
JEP061423A	Transect 2, Shovel Test 5 @ 120m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: gray (10YR 6/1) silty clay mottled with strong brown (7.5YR 5/6) clay	n/a	Positive and surface collection
JEP061423A	Transect 2, Shovel Test 6 @ 150m	0-50 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Surface Collection
JEP061423A	Transect 2, Shovel Test 7 @ 180m	0-10 cmbs: brown (10YR 4/3) silty clay	10-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/8) Fe	n/a	Surface Collection
JEP061423A	Transect 2, Shovel Test 8 @ 210m	0-10 cmbs: gray (10YR 6/1) silty clay	10-50 cmbs: dark gray (10YR 4/1) silty clay	n/a	Surface Collection
JEP061423A	Transect 2, Shovel Test 9 @ 240m	0-50 cmbs: dark grayish brown (10YR 4/2) clay mottled with strong brown (7.5YR 5/8)	n/a	n/a	Surface Collection
JEP061423A	Transect 2, Shovel Test 10 @ 270m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: gray (10YR 5/1) silty clay	n/a	Negative
JEP061423A	Transect 2, Shovel Test 11 @ 300m	0-10 cmbs: gray (10YR 6/1) silty clay	10-50 cmbs: dark gray (Gley 1 4/N) clay	n/a	Negative
JEP061423A	Transect 2, Shovel Test 12 @ 330m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: grayish brown (10YR 5/2) clay	n/a	Negative
JEP061423A	Transect 2, Shovel Test 13 @ 360m	0-20 cmbs: gray (10YR 5/1) silty clay	20-50 cmbs: brown (10YR 5/3) silty clay	n/a	Negative
JEP061423A	Transect 2, Shovel Test 14 @ 390m	0-30 cmbs: dark grayish brown (10YR 4/2) clay	30-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6)	n/a	Negative
JEP061423A	Transect 2, Shovel Test 15 @ 420m	0-35 cmbs: dark grayish brown (10YR 4/2) clay	35-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) clay	n/a	Negative
JEP061423A	Transect 2, Shovel Test 16 @ 450m	0-20 cmbs: gray (10YR 5/1) silty clay	20-50 cmbs: dark grayish brown (10YR 4/2) silty clay	n/a	Negative
JEP061423A	Transect 2, Shovel Test 17 @ 480m	0-20 cmbs: brown (10YR 5/3) clay	20-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6)	n/a	Negative
JEP061423A	Transect 2, Shovel Test 18 @ 510m	0-30 cmbs: dark grayish brown (10YR 4/2) clay	30-50 cmbs: gray (10YR 6/1) mottled with strong brown (7.5YR 5/6) clay	n/a	Negative
JEP061423A	Transect 2, Shovel Test 19 @ 540m	0-20 cmbs: gray (10YR 5/1) silty clay	20-50 cmbs: brown (10YR 5/3) silty clay	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP061423A	Transect 2, Shovel Test 20 @ 570m	0-10 cmbs: brown (10YR 4/3) silty clay	10-30 cmbs: dark gray (10YR 4/1) silty clay	n/a	Negative
JEP061423A	Transect 2, Shovel Test 21 @ 600m	0-20 cmbs: dark gray (10YR 4/1) clay	20-50 cmbs: gray (10YR 6/1) clay mottled with strong brown (7.5YR 5/6) clay	n/a	Negative
JEP061423A	Transect 2, Shovel Test 22 @ 630m	0-20 cmbs: gray (10YR 6/1) silty clay	20-50 cmbs: dark grayish brown (10YR 4/2) silty clay	n/a	Negative
JEP061423A	Transect 2, Shovel Test 23 @ 660m	0-20 cmbs: dark gray (10YR 4/1) clay	20-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6)	n/a	Negative
JEP061423A	Transect 2, Shovel Test 24 @ 690m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) clay	n/a	Negative
JEP061423A	Transect 2, Shovel Test 25 @ 720m	0-10 cmbs: gray (10YR 6/1) silty clay	10-30 cmbs: brown (10YR 5/3) silty clay	n/a	Negative
JEP061423A	Transect 2, Shovel Test 26 @ 750m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/6) compact	n/a	n/a	Negative
JEP061423A	Transect 2, Shovel Test 27 @ 780m	0-50 cmbs: dark gray (10YR 4/1) clay very dry and compact	n/a	n/a	Negative
JEP061423A	Transect 2, Shovel Test 28 @ 795m	0-20 cmbs: gray (10YR 6/1) silty clay	20-50 cmbs: brown (10YR 5/3) silty clay	n/a	Negative
JEP062123A	Transect J, Shovel Test J1	0-50 cmbs: dark grayish brown (10YR 4/2) silty clay	n/a	n/a	Negative
JEP062123A	Transect J, Shovel Test J2	0-50 cmbs: dark grayish brown (10YR 4/2) silty clay	n/a	n/a	Negative
JEP062123A	Transect 1, Shovel Test 1 @ 0m	0-20 cmbs: dark grayish brown (10YR 4/2) clay wet	n/a	n/a	Negative
JEP062123A	Transect 1, Shovel Test 2 @ 30m	n/a	n/a	n/a	Not Excavated
JEP062123A	Transect 1, Shovel Test 3 @ 60m	n/a	n/a	n/a	Not Excavated
JEP062123A	Transect 1, Shovel Test 4 @ 90m	n/a	n/a	n/a	Not Excavated
JEP062123A	Transect 1, Shovel Test 5 @ 120m	0-50 cmbs: dark gray (10YR 4/1) silty clay very wet	n/a	n/a	Negative
JEP062123A	Transect 1, Shovel Test 6 @ 150m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP062123A	Transect 1, Shovel Test 7 @ 180m	0-50 cmbs: grayish brown (10YR 5/2) clay wet	n/a	n/a	Negative
JEP062123A	Transect 1, Shovel Test 8 @ 210m	0-50 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 5/8) Fe	n/a	n/a	Negative
JEP062123A	Transect 1, Shovel Test 9 @ 240m	0-50 cmbs: gray (10YR 5/1) silty clay mottled with strong brown (7.5YR 5/6) wet	n/a	n/a	Negative
JEP062123A	Transect 1, Shovel Test 10 @ 270m	0-50 cmbs: gray (10YR 5/1) silty clay mottled with strong brown (7.5YR 5/6)	n/a	n/a	Negative
JEP062123A	Transect 1, Shovel Test 11 @ 300m	0-50 cmbs: gray (10YR 5/1) silty clay mottled with strong brown (7.5YR 5/6)	n/a	n/a	Negative
JEP062123A	Transect 1, Shovel Test 12 @ 330m	0-50 cmbs: gray (10YR 5/1) silty clay mottled with strong brown (7.5YR 5/6)	n/a	n/a	Negative
JEP062123A	Transect 1, Shovel Test 13 @ 360m	0-50 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Negative
JEP062123A	Transect 1, Shovel Test 14 @ 390m	0-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/8) brick flecking	n/a	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP062123A	Transect 1, Shovel Test 15 @ 420m	n/a	n/a	n/a	Not Excavated
JEP062123A	Transect 1, Shovel Test 16 @ 450m	0-45 cmbs: gray (10YR 5/1) clay	45-50 cmbs: light brownish gray (10YR 6/2) silty clay with iron staining	n/a	Negative
JEP062123A	Transect 1, Shovel Test 17 @ 480m	0-50 cmbs: dark gray (Gley 1 4/N) clay	n/a	n/a	Negative
JEP062123A	Transect 1, Shovel Test 18 @ 510m	0-35cmbs: dark gray (10YR 4/1) clay	35-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/8) Fe	n/a	Negative
JEP062123A	Transect 1, Shovel Test 19 @ 540m	0-50 cmbs: gray (10YR 6/1) clay	n/a	n/a	Negative
JEP062123A	Transect 1, Shovel Test 20 @ 570m	0-35 cmbs: grayish brown (10YR 5/2) silty clay loose disturbed	35-50 cmbs: dark gray (10YR 4/1) clay	n/a	Negative
JEP062123A	Transect 1, Shovel Test 21 @ 600m	0-50 cmbs: brown (10YR 4/3) silty clay loam	n/a	n/a	Negative
JEP062123A	Transect 1, Shovel Test 22 @ 630m	0-50 cmbs: brown (10YR 4/3) silty clay loam	n/a	n/a	Negative
JEP062123A	Transect 1, Shovel Test 23 @ 660m	0-20 cmbs: dark gray (10YR 4/1) silty clay compact	20-50 cmbs: grayish brown (10YR 5/2) silty clay mottled with iron staining	n/a	Negative
JEP062123A	Transect 1, Shovel Test 24 @ 690m	0-20 cmbs: dark gray (10YR 4/1) silty clay	20-50 cmbs: grayish brown (10YR 5/2) silty clay mottled with strong brown (7.5YR 5/6) Fe	n/a	Negative
JEP062123A	Transect 1, Shovel Test 25 @ 720m	0-50 cmbs: grayish brown (10YR 5/2) silty clay	n/a	n/a	Negative
JEP062123A	Transect 1, Shovel Test 26 @ 750m	0-30 cmbs: dark gray (Gley 1 4/N) clay compact mottled with iron staining	n/a	n/a	Negative
JEP062123A	Transect 1, Shovel Test 27 @ 780m	0-50 cmbs: dark grayish brown (10YR 4/2) silty clay	n/a	n/a	Negative
JEP062123A	Transect 1, Shovel Test 28 @ 810m	0-50 cmbs: pale brown (10YR 6/3) silty clay	n/a	n/a	Negative
JEP062123A	Transect 1, Shovel Test 29 @ 840m	0-20 cmbs: grayish brown (10YR 5/2) silty clay	20-50 cmbs: dark gray (10YR 4/1) silty clay compact mottled with iron staining	n/a	Negative
JEP062123A	Transect 1, Shovel Test 30 @ 870m	0-20 cmbs: grayish brown (10YR 5/2) silty clay	20-50 cmbs: dark gray (Gley 1 4/N) silty clay	n/a	Negative
JEP062123A	Transect 1, Shovel Test 31 @ 900m	0-35 cmbs: dark grayish brown (10YR 4/2) silty clay	35-50 cmbs: gray (10YR 5/1) silty clay	n/a	Negative
JEP062123A	Transect 1, Shovel Test 32 @ 930m	0-20 cmbs: dark grayish brown (10YR 4/2) silty clay	20-50 cmbs: dark gray (Gley 1 4/N) silty clay	n/a	Negative
JEP062123A	Transect 1, Shovel Test 33 @ 960m	0-15 cmbs: light brownish gray (10YR 6/2) silt loam	15-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/6) iron staining	n/a	Negative
JEP062123A	Transect 1, Shovel Test 34 @ 990m	0-20 cmbs: gray (10YR 6/1) silty clay	20-50 cmbs: dark gray (Gley 1 4/N) clay mottled with strong brown (7.5YR 4/6) Fe	n/a	Negative
JEP062123A	Transect 1, Shovel Test 35 @ 1020m	0-20 cmbs: dark grayish brown (10YR 4/2) silty clay	20-50 cmbs: gray (10YR 5/1) silty clay mottled with strong brown (7.5YR 5/8) Fe	n/a	Negative
JEP062123A	Transect 1, Shovel Test 36 @ 1050m	0-30 cmbs: dark grayish brown (10YR 4/2) silty clay	30-50 cmbs: gray (10YR 5/1) silty clay mottled with strong brown (7.5YR 5/8) Fe	n/a	Negative
JEP062123A	Transect 1, Shovel Test 37 @ 1080m	0-20 cmbs: dark gray (10YR 4/1) clay	20-50 cmbs: gray (10YR 5/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay	n/a	Negative
JEP062123A	Transect 1, Shovel Test 38 @ 1110m	0-5 cmbs: dark grayish brown (10YR 4/2) clay	5-50 cmbs: gray (10YR 6/1) silty clay mottled with strong brown (7.5YR 5/6) clay	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP062123A	Transect 1, Shovel Test 39 @ 1140m	0-20 cmbs: dark grayish brown (10YR 4/2) clay	20-50 cmbs: very pale brown (10YR 7/3) clay mottled with strong brown (7.5YR 4/6) Fe	n/a	Negative
JEP062123A	Transect 1, Shovel Test 40 @ 1170m	0-30 cmbs: dark grayish brown (10YR 4/2) clay	30-50 cmbs: gray (10YR 6/1) clay mottled with strong brown (7.5YR 5/6) clay	n/a	Negative
JEP062123A	Transect 1, Shovel Test 41 @ 1200m	0-30 cmbs: dark gray (10YR 4/1) clay slightly saturated	30-50 cmbs: gray (10YR 6/1) clay mottled with strong brown (7.5YR 5/6) silty clay	n/a	Negative
JEP062123A	Transect 1, Shovel Test 42 @ 1230m	0-20 cmbs: grayish brown (10YR 4/2) silty clay	20-50 cmbs: gray (10YR 6/1) clay mottled with strong brown (7.5YR 5/6) silty clay	n/a	Negative
JEP062123A	Transect 1, Shovel Test 43 @ 1260m	0-20 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/6) iron staining	20-50 cmbs: light brownish gray (10YR 6/2) clay mottled with strong brown (7.5YR 5/6) iron staining	n/a	Negative
JEP062123A	Transect 1, Shovel Test 44 @ 1290m	0-50 cmbs: gray (10YR 6/1) clay mottled with strong brown (7.5YR 4/6) Fe	n/a	n/a	Negative
JEP062123A	Transect 1, Shovel Test 45 @ 1320m	0-20 cmbs: dark grayish brown (10YR 4/2) clay 2 small brick fragments	20-50 cmbs: gray (10YR 6/1) clay mottled with strong brown (7.5YR 5/6) silty clay	n/a	Negative
JEP062123A	Transect 1, Shovel Test 46 @ 1350m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: light brownish gray (10YR 6/2) silty clay mottled with strong brown (7.5YR 5/6) iron staining	n/a	Negative
JEP062123A	Transect 1, Shovel Test 47 @ 1380m	0-50 cmbs: dark grayish brown (10YR 4/2) clay mottled with strong brown (7.5YR 4/6) Fe	n/a	n/a	Negative
JEP062123A	Transect 1, Shovel Test 48 @ 1410m	0-50 cmbs: dark grayish brown (10YR 4/2) clay mottled with strong brown (7.5YR 5/8) Fe	n/a	n/a	Negative
JEP062123A	Transect 1, Shovel Test 49 @ 1440m	0-30 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6)	30-50 cmbs: pale brown (10YR 6/3) silty clay mottled with strong brown (7.5YR 5/6) iron staining	n/a	Negative
JEP062123A	Transect 1, Shovel Test 50 @ 1470m	0-20 cmbs: gray (10YR 5/1) silty clay	20-50 cmbs: pale brown (10YR 6/3) clay	n/a	Negative
JEP062123A	Transect 1, Shovel Test 51 @ 1500m	0-50 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 5/8) Fe	n/a	n/a	Negative
JEP062123A	Transect 2, Shovel Test 1 @ 0m	0-20 cmbs: dark gray (10YR 4/1) clay saturated	n/a	n/a	Negative
JEP062123A	Transect 2, Shovel Test 2 @ 30m	n/a	n/a	n/a	Not Excavated
JEP062123A	Transect 2, Shovel Test 3 @ 60m	0-20 cmbs: gray (10YR 5/1) clay	n/a	n/a	Negative
JEP062123A	Transect 2, Shovel Test 4 @ 90m	0-10 cmbs: gray (10YR 5/1) clay saturated	n/a	n/a	Negative
JEP062123A	Transect 2, Shovel Test 5 @ 120m	0-10 cmbs: gray (10YR 5/1) clay wet	n/a	n/a	Negative
JEP062123A	Transect 2, Shovel Test 6 @ 150m	0-10 cmbs: gray (10YR 5/1) clay muck saturated	n/a	n/a	Negative
JEP062123A	Transect 2, Shovel Test 7 @ 180m	0-10 cmbs: gray (10YR 5/1) clay wet	n/a	n/a	Negative
JEP062123A	Transect 2, Shovel Test 8 @ 210m	0-10 cmbs: gray (10YR 5/1) clay saturated	n/a	n/a	Negative
JEP062123A	Transect 2, Shovel Test 9 @ 240m	0-10 cmbs: gray (10YR 5/1) clay saturated	n/a	n/a	Negative
JEP062123A	Transect 2, Shovel Test 10 @ 270m	0-20 cmbs: gray (10YR 5/1) clay saturated	n/a	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP062123A	Transect 2, Shovel Test 11 @ 300m	0-30 cmbs: grayish brown (10YR 5/2) clay saturated	n/a	n/a	Negative
JEP062123A	Transect 2, Shovel Test 12 @ 330m	0-50 cmbs: gray (10YR 5/1) clay saturated muck @ surface	n/a	n/a	Negative
JEP062123A	Transect 2, Shovel Test 13 @ 360m	0-10 cmbs: gray (10YR 5/1) clay wet	n/a	n/a	Negative
JEP062123A	Transect 2, Shovel Test 14 @ 390m	0-50 cmbs: gray (10YR 5/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay	n/a	n/a	Negative
JEP062123A	Transect 2, Shovel Test 15 @ 420m	n/a	n/a	n/a	Not Excavated
JEP062123A	Transect 2, Shovel Test 16 @ 450m	0-50 cmbs: gray (10YR 5/1) silty clay mottled with strong brown (7.5YR 4/6) silty clay	n/a	n/a	Negative
JEP062123A	Transect 2, Shovel Test 17 @ 480m	0-20 cmbs: grayish brown (10YR 5/2) silty clay wet	20-50 cmbs: dark gray (10YR 4/1) clay wet with iron staining	n/a	Negative
JEP062123A	Transect 2, Shovel Test 18 @ 510m	0-50 cmbs: grayish brown (10YR 5/2) silty clay	n/a	n/a	Negative
JEP062123A	Transect 2, Shovel Test 19 @ 540m	0-50 cmbs: gray (10YR 5/1) silty clay mottled with strong brown (7.5YR 4/6) Fe	n/a	n/a	Negative
JEP062123A	Transect 2, Shovel Test 20 @ 570m	0-15 cmbs: gray (10YR 5/1) silty clay mottled with strong brown (7.5YR 4/6) Fe	15-50 cmbs: gray (10YR 5/1) silty clay mottled with strong brown (7.5YR 4/6) Fe	n/a	Negative
JEP062123A	Transect 2, Shovel Test 21 @ 600m	0-20 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/8)	20-50 cmbs: gray (10YR 6/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay (50%)	n/a	Negative
JEP062123A	Transect 2, Shovel Test 22 @ 630m	0-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 4/6) silty clay iron	n/a	n/a	Negative
JEP062123A	Transect 2, Shovel Test 23 @ 660m	0-20 cmbs: grayish brown (10YR 5/2) silty clay wet	20-50 cmbs: dark gray (Gley 1 4/N) clay mottled with iron staining	n/a	Negative
JEP062123A	Transect 2, Shovel Test 24 @ 690m	0-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) silty clay	n/a	n/a	Negative
JEP062123A	Transect 2, Shovel Test 25 @ 720m	0-50 cmbs: gray (10YR 6/1) silty clay mottled with strong brown (7.5YR 4/6) Fe	n/a	n/a	Negative
JEP062123A	Transect 2, Shovel Test 26 @ 750m	0-10 cmbs: gray (10YR 5/1) silty clay mottled with iron staining	10-50 cmbs: gray (10YR 6/1) silty clay mottled with strong brown (7.5YR 4/6) Fe	n/a	Negative
JEP062123A	Transect 2, Shovel Test 27 @ 780m	0-50 cmbs: grayish brown (10YR 5/2) silty clay mottled with strong brown (7.5YR 5/8) ironvery dry and compact	n/a	n/a	Negative
JEP062123A	Transect 2, Shovel Test 28 @ 810m	0-50 cmbs: grayish brown (10YR 5/2) silty clay mottled with strong brown (7.5YR 5/8) iron	n/a	n/a	Negative
JEP062123A	Transect 2, Shovel Test 29 @ 840m	0-30 cmbs: dark gray (10YR 4/1) silty clay mottled with iron staining	30-50 cmbs: gray (10YR 6/1) silty clay mottled with strong brown (7.5YR 5/8) iron staining	n/a	Negative
JEP062123A	Transect 2, Shovel Test 30 @ 870m	0-20 cmbs: light brownish gray (10YR 6/2) silty clay	20-50 cmbs: dark gray (Gley 1 4/N) silty clay mottled with iron staining	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP062123A	Transect 2, Shovel Test 31 @ 900m	0-30 cmbs: dark gray (10YR 4/1) silty clay	30-50 cmbs: gray (10YR 6/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay (50%)	n/a	Negative
JEP062123A	Transect 2, Shovel Test 32 @ 930m	0-30 cmbs: light brownish gray (10YR 6/2) silty clay	20-50 cmbs: brown (10YR 4/3) silty clay	n/a	Negative
JEP062123A	Transect 2, Shovel Test 33 @ 960m	0-20 cmbs: gray (10YR 5/1) clay	20-50 cmbs: gray (10YR 6/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay	n/a	Negative
JEP062123A	Transect 2, Shovel Test 34 @ 990m	0-20 cmbs: gray (10YR 5/1) clay	20-50 cmbs: gray (10YR 6/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay	n/a	Negative
JEP062123A	Transect 2, Shovel Test 35 @ 1020m	0-20 cmbs: gray (10YR 5/1) clay	20-50 cmbs: gray (10YR 6/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay	n/a	Negative
JEP062123A	Transect 2, Shovel Test 36 @ 1050m	0-20 cmbs: gray (10YR 5/1) clay	20-50 cmbs: gray (10YR 6/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay	n/a	Negative
JEP062123A	Transect 2, Shovel Test 37 @ 1080m	0-20 cmbs: gray (10YR 5/1) clay	20-50 cmbs: very pale brown (10YR 7/3) silty clay mottled with strong brown (7.5YR 4/6) Fe	n/a	Negative
JEP062123A	Transect 2, Shovel Test 38 @ 1110m	0-15 cmbs: gray (10YR 5/1) clay	15-50 cmbs: very pale brown (10YR 7/3) silty clay mottled with strong brown (7.5YR 4/6) Fe	n/a	Negative
JEP062123A	Transect 2, Shovel Test 39 @ 1140m	0-20 cmbs: gray (10YR 5/1) clay	20-50 cmbs: very pale brown (10YR 7/3) silty clay mottled with strong brown (7.5YR 4/6) Fe	n/a	Negative
JEP062123A	Transect 2, Shovel Test 40 @ 1170m	0-25 cmbs: gray (10YR 5/1) clay	25-50 cmbs: very pale brown (10YR 7/3) silty clay mottled with strong brown (7.5YR 4/6) Fe	n/a	Negative
JEP062123A	Transect 2, Shovel Test 41 @ 1200m	0-20 cmbs: dark grayish brown (10YR 4/2) clay mottled with strong brown (7.5YR 5/8) Fe	20-50 cmbs: gray (10YR 6/1) silty clay mottled with strong brown (7.5YR 5/6) Fe	n/a	Negative
JEP062123A	Transect 2, Shovel Test 42 @ 1230m	0-50 cmbs: brown (10YR 5/3) silty clay	n/a	n/a	Negative
JEP062123A	Transect 2, Shovel Test 43 @ 1260m	0-50 cmbs: brown (10YR 5/3) silty clay	n/a	n/a	Negative
JEP062123A	Transect 2, Shovel Test 44 @ 1290m	0-50 cmbs: dark grayish brown (10YR 4/2) silty clay	n/a	n/a	Negative
JEP062123A	Transect 2, Shovel Test 45 @ 1320m	0-20 cmbs: gray (10YR 5/1) silty clay	20-50 cmbs: dark gray (Gley 1 4/N) clay mottled with strong brown (7.5YR 4/6)	n/a	Negative
JEP062123A	Transect 2, Shovel Test 46 @ 1350m	0-10 cmbs: gray (10YR 5/1) silty clay	10-50 cmbs: dark gray (Gley 1 4/N) clay mottled with strong brown (7.5YR 4/6)	n/a	Negative
JEP062123A	Transect 2, Shovel Test 47 @ 1380m	0-20 cmbs: dark grayish brown (10YR 4/2) clay	20-50 cmbs: gray (10YR 6/1) clay mottled with strong brown (7.5YR 5/6) Fe	n/a	Negative
JEP062123A	Transect 2, Shovel Test 48 @ 1410m	0-50 cmbs: dark grayish brown (10YR 4/2) clay mottled with strong brown (7.5YR 4/6) Fe	n/a	n/a	Negative
JEP062123A	Transect 2, Shovel Test 49 @ 1440m	0-30 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/6) iron staining	30-50 cmbs: light brownish gray (10YR 6/2) silty clay mottled with strong brown (7.5YR 5/6) iron staining	n/a	Negative
JEP062123B	Transect 3, Shovel Test 1 @ 0m	0-30 cmbs: dark grayish brown (10YR 4/2) clay loam	30-50 cmbs: gray (10YR 6/1) clay loam mottled with strong brown (7.5YR 5/6) silty clay	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP062123B	Transect 3, Shovel Test 2 @ 30m	0-50 cmbs: dark grayish brown (10YR 4/2) clay mottled with strong brown (7.5YR 4/6) Fe	n/a	n/a	Negative
JEP062123B	Transect 3, Shovel Test 3 @ 60m	0-15 cmbs: dark grayish brown (10YR 4/2) clay mottled with strong brown (7.5YR 4/6) Fe	15-25 cmbs: dark gray (Gley 1 4/N) clay mottled with strong brown (7.5YR 5/6) iron staining	n/a	Negative
JEP062123B	Transect 3, Shovel Test 4 @ 90m	0-50 cmbs: grayish brown (10YR 5/2) silty clay	n/a	n/a	Negative
JEP062123B	Transect 3, Shovel Test 5 @ 120m	0-10 cmbs: dark gray (10YR 4/1) silty clay mottled with strong brown (7.5YR 5/8) Fe	10-50 cmbs gray (10YR 6/1) silty clay mottledstrong brown (7.5YR 5/6) silty clay (50%)	n/a	Negative
JEP062123B	Transect 3, Shovel Test 6 @ 150m	0-30 cmbs: grayish brown (10YR 5/2) silty clay	30-50 cmbs: grayish brown (10YR 5/2) silty clay mottled with strong brown (7.5YR 5/6) iron staining	n/a	Negative
JEP062123B	Transect 3, Shovel Test 7 @ 180m	0-50 cmbs: grayish brown (10YR 5/2) silty clay	n/a	n/a	Negative
JEP062123B	Transect 3, Shovel Test 8 @ 210m	0-30 cmbs: dark grayish brown (10YR 4/2) clay	30-50 cmbs: gray (10YR 6/1) clay mottled with strong brown (7.5YR 5/6) silty clay (50%)	n/a	Negative
JEP062123B	Transect 3, Shovel Test 9 @ 240m	0-20 cmbs: dark grayish brown (10YR 4/2) clay mottled with strong brown (7.5YR 5/6) iron staining	20-50 cmbs: pale brown (10YR 6/3) silty clay mottled with strong brown (7.5YR 4/6) iron staining	n/a	Negative
JEP062123B	Transect 3, Shovel Test 10 @ 270m	0-20 cmbs: pale brown (10YR 6/3) silty clay mottled with dark gray (Gley 1 4/N) silty clay and strong brown (7.5YR 4/6) Fe	20-50 cmbs: pale Bbrown (10YR 6/3) silty clay mottled with strong brown (7.5YR 4/6) Fe	n/a	Negative
JEP062123B	Transect 3, Shovel Test 11 @ 300m	0-50 cmbs: dark grayish brown (10YR 4/2) clay mottled with strong brown (7.5YR 5/8) Fe	n/a	n/a	Negative
JEP062123B	Transect 3, Shovel Test 12 @ 330m	0-25 cmbs: dark grayish brown (10YR 4/2) clay mottled with strong brown (7.5YR 4/6) iron staining	25-50 cmbs: light brownish gray (10YR 6/2) silty clay mottled with strong brown (10YR 4/2) iron staining	n/a	Negative
JEP062123B	Transect 3, Shovel Test 13 @ 360m	0-30 cmbs: dark gray (Gley 1 4/N) clay mottled with strong brown (7.5YR 4/6) iron staining	30-50 cmbs: dark gray (10YR 4/1) silty clay mottled with iron staining	n/a	Negative
JEP062123B	Transect 3, Shovel Test 14 @ 390m	0-35 cmbs: dark gray (10YR 4/1) silty clay mottled with iron staining	35-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) Fe	n/a	Negative
JEP062123B	Transect 3, Shovel Test 15 @ 420m	0-15 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) Fe	15-50 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 4/6) Fe	n/a	Negative
JEP062123B	Transect 4, Shovel Test 1 @ 0m	0-50 cmbs: gray (10YR 6/1) clay	n/a	n/a	Negative
JEP062123B	Transect 4, Shovel Test 2 @ 30m	0-50 cmbs: gray (10YR 6/1) silty clay	n/a	n/a	Negative
JEP062123B	Transect 4, Shovel Test 3 @ 60m	0-35 cmbs: dark grayish brown (10YR 4/2) silty clay mottled with strong brown (10YR 4/6) iron staining	35-50 cmbs: gray (10YR 6/1) silty clay	n/a	Negative
JEP062123B	Transect 4, Shovel Test 4 @ 90m	0-15 cmbs: dark grayish brown (10YR 4/2) silty clay	15-25 cmbs: dark gray (Gley 1 4/N) clay mottled with strong brown (7.5YR 5/6) iron staining	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP062123B	Transect 4, Shovel Test 5 @ 120m	0-20 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 4/6)	20-50 cmbs: pale brown (10YR 6/3) silty clay mottled with strong brown (7.5YR 4/6)	n/a	Negative
JEP062123B	Transect 4, Shovel Test 6 @ 150m	0-10 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 4/6)	10-50 cmbs: pale brown (10YR 6/3) silty clay mottled with strong brown (7.5YR 4/6)	n/a	Negative
JEP062123B	Transect 4, Shovel Test 7 @ 180m	0-25 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 4/6)	25-50 cmbs: pale brown (10YR 6/3) silty clay mottled with strong brown (7.5YR 4/6)	n/a	Negative
JEP062123B	Transect 4, Shovel Test 8 @ 210m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP062123B	Transect 4, Shovel Test 9 @ 240m	0-20 cmbs: dark gray (10YR 4/1) clay	20-50 cmbs: light brownish gray (10YR 6/2) silty clay mottled with strong brown (7.5YR 5/6) silty clay (50%)	n/a	Negative
JEP062123B	Transect 4, Shovel Test 10 @ 270m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 4/6) iron staining	n/a	n/a	Negative
JEP062123B	Transect 4, Shovel Test 11 @ 300m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 4/6) iron staining	n/a	n/a	Negative
JEP062123B	Transect 4, Shovel Test 12 @ 330m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 4/6) iron staining	n/a	n/a	Negative
JEP062123B	Transect 4, Shovel Test 13 @ 360m	0-35 cmbs: dark grayish brown (10YR 4/2) silty clay mottled with strong brown (7.5YR 4/6) iron staining	35-50 cmbs: gray (10YR 5/1) silty clay mottled with strong brown (7.5YR 4/6) iron staining	n/a	Negative
JEP062123B	Transect 4, Shovel Test 14 @ 390m	0-20 cmbs: dark grayish brown (10YR 4/2) silty clay mottled with strong brown (7.5YR 4/6) iron staining	20-50 cmbs: gray (10YR 5/1) silty clay mottled with strong brown (7.5YR 4/6) iron staining	n/a	Negative
JEP062123B	Transect 4, Shovel Test 15 @ 420m	0-30 cmbs: dark grayish brown (10YR 4/2) silty clay mottled with strong brown (7.5YR 4/6) iron staining	30-50 cmbs: gray (10YR 5/1) silty clay mottled with strong brown (7.5YR 4/6) iron staining	n/a	Negative
JEP063023A	Transect J, Shovel Test J1	0-50 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 5/6) Fe	n/a	n/a	Negative
JEP063023A	Transect 1, Shovel Test 1 @ 0m	0-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) Fe	n/a	n/a	Negative
JEP063023A	Transect 1, Shovel Test 2 @ 30m	0-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) Fe	n/a	n/a	Negative
JEP063023A	Transect 1, Shovel Test 3 @ 60m	0-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) Fe	n/a	n/a	Negative
JEP063023A	Transect 1, Shovel Test 4 @ 90m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/8) Fe	n/a	n/a	Negative
JEP063023A	Transect 1, Shovel Test 5 @ 120m	0-30 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/6)	30-50 cmbs: light brownish gray (10YR 6/2) clay mottled with strong brown (7.5YR 5/6)	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP063023A	Transect 1, Shovel Test 6 @ 150m	0-20 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/6)	20-50 cmbs: light brownish gray (10YR 6/2) clay mottled with strong brown (7.5YR 5/6)	n/a	Negative
JEP063023A	Transect 1, Shovel Test 7 @ 180m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/6) iron1% brick flecking	n/a	n/a	Negative
JEP063023A	Transect 1, Shovel Test 8 @ 210m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/6) Fe	n/a	n/a	Negative
JEP063023A	Transect 1, Shovel Test 9 @ 240m	0-50 cmbs: gray (10YR 6/1) clay	n/a	n/a	Negative
JEP063023A	Transect 1, Shovel Test 10 @ 270m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/8) Fe	n/a	n/a	Negative
JEP063023A	Transect 1, Shovel Test 11 @ 300m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/8) Fe	n/a	n/a	Surface Collection
JEP063023A	Transect 1, Shovel Test 12 @ 330m	0-50 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 4/6)	n/a	n/a	Negative
JEP063023A	Transect 1, Shovel Test 13 @ 360m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/8) iron2% small brick frags	n/a	n/a	Negative
JEP063023A	Transect 1, Shovel Test 14 @ 390m	0-50 cmbs: dark grayish brown (10YR 4/2) clay brick fragments	n/a	n/a	Negative
JEP063023A	Transect 1, Shovel Test 15 @ 420m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP063023A	Transect 1, Shovel Test 16 @ 450m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP063023A	Transect 1, Shovel Test 17 @ 480m	0-50 cmbs: grayish brown (10YR 5/2) clay compact	n/a	n/a	Negative
JEP063023A	Transect 1, Shovel Test 18 @ 510m	0-50 cmbs: grayish brown (10YR 5/2) clay compact	n/a	n/a	Negative
JEP063023A	Transect 1, Shovel Test 19 @ 540m	0-50 cmbs: dark grayish brown (10YR 4/2) silty clay with gravel	n/a	n/a	Negative
JEP063023A	Transect 1, Shovel Test 20 @ 570m	0-50 cmbs: 10YR 4/2 dark grayish brown (10YR 4/2) silty clay	n/a	n/a	Negative
JEP063023A	Transect 1, Shovel Test 21 @ 600m	0-10 cmbs: dark gray (10YR 4/1) clay	10-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	Negative
JEP063023A	Transect 1, Shovel Test 22 @ 630m	0-50 cmbs: grayish brown (10YR 5/2) clay very compact	n/a	n/a	Negative
JEP063023A	Transect 1, Shovel Test 23 @ 660m	0-50 cmbs: dark grayish brown (10YR 4/2) clay compact	n/a	n/a	Negative
JEP063023A	Transect 1, Shovel Test 24 @ 690m	0-50 cmbs: dark grayish brown (10YR 4/2) clay very dry and compact	n/a	n/a	Negative
JEP063023A	Transect 1, Shovel Test 25 @ 720m	0-25 cmbs: gray (10YR 5/1) clay	25-50 cmbs: light gray (10YR 7/1) clay with iron staining	n/a	Negative
JEP063023A	Transect 1, Shovel Test 26 @ 750m	0-30 cmbs: dark gray (10YR 4/1) clay compact	30-50 cmbs: gray (110YR 5/1) clay compact	n/a	Negative
JEP063023A	Transect 1, Shovel Test 27 @ 780m	0-20 cmbs: dark gray (10YR 4/1) clay compact	20-50 cmbs: gray (10YR 5/1) clay compact	n/a	Negative
JEP063023A	Transect 1, Shovel Test 28 @ 810m	0-35 dark gray (10YR 4/1) clay compact	35-50 cmbs: gray (10YR 5/1) clay compact	n/a	Negative
JEP063023A	Transect 1, Shovel Test 29 @ 840m	0-40 cmbs: dark gray (10YR 4/1) clay	40-50 cmbs: gray (10YR 5/1) clay	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP063023A	Transect 1, Shovel Test 30 @ 870m	0-35 cmbs: dark gray (10YR 4/1) clay compact	35-50 cmbs: gray (10YR 5/1) clay compact	n/a	Negative
JEP063023A	Transect 1, Shovel Test 31 @ 900m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP063023A	Transect 1, Shovel Test 32 @ 930m	0-30 cmbs: dark gray (10YR 4/1) clay compact	30-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/8) iron compact	n/a	Negative
JEP063023A	Transect 1, Shovel Test 33 @ 960m	0-40 cmbs: dark gray (10YR 4/1) clay compact	40-50 cmbs: gray (10YR 5/1) clay compact	n/a	Negative
JEP063023A	Transect 1, Shovel Test 34 @ 990m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) Fe	n/a	Negative
JEP063023A	Transect 1, Shovel Test 35 @ 1020m	0-40 cmbs: dark gray (10YR 4/1) clay	40-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP063023A	Transect 1, Shovel Test 36 @ 1050m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) Fe	n/a	Negative
JEP063023A	Transect 1, Shovel Test 37 @ 1080m	0-25 cmbs: dark gray (10YR 4/1) clay compact	25-50 cmbs: gray (10YR 5/1) clay compact	n/a	Negative
JEP063023A	Transect 1, Shovel Test 38 @ 1110m	0-30 cmbs: dark gray (10YR 4/1) silty clay 1% shell frags	30-50 cmbs: light brownish gray (10YR 6/2) clay	n/a	Negative
JEP063023A	Transect 1, Shovel Test 39 @ 1140m	0-30 cmbs: dark gray (10YR 4/1) clay compact	30-50 cmbs: gray (10YR 5/1) clay compact	n/a	Negative
JEP063023A	Transect 1, Shovel Test 40 @ 1155m	0-20 cmbs: dark gray (10YR 4/1) clay compact small brick frag, 1 % shell	20-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP063023A	Transect 2, Shovel Test 1 @ 0m	0-50 cmbs: gray (10YR 5/1) silty clay mottled with strong brown (7.5YR 4/6) Fe	n/a	n/a	Negative
JEP063023A	Transect 2, Shovel Test 2 @ 30m	gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/8) iron staining	n/a	n/a	Negative
JEP063023A	Transect 2, Shovel Test 3 @ 60m	0-35 cmbs: dark gray (10YR 4/1) clay	35-50 cmbs: gray (10YR 6/1) clay mottled with strong brown (7.5YR 5/6) Fe	n/a	Negative
JEP063023A	Transect 2, Shovel Test 4 @ 90m	0-50 cmbs: gray (10YR 5/1) sandy clay	n/a	n/a	Negative
JEP063023A	Transect 2, Shovel Test 5 @ 120m	0-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/8)	n/a	n/a	Negative
JEP063023A	Transect 2, Shovel Test 6 @ 150m	0-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/8) Fe	n/a	n/a	Negative
JEP063023A	Transect 2, Shovel Test 7 @ 180m	0-50 cmbs: gray (10YR 6/1) clay with Fe	n/a	n/a	Negative
JEP063023A	Transect 2, Shovel Test 8 @ 210m	0-20 cmbs: dark gray (Gley 1 4/N) clay mottled with strong brown (7.5YR 5/6) iron staining	20-50 cmbs: gray (10YR 5/1) clay mottled with yellowish brown (10YR 5/4) silty clay and strong brown (7.5YR 5/6) iron staining	n/a	Negative
JEP063023A	Transect 2, Shovel Test 9 @ 240m	0-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) iron staining	n/a	n/a	Surface Collection
JEP063023A	Transect 2, Shovel Test 10 @ 270m	0-50 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Negative
JEP063023A	Transect 2, Shovel Test 11 @ 300m	0-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6)	n/a	n/a	Negative
JEP063023A	Transect 2, Shovel Test 12 @ 330m	0-50 cmbs: gray (10YR 5/1) mottled with strong brown (7.5YR 5/6) Fe	n/a	n/a	Negative

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP063023A	Transect 2, Shovel Test 13 @ 360m	0-50 cmbs: gray (10YR 6/1) silty clay mottled with strong brown (7.5YR 4/6) Fe	n/a	n/a	Negative
JEP063023A	Transect 2, Shovel Test 14 @ 390m	0-30 cmbs: dark gray (Gley 1 4/N) clay mottledstrong brown (7.5YR 5/6) iron staining	30-50 cmbs: dark gray (10YR 4/1) silty clay mottled with brown (10YR 4/3) silty clay and strong brown (7.5YR 5/6) iron staining	n/a	Negative
JEP063023A	Transect 2, Shovel Test 15 @ 420m	0-25 cmbs: dark gray (10YR 4/1) silty clay	25-50 cmbs: brown (10YR 4/3) clay	n/a	Negative
JEP063023A	Transect 2, Shovel Test 16 @ 450m	0-50 cmbs: gray (10YR 6/1) clay mottled with strong brown (7.5YR 5/6) Fe	n/a	n/a	Negative
JEP063023A	Transect 2, Shovel Test 17 @ 480m	0-50 cmbs: gray (10YR 5/1) clay with some brick flecking	n/a	n/a	Negative
JEP063023A	Transect 2, Shovel Test 18 @ 510m	0-50 cmbs: gray (10YR 5/1) clay very compact	n/a	n/a	Surface Collection
JEP063023A	Transect 2, Shovel Test 19 @ 540m	0-50 cmbs: gray (10YR 5/1) clay with brick flecking	n/a	n/a	Negative
JEP063023A	Transect 2, Shovel Test 20 @ 570m	0-15 cmbs: brown (10YR 4/3) silty clay	n/a	n/a	Negative
JEP063023A	Transect 2, Shovel Test 21 @ 600m	0-50 cmbs: dark grayish brown (10YR 4/2) clay compact	n/a	n/a	Negative
JEP063023A	Transect 2, Shovel Test 22 @ 630m	0-50 cmbs: dark grayish brown (10YR 4/2) clay very compact	n/a	n/a	Negative
JEP063023A	Transect 2, Shovel Test 23 @ 660m	0-30 cmbs: dark grayish brown (10YR 4/2) clay	30-50 cmbs: gray (10YR 6/1) clay compact	n/a	Negative
JEP063023A	Transect 2, Shovel Test 24 @ 690m	0-40 cmbs: dark grayish brown (10YR 4/2) clay compact	40-50 cmbs: gray (10YR 6/1) clay compact	n/a	Negative
JEP063023A	Transect 2, Shovel Test 25 @ 720m	0-50 cmbs: dark gray (10YR 4/1) clay compact	n/a	n/a	Negative
JEP063023A	Transect 2, Shovel Test 26 @ 750m	0-40 cmbs: dark gray (10YR 4/1) clay compact	40-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) iron compact	n/a	Negative
JEP063023A	Transect 2, Shovel Test 27 @ 780m	0-50 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Negative
JEP063023A	Transect 2, Shovel Test 28 @ 810m	0-50 cmbs: graysish brown (10YR 5/2) clay compact	n/a	n/a	Negative
JEP063023A	Transect 2, Shovel Test 29 @ 840m	0-45 cmbs: dark gray (10YR 4/1) clay compact	45-50 cmbs: gray (10YR 5/1) clay compact	n/a	Negative
JEP063023A	Transect 2, Shovel Test 30 @ 870m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP063023A	Transect 2, Shovel Test 31 @ 900m	0-40 cmbs: dark gray (10YR 4/1) clay	40-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP063023A	Transect 2, Shovel Test 32 @ 930m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP063023A	Transect 2, Shovel Test 33 @ 960m	0-30 cmbs: dark gray (10YR 4/1) clay compact	30-50 cmbs: gray (10YR 5/1) clay compact	n/a	Negative
JEP063023A	Transect 2, Shovel Test 34 @ 990m	0-20 cmbs: dark gray (10YR 4/1) clay	20-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP063023A	Transect 2, Shovel Test 35 @ 1020m	0-25 cmbs: dark gray (10YR 4/1) clay	25-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP063023A	Transect 2, Shovel Test 36 @ 1050m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP063023A	Transect 2, Shovel Test 37 @ 1080m	0-40 cmbs: dark gray (10YR 4/1) clay compact	40-50 cmbs: gray (10YR 5/1) clay compact	n/a	Negative
JEP063023A	Transect 2, Shovel Test 38 @ 1110m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP063023A	Transect 2, Shovel Test 39 @ 1140m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: gray (10YR 5/1) clay	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP063023A	Transect 2, Shovel Test 40 @ 1170m	0-50 cmbs: gray (10YR 5/1) clay	n/a	n/a	Negative
JEP071123A	Transect 1, Shovel Test 1 @ 0m	0-30 cmbs: dark grayish brown (10YR 4/2) clay mottled with strong brown (7.5YR 5/6) clay FeO2 staining	30-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) clay FeO2 staining	n/a	Negative
JEP071123A	Transect 1, Shovel Test 2 @ 30m	0-30 cmbs: dark grayish brown (10YR 4/2) clay mottled with strong brown (7.5YR 5/6) clay FeO2 staining	30-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) clay FeO2 staining	n/a	Negative
JEP071123A	Transect 1, Shovel Test 3 @ 60m	0-30 cmbs: dark grayish brown (10YR 4/2) clay mottled with strong brown (7.5YR 5/6) clay FeO2 staining	30-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) clay FeO2 staining	n/a	Negative
JEP071123A	Transect 1, Shovel Test 4 @ 90m	0-30 cmbs: dark grayish brown (10YR 4/2) clay mottled with strong brown (7.5YR 5/6) clay FeO2 staining	30-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) clay FeO2 staining	n/a	Negative
JEP071123A	Transect 1, Shovel Test 5 @ 120m	0-30 cmbs: dark grayish brown (10YR 4/2) clay	30-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) clay FeO2 staining	n/a	Negative
JEP071123A	Transect 1, Shovel Test 6 @ 150m	0-30 cmbs: dark grayish brown (10YR 4/2) clay	30-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) clay	n/a	Negative
JEP071123A	Transect 1, Shovel Test 7 @ 180m	0-30 cmbs: dark grayish brown (10YR 4/2) clay mottled with strong brown (7.5YR 5/6) clay FeO2 staining	30-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) clay FeO2 staining	n/a	Negative
JEP071123A	Transect 1, Shovel Test 8 @ 210m	0-30 cmbs: very dark gray (10YR 3/1) clay	30-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	Negative
JEP071123A	Transect 1, Shovel Test 9 @ 240m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP071123A	Transect 1, Shovel Test 10 @ 270m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP071123A	Transect 1, Shovel Test 11 @ 300m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP071123A	Transect 1, Shovel Test 12 @ 330m	0-50 cmbs: dark grayish brown (10YR 4/2) silty clay wet	n/a	n/a	Negative
JEP071123A	Transect 1, Shovel Test 13 @ 360m	0-50 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 5/6) Fe	n/a	n/a	Negative
JEP071123A	Transect 1, Shovel Test 14 @ 390m	0-50 cmbs: dark grayish brown (10YR 4/2) silty clay	n/a	n/a	Negative
JEP071123A	Transect 1, Shovel Test 15 @ 420m	n/a	n/a	n/a	Not Excavated
JEP071123A	Transect 2, Shovel Test 1 @ 0m	0-50 cmbs: dark gray (10YR 4/1) silty clay	n/a	n/a	Negative
JEP071123A	Transect 2, Shovel Test 2 @ 30m	0-50 cmbs: dark gray (10YR 4/1) silty clay	n/a	n/a	Negative
JEP071123A	Transect 2, Shovel Test 3 @ 60m	0-50 cmbs: dark gray (10YR 4/1) silty clay	n/a	n/a	Negative
JEP071123A	Transect 2, Shovel Test 4 @ 90m	0-50 cmbs: dark gray (10YR 4/1) silty clay	n/a	n/a	Negative
JEP071123A	Transect 2, Shovel Test 5 @ 120m	0-50 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Negative
JEP071123A	Transect 2, Shovel Test 6 @ 150m	0-50 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP071123A	Transect 2, Shovel Test 7 @ 180m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/6)	n/a	n/a	Negative
JEP071123A	Transect 2, Shovel Test 8 @ 210m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/6) Fe	n/a	n/a	Negative
JEP071123A	Transect 2, Shovel Test 9 @ 240m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP071123A	Transect 2, Shovel Test 10 @ 270m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP071123A	Transect 2, Shovel Test 11 @ 300m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP071123A	Transect 2, Shovel Test 12 @ 330m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP071123A	Transect 2, Shovel Test 13 @ 360m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP071123A	Transect 2, Shovel Test 14 @ 390m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP071123A	Transect 2, Shovel Test 15 @ 420m	n/a	n/a	n/a	Not Excavated
JEP071323A	Transect J1, Shovel Test 1 @ 0m	0-30 cmbs: grayish brown (10YR 5/2) clay	30-50 cmbs: gray (10YR 6/1) with yellowish brown (7.5YR 5/6) clay	n/a	Negative
JEP071323A	Transect J1, Shovel Test 2 @ 30m	0-30 cmbs: grayish brown (10YR 5/2) clay with iron staining	30-50 cmbs: gray (10YR 6/1) with yellowish brown (7.5YR 5/6) clay	n/a	Negative
JEP071323A	Transect J1, Shovel Test 3 @ 60m	0-20 cmbs: grayish brown (10YR 5/2) clay with iron staining	20-50 cmbs: gray (10YR 6/1) with yellowish brown (7.5YR 5/6) clay	n/a	Negative
JEP071323A	Transect J1, Shovel Test 4 @ 90m	0-20 cmbs: grayish brown (10YR 5/2) clay with iron staining	20-50 cmbs: gray (10YR 6/1) with yellowish brown (7.5YR 5/6) clay	n/a	Negative
JEP071323A	Transect J1, Shovel Test 5 @ 120m	0-50 cmbs: dark gray (10YR 4/1) with yellowish brown (10YR 5/6) clay	n/a	n/a	Negative
JEP071323A	Transect J2, Shovel Test 1 @ 0m	n/a	n/a	n/a	Not Excavated
JEP071323A	Transect J2, Shovel Test 2 @ 30m	n/a	n/a	n/a	Not Excavated
JEP071323A	Transect J2, Shovel Test 3 @ 60m	n/a	n/a	n/a	Not Excavated
JEP071323A	Transect J2, Shovel Test 4 @ 83m	n/a	n/a	n/a	Not Excavated
JEP071323A	Transect 1, Shovel Test 1 @ 0m	n/a	n/a	n/a	Not Excavated
JEP071323A	Transect 1, Shovel Test 2 @ 30m	n/a	n/a	n/a	Not Excavated
JEP071323A	Transect 1, Shovel Test 3 @ 60m	0-35 cmbs: dark gray (10YR 4/1) clay	35-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 1, Shovel Test 4 @ 90m	0-25 cmbs: dark gray (10YR 4/1) clay	25-50 cmbs: gray (10YR 5/1) clay with iron staining	n/a	Negative
JEP071323A	Transect 1, Shovel Test 5 @ 120m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 1, Shovel Test 6 @ 150m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 1, Shovel Test 7 @ 180m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 1, Shovel Test 8 @ 210m	0-25 cmbs: dark gray (10YR 4/1) clay	25-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 1, Shovel Test 9 @ 240m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 1, Shovel Test 10 @ 270m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 1, Shovel Test 11 @ 300m	0-20 cmbs: dark gray (10YR 4/1) clay	20-50 cmbs: gray (10YR 5/1) clay	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP071323A	Transect 1, Shovel Test 12 @ 330m	0-40 cmbs: gray (10YR 4/1) clay	40-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 1, Shovel Test 13 @ 360m	0-20 cmbs: dark grayish brown (10YR 4/2) clay	20-50 cmbs: gray (10YR 5/1) with strong brown (7.5YR 5/6) clay	n/a	Negative
JEP071323A	Transect 1, Shovel Test 14 @ 390m	0-35 cmbs: dark gray (10YR 4/1) clay	35-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 1, Shovel Test 15 @ 420m	0-25 cmbs: dark gray (10YR 4/1) clay	25-50 cmbs: gray (10YR 5/1) with strong brown (7.5YR 5/8) clay	n/a	Negative
JEP071323A	Transect 1, Shovel Test 16 @ 450m	0-40 cmbs: dark gray (10YR 4/1) clay	40-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 1, Shovel Test 17 @ 480m	0-20 cmbs: dark gray (10YR 4/1) clay	40-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 1, Shovel Test 18 @ 510m	n/a	n/a	n/a	Not Excavated
JEP071323A	Transect 1, Shovel Test 19 @ 540m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with iron staining	n/a	n/a	Negative
JEP071323A	Transect 1, Shovel Test 20 @ 570m	0-35 cmbs: dark gray (10YR 4/1) clay mottled with iron staining	35-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 1, Shovel Test 21 @ 600m	0-40 cmbs: dark gray (10YR 4/1) clay	40-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 1, Shovel Test 22 @ 630m	0-20 cmbs: dark gray (10YR 4/1) clay	20-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 1, Shovel Test 23 @ 660m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 1, Shovel Test 24 @ 690m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 1, Shovel Test 25 @ 720m	0-25 cmbs: dark gray (10YR 4/1) clay	25-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 1, Shovel Test 26 @ 750m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 1, Shovel Test 27 @ 780m	0-40 cmbs: dark gray (10YR 4/1) clay	40-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 1, Shovel Test 28 @ 810m	0-50 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Negative
JEP071323A	Transect 1, Shovel Test 29 @ 840m	0-35 cmbs: dark gray (10YR 4/1) clay	35-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 1, Shovel Test 30 @ 870m	0-40 cmbs: dark gray (10YR 4/1) clay	40-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 1, Shovel Test 31 @ 900m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 1, Shovel Test 32 @ 930m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 1, Shovel Test 33 @ 960m	0-40 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/6)	40-50 cmbs: gray (10YR 6/1) clay mottled with strong brown (7.5YR 5/6)	n/a	Negative
JEP071323A	Transect 1, Shovel Test 34 @ 990m	0-30 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/6)	30-50 cmbs: gray (10YR 6/1) clay mottled with strong brown (7.5YR 5/6)	n/a	Negative
JEP071323A	Transect 1, Shovel Test 35 @ 1020m	0-30 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/6)	30-50 cmbs: gray (10YR 6/1) clay mottled with strong brown (7.5YR 5/6)	n/a	Negative
JEP071323A	Transect 1, Shovel Test 36 @ 1050m	0-30 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/6)	30-50 cmbs: gray (10YR 6/1) clay mottled with strong brown (7.5YR 5/6)	n/a	Negative
JEP071323A	Transect 1, Shovel Test 37 @ 1080m	0-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/8)	n/a	n/a	Negative
JEP071323A	Transect 1, Shovel Test 38 @ 1110m	0-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/8)	n/a	n/a	Negative

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP071323A	Transect 1, Shovel Test 39 @ 1140m	0-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/8)	n/a	n/a	Negative
JEP071323A	Transect 1, Shovel Test 40 @ 1170m	0-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/8)	n/a	n/a	Negative
JEP071323A	Transect 1, Shovel Test 41 @ 1200m	0-50 cmbs: dark grayish brown (10YR 4/2) clay mottled with strong brown (7.5YR 5/6) iron staining	n/a	n/a	Negative
JEP071323A	Transect 1, Shovel Test 42 @ 1230m	0-30 cmbs: dark grayish brown (10YR 4/2) clay mottled with strong brown (7.5YR 5/6) iron staining	30-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) iron staining	n/a	Negative
JEP071323A	Transect 1, Shovel Test 43 @ 1260m	0-30 cmbs: dark grayish brown (10YR 4/2) clay mottled with strong brown (7.5YR 5/6) iron staining	30-50 cmbs: gray (10YR 5/10 clay mottled with strong brown (7.5YR 5/6) iron staining	n/a	Negative
JEP071323A	Transect 1, Shovel Test 44 @ 1290m	0-30 cmbs: dark grayish brown (10YR 4/2) clay mottled with strong brown (7.5YR 5/6) iron staining	30-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) iron staining	n/a	Negative
JEP071323A	Transect 1, Shovel Test 45 @ 1320m	0-50 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 5/6)	n/a	n/a	Negative
JEP071323A	Transect 2, Shovel Test 1 @ 0m	0-40 cmbs: dark gray (10YR 4/1) silty clay	40-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 2, Shovel Test 2 @ 30m	0-30 cmbs: dark gray (10YR 4/1) silty clay	30-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 2, Shovel Test 3 @ 60m	0-35 cmbs: dark gray (10YR 4/1) silty clay	35-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 2, Shovel Test 4 @ 90m	0-35 cmbs: dark gray (10YR 4/1) silty clay	35-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 2, Shovel Test 5 @ 120m	0-25 cmbs: dark gray (10YR 4/1) silty clay	25-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 2, Shovel Test 6 @ 150m	0-30 cmbs: dark gray (10YR 4/1) silty clay	30-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 2, Shovel Test 7 @ 180m	0-30 cmbs: dark gray (10YR 4/1) silty clay	30-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 2, Shovel Test 8 @ 210m	0-30 cmbs: dark gray (10YR 4/1) silty clay	30-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 2, Shovel Test 9 @ 240m	0-35 cmbs: dark gray (10YR 4/1) clay	35-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 2, Shovel Test 10 @ 270m	0-20 cmbs: dark gray (10YR 4/1) clay	20-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/8)	n/a	Negative
JEP071323A	Transect 2, Shovel Test 11 @ 300m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/8)	n/a	Negative
JEP071323A	Transect 2, Shovel Test 12 @ 330m	0-20 cmbs: dark gray (10YR 4/1) clay	20-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/8)	n/a	Negative
JEP071323A	Transect 2, Shovel Test 13 @ 360m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: gray (10YR 5/1) clay with iron staining	n/a	Negative
JEP071323A	Transect 2, Shovel Test 14 @ 390m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: gray (10YR 5/1) clay with iron staining	n/a	Negative
JEP071323A	Transect 2, Shovel Test 15 @ 420m	0-50 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Negative
JEP071323A	Transect 2, Shovel Test 16 @ 450m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6)	n/a	Negative
JEP071323A	Transect 2, Shovel Test 17 @ 480m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with iron staining	n/a	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP071323A	Transect 2, Shovel Test 18 @ 510m	0-20 cmbs: dark gray (10YR 4/1) clay	20-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 2, Shovel Test 19 @ 540m	0-20 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/8) iron staining	20-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 2, Shovel Test 20 @ 570m	0-25 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/8) iron staining	25-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 2, Shovel Test 21 @ 600m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 2, Shovel Test 22 @ 630m	0-35 cmbs: dark gray (10YR 4/1) clay	35-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 2, Shovel Test 23 @ 660m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 2, Shovel Test 24 @ 690m	0-40 cmbs: dark gray (10YR 4/1) clay	40-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 2, Shovel Test 25 @ 720m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 2, Shovel Test 26 @ 750m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 2, Shovel Test 27 @ 780m	0-35 cmbs: dark gray (10YR 4/1) clay	35-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 2, Shovel Test 28 @ 810m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 2, Shovel Test 29 @ 840m	0-35 cmbs: dark gray (10YR 4/1) clay	35-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 2, Shovel Test 30 @ 870m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 2, Shovel Test 31 @ 900m	0-35 cmbs: dark gray (10YR 4/1) clay	35-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 2, Shovel Test 32 @ 930m	0-40 cmbs: dark gray (10YR 4/1) clay	40-50 cmbs: gray (10YR 5/1) clay mottled with iron staining	n/a	Negative
JEP071323A	Transect 2, Shovel Test 33 @ 960m	0-20 cmbs: dark gray (10YR 4/1) clay	20-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 2, Shovel Test 34 @ 990m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 2, Shovel Test 35 @ 1020m	0-20 dark gray (10YR 4/1) clay	20-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 2, Shovel Test 36 @ 1050m	0-25 cmbs: dark gray (10YR 4/1) clay	25-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP071323A	Transect 2, Shovel Test 37 @ 1080m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6)	n/a	Negative
JEP071323A	Transect 2, Shovel Test 38 @ 1110m	0-35 cmbs: dark gray (10YR 4/1) clay	35-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6)	n/a	Negative
JEP071323A	Transect 2, Shovel Test 39 @ 1140m	0-30 cmbs: dark gray (10YR 4/1) clay	30-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6)	n/a	Negative
JEP071323A	Transect 2, Shovel Test 40 @ 1170m	0-35 cmbs: dark gray (10YR 4/1) clay	35-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6)	n/a	Negative
JEP071323A	Transect 2, Shovel Test 41 @ 1200m	0-50 cmbs: dark gray (10YR 4/1) silty clay	n/a	n/a	Negative
JEP071323A	Transect 2, Shovel Test 42 @ 1230m	0-50 cmbs: dark gray (10YR 4/1) silty clay	n/a	n/a	Negative
JEP071323A	Transect 2, Shovel Test 43 @ 1260m	0-50 cmbs: dark gray (10YR 4/1) silty clay	n/a	n/a	Negative
JEP071323A	Transect 2, Shovel Test 44 @ 1290m	0-50 cmbs: dark gray (10YR 4/1) silty clay	n/a	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP071323A	Transect 2, Shovel Test 45 @ 1320m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/6)	n/a	n/a	Negative
JEP071923A	Transect J, Shovel Test J1	0-20 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP071923A	Transect J1, Shovel Test 1 @ 0m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP071923A	Transect J1, Shovel Test 2 @ 30m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP071923A	Transect J1, Shovel Test 3 @ 60m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP071923A	Transect 1, Shovel Test 1 @ 0m	0-50 cmbs: dark gray (10YR 4/1) clay dry and compact	n/a	n/a	Negative
JEP071923A	Transect 1, Shovel Test 2 @ 30m	0-20 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Negative
JEP071923A	Transect 1, Shovel Test 3 @ 60m	0-20 cmbs: dark gray (10YR 4/1) clay dry	20-50 cmbs: gray (10YR 5/1) clay dry	n/a	Negative
JEP071923A	Transect 1, Shovel Test 4 @ 90m	0-50 cmbs: dark gray (10YR 4/1) clay dry and compact	n/a	n/a	Negative
JEP071923A	Transect 1, Shovel Test 5 @ 120m	0-50 cmbs: dark gray (10YR 4/1) clay dry	n/a	n/a	Negative
JEP071923A	Transect 1, Shovel Test 6 @ 150m	0-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/8)	n/a	n/a	Negative
JEP071923A	Transect 1, Shovel 7 @ 180m	0-50 cmbs: gray (10YR 5/1) clay dry	n/a	n/a	Negative
JEP071923A	Transect 1, Shovel Test 8 @ 210m	0-50 cmbs: gray (10YR 5/1) clay very dry	n/a	n/a	Negative
JEP071923A	Transect 1, Shovel Test 9 @ 240m	0-50 cmbs: dark gray (10YR 4/1) clay dry and compact	n/a	n/a	Negative
JEP071923A	Transect 1, Shovel Test 10 @ 270m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/8)	n/a	n/a	Negative
JEP071923A	Transect 1, Shovel Test 11 @ 300m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/8) iron staining very dry	n/a	n/a	Negative
JEP071923A	Transect 1, Shovel Test 12 @ 330m	0-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6)	n/a	n/a	Negative
JEP071923A	Transect 1, Shovel Test 13 @ 360m	0-50 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Negative
JEP071923A	Transect 1, Shovel Test 14 @ 381m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/6)	n/a	n/a	Negative
JEP071923A	Transect 2, Shovel Test 1 @ 0m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP071923A	Transect 2, Shovel Test 2 @ 30m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP071923A	Transect 2, Shovel Test 3 @ 60m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP071923A	Transect 2, Shovel Test 4 @ 90m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP071923A	Transect 2, Shovel Test 5 @ 120m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP071923A	Transect 2, Shovel Test 6 @ 150m	0-50 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Negative
JEP071923A	Transect 2, Shovel Test 7 @ 180m	0-50 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Negative
JEP071923A	Transect 2, Shovel Test 8 @ 210m	0-50 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Negative
JEP071923A	Transect 2, Shovel Test 9 @ 240m	0-50 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Negative
JEP071923A	Transect 2, Shovel Test 10 @ 270m	0-50 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP071923A	Transect 2, Shovel Test 11 @ 300m	0-50 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Negative
JEP071923A	Transect 2, Shovel Test 12 @ 330m	0-50 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Negative
JEP071923A	Transect 2, Shovel Test 13 @ 354m	0-50 cmbs: gray (10YR 5/1) clay	n/a	n/a	Negative
JEP0800323B	Transect J, Shovel Test J1	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP0800323B	Transect J1, Shovel Test 1 @ 0m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP0800323B	Transect J1, Shovel Test 2 @ 50m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP0800323B	Transect J2, Shovel Test 1 @ 0m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP0800323B	Transect J2, Shovel Test 2 @ 50m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP0800323B	Transect 1, Shovel Test 1 @ 0m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/8) Fe	n/a	n/a	Negative
JEP0800323B	Transect 1, Shovel Test 2 @ 50m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP0800323B	Transect 1, Shovel Test 3 @ 100m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP0800323B	Transect 1, Shovel Test 4 @ 150m	0-50 cmbs: grayish brown (10YR 5/2) silty clay	n/a	n/a	Negative
JEP0800323B	Transect 1, Shovel Test 5 @ 200m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP0800323B	Transect 1, Shovel Test 6 @ 250m	0-50 cmbs: gray (10YR 5/1) silty clay	n/a	n/a	Negative
JEP080123A	Transect J1, Shovel Test 1 @ 0m	n/a	n/a	n/a	Not Excavated
JEP080123A	Transect J1, Shovel Test 2 @ 50m	n/a	n/a	n/a	Not Excavated
JEP080123A	Transect J1, Shovel Test 3 @ 78m	n/a	n/a	n/a	Not Excavated
JEP080123A	Transect 1, Shovel Test 1 @ 0m	0-20 cmbs: gray (10YR 5/1) clay	20-50 cmbs: gray (10YR 6/1) clay mottled with strong brown (7.5YR 5/6) Fe	n/a	Negative
JEP080123A	Transect 1, Shovel Test 2 @ 50m	0-25 cmbs: very dark gray (10YR 3/1) clay	25-50 cmbs: gray (10YR 6/1) clay	n/a	Negative
JEP080123A	Transect 1, Shovel Test 3 @ 100m	0-20 cmbs: very dark gray (10YR 3/1) clay	20-50 cmbs: gray (10YR 6/1) clay mottled with strong brown (7.5YR 5/6) Fe	n/a	Negative
JEP080123A	Transect 1, Shovel Test 4 @ 150m	0-50 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Negative
JEP080123A	Transect 1, Shovel Test 5 @ 200m	0-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) Fe	n/a	n/a	Negative
JEP080123A	Transect 1, Shovel Test 6 @ 250m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP080123A	Transect 1, Shovel Test 7 @ 300m	0-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) iron compact	n/a	n/a	Negative
JEP080123A	Transect 1, Shovel Test 8 @ 350m	0-50 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Negative
JEP080123A	Transect 1, Shovel Test 9 @ 400m	0-50 cmbs: dark gray (10YR 4/1) clay compact	n/a	n/a	Negative
JEP080123A	Transect 1, Shovel Test 10 @ 450m	0-50 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Negative
JEP080123A	Transect 1, Shovel Test 11 @ 500m	0-50 cmbs: gray (10YR 5/1) clay	n/a	n/a	Negative
JEP080123A	Transect 1, Shovel Test 12 @ 550m	0-50 cmbs: gray (10YR 5/1) silty clay	n/a	n/a	Negative

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP080123A	Transect 1, Shovel Test 13 @ 600m	0-50 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 5/8) Fe	n/a	n/a	Negative
JEP080123A	Transect 1, Shovel Test 14 @ 650m	0-50 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Negative
JEP080123B	Transect J, Shovel Test J1	0-20 cmbs: dark gray (10YR 4/1) clay	20-50 cmbs: grayish brown (10YR 5/2) clay	n/a	Negative
JEP080223A	Transect 1, Shovel Test 1 @ 0m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080223A	Transect 1, Shovel Test 2 @ 50m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080223A	Transect 1, Shovel Test 3 @ 100m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080223A	Transect 1, Shovel Test 4 @ 150m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080223B	Transect J, Shovel Test J1	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080223B	Transect J, Shovel Test J2	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080223B	Transect 1, Shovel Test 1 @ 0m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080223B	Transect 1, Shovel Test 2 @ 30m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080223B	Transect 1, Shovel Test 3 @ 60m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080223B	Transect 1, Shovel Test 4 @ 90m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080223B	Transect 1, Shovel Test 5 @ 120m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080223B	Transect 1, Shovel Test 6 @ 150m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080223B	Transect 1, Shovel Test 7 @ 180m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080223B	Transect 1, Shovel Test 8 @ 210m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080223B	Transect 1, Shovel Test 9 @ 240m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080223B	Transect 1, Shovel Test 10 @ 270m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP080223B	Transect 1, Shovel Test 11 @ 300m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080223B	Transect 1, Shovel Test 12 @ 330m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080223B	Transect 1, Shovel Test 13 @ 360m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080223B	Transect 1, Shovel Test 14 @ 390m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080223B	Transect 1, Shovel Test 15 @ 413m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080223B	Transect 2, Shovel Test 1 @ 0m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080223B	Transect 2, Shovel Test 2 @ 30m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080223B	Transect 2, Shovel Test 3 @ 60m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080223B	Transect 2, Shovel Test 4 @ 90m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080223B	Transect 2, Shovel Test 5 @ 120m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080223B	Transect 2, Shovel Test 6 @ 150m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080223B	Transect 2, Shovel Test 7 @ 180m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP080223B	Transect 2, Shovel Test 8 @ 210m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080223B	Transect 2, Shovel Test 9 @ 240m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080223B	Transect 2, Shovel Test 10 @ 270m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080223B	Transect 2, Shovel Test 11 @ 300m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080223B	Transect 2, Shovel Test 12 @ 330m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080223B	Transect 2, Shovel Test 13 @ 360m	0-50 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 5/6) iron staining	n/a	n/a	Negative
JEP080223B	Transect 2, Shovel Test 14 @ 390m	0-50 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 5/6) iron staining	n/a	n/a	Negative
JEP080223B	Transect 2, Shovel Test 15 @ 415m	0-50 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 5/6) iron staining	n/a	n/a	Negative
JEP080323A	Transect J1, Shovel Test 1 @ 0m	0-50 cmbs: grayish brown (10YR 5/2) silty clay	n/a	n/a	Negative
JEP080323A	Transect J1, Shovel Test 2 @ 50m	0-50 cmbs: grayish brown (10YR 5/2) silty clay	n/a	n/a	Negative
JEP080323A	Transect J2, Shovel Test 1 @ 0m	0-20 cmbs: dark grayish brown (10YR 4/2) silty clay	20-50 cmbs: grayish brown (10YR 5/2) clay	n/a	Negative
JEP080323A	Transect J2, Shovel Test 2 @ 50m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080323A	Transect J2, Shovel Test 3 @ 100m	0-30 cmbs: dark grayish brown (10YR 4/2) silty clay loam	30-50 cmbs: light gray (10YR 7/2) silty clay	n/a	Negative
JEP080323A	Transect J3, Shovel Test 1 @ 0m	n/a	n/a	n/a	Not Excavated
JEP080323A	Transect J3, Shovel Test 2 @ 50m	n/a	n/a	n/a	Not Excavated
JEP080323A	Transect J3, Shovel Test 3 @ 95m	n/a	n/a	n/a	Not Excavated
JEP080323A	Transect 1, Shovel Test 1 @ 0m	0-30 cmbs: grayish brown (10YR 5/2) clay	30-50 cmbs: light brownish gray (10YR 6/2) clay	n/a	Negative
JEP080323A	Transect 1, Shovel Test 2 @ 50m	0-50 cmbs: grayish brown (10YR 5/2) silty clay	n/a	n/a	Negative
JEP080323A	Transect 1, Shovel Test 3 @ 100m	0-50 cmbs: grayish brown (10YR 5/2) silty clay	n/a	n/a	Negative
JEP080323A	Transect 1, Shovel Test 4 @ 150m	0-50 cmbs: brown (10YR 5/3) sandy loam	n/a	n/a	Negative
JEP080323A	Transect 1, Shovel Test 5 @ 200m	0-30 cmbs: dark grayish brown (10YR 4/2) silty clay loam	30-50 cmbs: light gray (10YR 7/1) silty clay mottled with red (5YR 5/6) silty clay	n/a	Negative
JEP080323A	Transect 1, Shovel Test 6 @ 250m	n/a	n/a	n/a	Not Excavated
JEP080323A	Transect 1, Shovel Test 7 @ 300m	0-5 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080723A	Transect 1, Shovel Test 1 @ 0m	0-50 cmbs: very dark grayish brown (10YR 3/2) clay	n/a	n/a	Negative
JEP080723A	Transect 1, Shovel Test 2 @ 30m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP080723A	Transect 1, Shovel Test 3 @ 60m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP080723A	Transect 1, Shovel Test 4 @ 90m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP080723A	Transect 1, Shovel Test 5 @ 120m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP080723A	Transect 1, Shovel Test 6 @ 150m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP080723A	Transect 1, Shovel Test 7 @ 180m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP080723A	Transect 1, Shovel Test 8 @ 210m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP080723A	Transect 1, Shovel Test 9 @ 240m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP080723A	Transect 1, Shovel Test 10 @ 270m	0-50 cmbs: gray (10YR 5/1) clay mottled with FeO2 stain	n/a	n/a	Negative
JEP080723A	Transect 1, Shovel Test 11 @ 300m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP080723A	Transect 1, Shovel Test 12 @ 330m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP080723A	Transect 1, Shovel Test 13 @ 360m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP080723A	Transect 1, Shovel Test 14 @ 390m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP080723A	Transect 1, Shovel Test 15 @ 420m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP080723A	Transect 1, Shovel Test 16 @ 450m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP080723A	Transect 1, Shovel Test 17 @ 473m	0-50 cmbs: dark grayish brown (10YR 4/2) silty clay	n/a	n/a	Negative
JEP080723A	Transect 2, Shovel Test 1 @ 0m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP080723A	Transect 2, Shovel Test 2 @ 30m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP080723A	Transect 2, Shovel Test 3 @ 60m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP080723A	Transect 2, Shovel Test 4 @ 90m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080723A	Transect 2, Shovel Test 5 @ 120m	0-50 cmbs: very dark gray (10YR 3/1) clay	n/a	n/a	Negative
JEP080723A	Transect 2, Shovel Test 6 @ 150m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080723A	Transect 2, Shovel Test 7 @ 180m	0-30 cmbs: dark grayish brown (10YR 4/2) clay	30-50 cmbs: grayish brown (10YR 5/2) clay	n/a	Negative
JEP080723A	Transect 2, Shovel Test 8 @ 210m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080723A	Transect 2, Shovel Test 9 @ 240m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP080723A	Transect 2, Shovel Test 10 @ 270m	0-20 cmbs: light gray (10YR 7/1) clay mottled with strong brown (7.5YR 5/6) Fe	n/a	n/a	Negative
JEP080723A	Transect 2, Shovel Test 11 @ 300m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP080723A	Transect 2, Shovel Test 12 @ 330m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080723A	Transect 2, Shovel Test 13 @ 360m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP080723A	Transect 2, Shovel Test 14 @ 390m	0-50 cmbs: pale brown (10YR 6/3) clay	n/a	n/a	Negative
JEP080723A	Transect 2, Shovel Test 15 @ 420m	0-50 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Negative
JEP080723A	Transect 2, Shovel Test 16 @ 450m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080723A	Transect 2, Shovel Test 17 @ 467m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP080823A	Transect J, Shovel Test J1	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP080823A	Transect J, Shovel Test J2	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP080823A	Transect 1, Shovel Test 1 @ 0m	n/a	n/a	n/a	Not Excavated
JEP080823A	Transect 1, Shovel Test 2 @ 50m	0-35 cmbs: light brownish gray (10YR 6/2) silt loam	35-50 cmbs: light brownish gray (10YR 6/2) silty clay loam	n/a	Negative
JEP080823A	Transect 1, Shovel Test 3 @ 100m	0-50 cmbs: gray (10YR 5/1) sandy clay mottled with FeO2 stain	n/a	n/a	Negative
JEP080823A	Transect 1, Shovel Test 4 @ 150m	0-50 cmbs: light brownish gray (10YR 6/2) silty clay loam mottled with very pale brown (10YR 7/4) silty clay	n/a	n/a	Negative
JEP080823A	Transect 1, Shovel Test 5 @ 200m	0-50 cmbs: pale brown (10YR 6/3) silt loam compact	n/a	n/a	Negative
JEP080823A	Transect 1, Shovel Test 6 @ 250m	0-50 cmbs: grayish brown (10YR 5/2) silty clay loam	n/a	n/a	Negative
JEP080823A	Transect 1, Shovel Test 7 @ 300m	0-50 cmbs: very dark grayish brown (10YR 3/2) silty clay	n/a	n/a	Negative
JEP080823A	Transect 1, Shovel Test 8 @ 350m	0-30 cmbs: dark grayish brown (10YR 4/2) clay mottled with strong brown (7.5YR 5/8) Fe	30-50 cmbs: light gray (10YR 7/2) clay mottled with yellow (10YR 7/6)	n/a	Negative
JEP080823A	Transect 1, Shovel Test 9 @ 400m	0-50 cmbs: gray (10YR 5/1) silty clay mottled with iron stains	n/a	n/a	Negative
JEP080823A	Transect 1, Shovel Test 10 @ 450m	0-40 cmbs: dark grayish brown (10YR 4/2) silty clay	40-50 cmbs: very pale brown (10YR 7/3) silty clay	n/a	Negative
JEP082323A	Transect 1, Shovel Test 1 @ 0m	n/a	n/a	n/a	Not Excavated
JEP082323A	Transect 1, Shovel Test 2 @ 50m	0-50 cmbs: gray (10YR 5/1) clay compact	n/a	n/a	Negative
JEP082323A	Transect 1, Shovel Test 3 @ 100m	0-50 cmbs: gray (10YR 5/1) clay compact	n/a	n/a	Negative
JEP082323A	Transect 1, Shovel Test 4 @ 150m	0-50 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Negative
JEP082423A	Transect J1, Shovel Test 1 @ 0m	n/a	n/a	n/a	Not Excavated
JEP082423A	Transect J1, Shovel Test 2 @ 30m	n/a	n/a	n/a	Not Excavated
JEP082423A	Transect J1, Shovel Test 3 @ 60m	n/a	n/a	n/a	Not Excavated
JEP082423A	Transect J1, Shovel Test 4 @ 77m	n/a	n/a	n/a	Not Excavated
JEP082423A	Transect J2, Shovel Test 1 @ 0m	n/a	n/a	n/a	Not Excavated
JEP082423A	Transect J2, Shovel Test 2 @ 30m	n/a	n/a	n/a	Not Excavated
JEP082423A	Transect J2, Shovel Test 3 @ 60m	n/a	n/a	n/a	Not Excavated
JEP082423A	Transect J2, Shovel Test 4 @ 77m	n/a	n/a	n/a	Not Excavated
JEP082423A	Transect 1, Shovel Test 1 @ 0m	0-25 cmbs: Dary grayish brown (10YR 4/2) clay	25-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) iron compact	n/a	Negative
JEP082423A	Transect 1, Shovel Test 2 @ 30m	0-30 cmbs: dark grayish brown (10YR 4/2) clay	30-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) Fe	n/a	Negative
JEP082423A	Transect 1, Shovel Test 3 @ 60m	0-10 cmbs: dark grayish brown (10YR 4/2) clay compact	10-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) iron compact	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP082423A	Transect 1, Shovel Test 4 @ 90m	0-15 cmbs: dark grayish brown (10YR 4/2) clay	15-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) Fe	n/a	Negative
JEP082423A	Transect 1, Shovel Test 5 @ 120m	0-30 cmbs: dark grayish brown (10YR 4/2) cl compact	30-50 cmbs: gray (10YR 5/1) clay compact	n/a	Negative
JEP082423A	Transect 1, Shovel Test 6 @ 150m	0-45 cmbs: dark grayish brown (10YR 4/2) clay	45-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP082423A	Transect 1, Shovel Test 7 @ 180m	0-50 cmbs: dark grayish brown (10YR 4/2) clay mottled with strong brown (7.5YR 5/8) Fe	n/a	n/a	Negative
JEP082423A	Transect 1, Shovel Test 8 @ 210m	0-50 cmbs: dark grayish brown (10YR 4/2) clay mottled with strong brown (7.5YR 5/8) Fe	n/a	n/a	Negative
JEP082423A	Transect 2, Shovel Test 1 @ 0m	0-20 cmbs: dark gray (10YR 4/1) clay compact	20-50 cmbs: gray (10YR 5/1) clay compact	n/a	Negative
JEP082423A	Transect 2, Shovel Test 2 @ 30m	0-15 cmbs: dark gray (10YR 4/1) clay	15-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) Fe	n/a	Negative
JEP082423A	Transect 2, Shovel Test 3 @ 60m	0-20 cmbs: dark gray (10YR 4/1) clay	20-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) Fe	n/a	Negative
JEP082423A	Transect 2, Shovel Test 4 @ 90m	0-50 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Negative
JEP082423A	Transect 2, Shovel Test 5 @ 120m	0-20 cmbs: dark gray (10YR 4/1) clay compact	20-50 cmbs: gray (10YR 5/1) clay compact	n/a	Negative
JEP082423B	Transect 1, Shovel Test 1 @ 50m	0-50 cmbs: dark grayish brown (10YR 4/2) silty clay	n/a	n/a	Negative
JEP082423B	Transect 1, Shovel Test 2 @ 100m	0-50 cmbs: grayish brown (10YR 5/2) silty clay dry	n/a	n/a	Negative
JEP082423B	Transect 1, Shovel Test 3 @ 150m	0-50 cmbs: grayish brown (10YR 5/2) silty clay	n/a	n/a	Negative
JEP082423B	Transect 1, Shovel Test 4 @ 200m	0-50 cmbs: grayish brown (10YR 5/2) silty clay mottled with strong brown (7.5YR 5/6) Fe	n/a	n/a	Negative
JEP082423B	Transect 1, Shovel Test 5 @ 250m	0-50 cmbs: grayish brown (10YR 5/2) silty clay mottled with strong brown (7.5YR 5/6) Fe	n/a	n/a	Negative
JEP082423B	Transect 1, Shovel Test 6 @ 300m	0-50 cmbs: grayish brown (10YR 5/2) silty clay mottled with strong brown (7.5YR 5/6) Fe	n/a	n/a	Negative
JEP082423B	Transect 1, Shovel Test 7 @ 350m	0-50 cmbs: grayish brown (10YR 5/2) silty clay mottled with strong brown (7.5YR 5/6) Fe	n/a	n/a	Negative
JEP082423B	Transect 1, Shovel Test 8 @ 400m	0-50 cmbs: light brownish gray (10YR 6/2) silty clay mottled with strong brown (7.5YR 5/6) Fe	n/a	n/a	Negative
JEP082423B	Transect 1, Shovel Test 9 @ 450m	0-50 cmbs: grayish brown (10YR 5/2) silty clay very dry	n/a	n/a	Negative
JEP082423B	Transect 1, Shovel Test 10 @ 500m	0-50 cmbs: grayish brown (10YR 5/2) silty clay	n/a	n/a	Negative
JEP082423B	Transect 1, Shovel Test 11 @ 550m	0-50 cmbs: dark grayish brown (10YR 4/2) clay mottled with strong brown (7.5YR 5/6) Fe	n/a	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP082423B	Transect 1, Shovel Test 12 @ 600m	0-50 cmbs: grayish brown (10YR 5/2) silty clay mottled with strong brown (7.5YR 5/6) iron	n/a	n/a	Negative
JEP082423B	Transect 1, Shovel Test 13 @ 650m	0-50 cmbs: light gray (10YR 7/1) silty clay very dry	n/a	n/a	Negative
JEP082423B	Transect 1, Shovel Test 14 @ 700m	0-50 cmbs: grayish brown (10YR 5/2) silty clay	n/a	n/a	Negative
JEP082423B	Transect 1, Shovel Test 15 @ 750m	0-50 cmbs: light gray (10YR 7/1) silty clay mottled with strong brown (7.5YR 5/6) ironvery dry	n/a	n/a	Negative
JEP082423B	Transect 1, Shovel Test 16 @ 800m	0-50 cmbs: brown (10YR 5/3) silty clay mottled with strong brown (7.5YR 5/6) Fe	n/a	n/a	Negative
JEP082423B	Transect 1, Shovel Test 17 @ 850m	0-50 cmbs: light brownish gray (10YR 6/2) silty clay mottled with strong brown (7.5YR 5/6) ironvery dry	n/a	n/a	Negative
JEP082423B	Transect 1, Shovel Test 18 @ 900m	0-50 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (6.5YR 5/6) Fe	n/a	n/a	Negative
JEP082423B	Transect 1, Shovel Test 19 @ 950m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP082423B	Transect 1, Shovel Test 20 @ 1000m	0-50 cmbs: dark grayish brown (10YR 4/2) clay mottled with strong brown (7.5YR 5/8) Fe	n/a	n/a	Negative
JEP082423B	Transect 1, Shovel Test 21 @ 1050m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP082423B	Transect 1, Shovel Test 22 @ 1100m	0-50 cmbs: dark grayish brown (10YR 4/2) clay very dry	n/a	n/a	Negative
JEP082423B	Transect 1, Shovel Test 23 @ 1150m	0-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) Fe	n/a	n/a	Negative
JEP082423B	Transect 1, Shovel Test 24 @ 1200m	0-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) Fe	n/a	n/a	Negative
JEP082423B	Transect 1, Shovel Test 25 @ 1250m	0-50 cmbs: dark gray (10YR 4/1) clay compact	n/a	n/a	Negative
JEP082423B	Transect 1, Shovel Test 26 @ 1300m	0-50 cmbs: gray (10YR 5/1) clay	n/a	n/a	Negative
JEP082423B	Transect 1, Shovel Test 27 @ 1350m	0-20 cmbs: dark gray (10YR 4/1) clay compact	20-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) iron compact	n/a	Negative
JEP082423B	Transect 1, Shovel Test 28 @ 1400m	0-50 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Negative
JEP082423B	Transect 1, Shovel Test 29 @ 1450m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP082423B	Transect 1, Shovel Test 30 @ 1500m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP082423B	Transect 1, Shovel Test 31 @ 1550m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP082423B	Transect 1, Shovel Test 32 @ 1600m	0-30 cmbs: dark grayish brown (10YR 4/2) clay	30-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) Fe	n/a	Negative
JEP082423B	Transect 1, Shovel Test 33 @ 1633m	0-50 cmbs: very dark gray (10YR 3/1) clay	n/a	n/a	Negative
JEP111523A	Transect J, Shovel Test J1	0-5 cmbs: grayish brown (10YR 5/2) silt loam	5-50 cmbs: yellow (10YR 7/6) silty clay mottled with White (10YR 8/1) silty clay	n/a	Negative
JEP111523A	Transect J, Shovel J2	n/a	n/a	n/a	Not Excavated

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP111523A	Transect 1, Shovel Test 1 @ 0m	0-30 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 5/6) very wet	n/a	n/a	Negative
JEP111523A	Transect 1, Shovel Test 2 @ 50m	0-20 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 5/6) saturated	n/a	n/a	Negative
JEP111523A	Transect 1, Shovel Test 3 @ 100m	0-5 cmbs: grayish brown (10YR 5/2) silt loam	5-50 cmbs: yellow (10YR 7/6) silty clay mottled with White (10YR 8/1) silty clay	n/a	Negative
JEP111523A	Transect 1, Shovel Test 4 @ 150m	0-5 cmbs: grayish brown (10YR 5/2) silt loam	5-50 cmbs: yellow (10YR 7/6) silty clay mottled with White (10YR 8/1) silty clay	n/a	Negative
JEP111523A	Transect 1, Shovel Test 5 @ 200m	0-20 cmbs: grayish brown (10YR 5/2) clay saturated	n/a	n/a	Negative
JEP111523A	Transect 1, Shovel Test 6 @ 250m	0-20 cmbs: grayish brown (10YR 5/2) clay saturated	n/a	n/a	Negative
JEP111523A	Transect 1, Shovel Test 7 @ 300m	0-20 cmbs: grayish brown (10YR 5/2) clay saturated	n/a	n/a	Negative
JEP111523A	Transect 1, Shovel Test 8 @ 350m	0-15 cmbs: grayish brown (10YR 5/2) clay saturated	n/a	n/a	Negative
JEP111523A	Transect 1, Shovel Test 9 @ 400m	n/a	n/a	n/a	Not Excavated
JEP111523A	Transect 1, Shovel Test 10 @ 450m	0-10 cmbs: grayish brown (10YR 5/2) clay wet	n/a	n/a	Negative
JEP111523A	Transect 1, Shovel Test 11 @ 500m	0-15 cmbs grayish brown (10YR 5/2) clay saturated	n/a	n/a	Negative
JEP111523A	Transect 1, Shovel Test 12 @ 550m	0-10 cmbs: grayish brown (10YR 5/2) clay saturated	n/a	n/a	Negative
JEP111523A	Transect 1, Shovel Test 13 @ 600m	n/a	n/a	n/a	Not Excavated
JEP111523A	Transect 1, Shovel Test 14 @ 650m	0-50 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 5/8) Fe	n/a	n/a	Negative
JEP111523A	Transect 1, Shovel Test 15 @ 700m	0-10 cmbs: dark gray (10YR 4/1) silty clay	n/a	n/a	Negative
JEP111523A	Transect 1, Shovel Test 16 @ 750m	n/a	n/a	n/a	Not Excavated
JEP111523A	Transect 1, Shovel Test 17 @ 800m	n/a	n/a	n/a	Not Excavated
JEP111523A	Transect 1, Shovel Test 18 @ 850m	0-10 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP111523A	Transect 1, Shovel Test 19 @ 900m	0-15 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP111523A	Transect 1, Shovel Test 20 @ 950m	0-15 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP111523A	Transect 1, Shovel Test 21 @ 1000m	0-20 cmbs: grayish brown (10YR 5/2) clay wet	n/a	n/a	Negative
JEP111523A	Transect 1, Shovel Test 22 @ 1050m	0-10 cmbs: grayish brown (10YR 5/2) clay wet	n/a	n/a	Negative
JEP111523A	Transect 1, Shovel Test 23 @ 1100m	0-10 cmbs: grayish brown (10YR 5/2) clay wet	n/a	n/a	Negative
JEP111523A	Transect 1, Shovel Test 24 @ 1150m	n/a	n/a	n/a	Not Excavated
JEP111523A	Transect 1, Shovel Test 25 @ 1200m	n/a	n/a	n/a	Not Excavated
JEP111523A	Transect 1, Shovel Test 26 @ 1250m	0-10 cmbs: grayish brown (10YR 5/2) clay wet	n/a	n/a	Negative
JEP111523A	Transect 1, Shovel Test 27 @ 1300m	0-10 cmbs: grayish brown (10YR 5/2) clay wet	n/a	n/a	Negative
JEP111523A	Transect 1, Shovel Test 28 @ 1350m	0-10 cmbs: grayish brown (10YR 5/2) clay wet	n/a	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP111523A	Transect 1, Shovel Test 29 @ 1400m	0-10 cmbs: grayish brown (10YR 5/2) clay wet	n/a	n/a	Negative
JEP111523A	Transect 1, Shovel Test 30 @ 1450m	0-10 cmbs: grayish brown (10YR 5/2) clay saturated	n/a	n/a	Negative
JEP111523A	Transect 1, Shovel Test 31 @ 1500m	0-50 cmbs: grayish brown (10YR 5/2) clay mottled with yellow (10YR 7/6) clay	n/a	n/a	Negative
JEP111523A	Transect 1, Shovel Test 32 @ 1550m	0-10 cmbs: grayish brown (10YR 5/2) clay wet	n/a	n/a	Negative
JEP111523A	Transect 1, Shovel Test 33 @ 1600m	0-10 cmbs: grayish brown (10YR 5/2) clay saturated	n/a	n/a	Negative
JEP111523A	Transect 1, Shovel Test 34 @ 1650m	0-10 cmbs: grayish brown (10YR 5/2) clay saturated	n/a	n/a	Negative
JEP111523A	Transect 1, Shovel Test 35 @ 1700m	0-10 cmbs: grayish brown (10YR 5/2) clay saturated	n/a	n/a	Negative
JEP111523A	Transect 1, Shovel Test 36 @ 1750m	0-10 cmbs: grayish brown (10YR 5/2) clay saturated	n/a	n/a	Negative
JEP111623A	Transect J, Shovel Test J1	n/a	n/a	n/a	Not Excavated
JEP111623A	Transect J, Shovel Test J2	n/a	n/a	n/a	Not Excavated
JEP111623A	Transect J, Shovel Test J3	n/a	n/a	n/a	Not Excavated
JEP111623A	Transect J, Shovel Test J4	n/a	n/a	n/a	Not Excavated
JEP111623A	Transect J, Shovel Test J5	n/a	n/a	n/a	Not Excavated
JEP111623A	Transect J, Shovel Test J6	n/a	n/a	n/a	Not Excavated
JEP111623A	Transect J, Shovel Test J7	n/a	n/a	n/a	Not Excavated
JEP111623A	Transect J, Shovel Test J8	n/a	n/a	n/a	Not Excavated
JEP111623A	Transect J, Shovel Test J9	n/a	n/a	n/a	Not Excavated
JEP111623A	Transect J, Shovel Test J10	n/a	n/a	n/a	Not Excavated
JEP111623A	Transect J1, Shovel Test 1 @ 0m	n/a	n/a	n/a	Not Excavated
JEP111623A	Transect J1, Shovel Test 2 @ 50m	n/a	n/a	n/a	Not Excavated
JEP111623A	Transect J1, Shovel Test 3 @ 96m	0-30 cmbs: gray (10YR 5/1) clay wet	n/a	n/a	Negative
JEP111623A	Transect 1, Shovel Test 1 @ 25m	0-10 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP111623A	Transect 1, Shovel Test 2 @ 75m	n/a	n/a	n/a	Not Excavated
JEP111623A	Transect 1, Shovel Test 3 @ 125m	n/a	n/a	n/a	Not Excavated
JEP111623A	Transect 1, Shovel Test 4 @ 175m	n/a	n/a	n/a	Not Excavated
JEP111623A	Transect 1, Shovel Test 5 @ 225m	n/a	n/a	n/a	Not Excavated
JEP111623A	Transect 1, Shovel Test 6 @ 275m	n/a	n/a	n/a	Not Excavated
JEP111623A	Transect 1, Shovel Test 7 @ 325m	n/a	n/a	n/a	Not Excavated
JEP111623A	Transect 1, Shovel Test 8 @ 1175m	n/a	n/a	n/a	Not Excavated
JEP111623A	Transect 1, Shovel Test 9 @ 1225m	n/a	n/a	n/a	Not Excavated
JEP111623A	Transect 1, Shovel Test 10 @ 1275m	0-5 cmbs: very dark gray (10YR 3/1) silt loam	5-50 cmbs: light brownish gray (10YR 6/2) silty clay loam with iron stain	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP111623A	Transect 1, Shovel Test 11 @ 1325m	0-15 cmbs: black (10YR 2/1) loam	n/a	n/a	Negative
JEP111623A	Transect 1, Shovel Test 12 @ 1375m	0-50 cmbs: brown (10YR 4/3) silt loam	n/a	n/a	Negative
JEP111623A	Transect 1, Shovel Test 13 @ 1425m	0-25 cmbs: very dark grayish brown (10YR 3/2) silt loam	25-50 cmbs: light gray (10YR 7/1) silty clay loam with iron stain	n/a	Negative
JEP111623A	Transect 1, Shovel Test 14 @ 1475	0-15 cmbs: dark grayish brown (10YR 4/2) loam	15-25 cmbs: light brown (7.5YR 6/3) silty clay	n/a	Negative
JEP111623A	Transect 1, Shovel Test 15 @ 1525m	0-25 cmbs: very dark gray brown (10YR 3/2) silt loam with fine sand	25-50 cmbs: dark yellowish brown (10YR 4/4) silty clay	n/a	Negative
JEP111723A	Transect J, Shovel Test J1	0-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) iron (5%)	n/a	n/a	Negative
JEP111723A	Transect J, Shovel Test J2	0-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) iron (5%)	n/a	n/a	Negative
JEP111723A	Transect J, Shovel Test J3	0-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) iron (5%)	n/a	n/a	Negative
JEP111723A	Transect J, Shovel Test J4	0-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) iron (10%)	n/a	n/a	Negative
JEP111723A	Transect J1, Shovel Test 1 @ 0m	n/a	n/a	n/a	Not Excavated
JEP111723A	Transect J1, Shovel Test 2 @ 50m	0-50 cmbs: dark grayish brown (10YR 4/2) clay mottled with strong brown (7.5YR 5/8) iron (10%)	n/a	n/a	Negative
JEP111723A	Transect J1, Shovel Test 3 @ 100m	0-50 cmbs: dark grayish brown (10YR 4/2) clay mottled with strong brown (7.5YR 5/8) iron (10%)	n/a	n/a	Negative
JEP111723A	Transect J1, Shovel Test 4 @ 150m	0-50 cmbs: dark grayish brown (10YR 4/2) clay mottled with strong brown (7.5YR 5/8) iron (10%)	n/a	n/a	Negative
JEP111723A	Transect J2, Shovel Test 1 @ 0m	n/a	n/a	n/a	Not Excavated
JEP111723A	Transect J2, Shovel Test 2 @ 50m	0-50 cmbs: grayish brown (10YR 5/2) silty clay	n/a	n/a	Negative
JEP111723A	Transect J2, Shovel Test 3 @ 100m	0-15 cmbs: yellowish brown (10YR 5/4) silt loam and yellowish red (5YR 5/6) silt loam with 60% sandstone	n/a	n/a	Negative
JEP111723A	Transect J2, Shovel Test 4 @ 150m	0-50 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 5/6) iron (10%)	n/a	n/a	Negative
JEP111723A	Transect J3, Shovel Test 1 @ 0m	n/a	n/a	n/a	Not Excavated
JEP111723A	Transect J3, Shovel Test 2 @ 50m	n/a	n/a	n/a	Not Excavated
JEP111723A	Transect J3, Shovel Test 3 @ 100m	0-50 cmbs: grayish brown (10YR 5/2) clay mottled with 5% iron stain	n/a	n/a	Negative
JEP111723A	Transect J4, Shovel Test 1 @ 0m	0-50 cmbs: dark grayish (10YR 4/2) clay mottled with strong brown (7.5YR 5/8) iron (40%)	n/a	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP111723A	Transect J4, Shovel Test 2 @ 50m	0-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) iron (5%)	n/a	n/a	Negative
JEP111723A	Transect J4, Shovel Test 3 @ 100m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP111723A	Transect J4, Shovel Test 4 @ 150m	0-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) iron (5%)	n/a	n/a	Negative
JEP111723A	Transect J4, Shovel Test 5 @ 180m	0-50 cmbs: gray (10YR 5/1) clay mottled with a small pocket of yellow (10YR 7/8) silty clay @5cmbs	n/a	n/a	Negative
JEP111723A	Transect 1, Shovel Test 1 @ 0m	n/a	n/a	n/a	Not Excavated
JEP111723A	Transect 1, Shovel Test 2 @ 50m	0-50 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 5/6) iron (5%)	n/a	n/a	Negative
JEP111723A	Transect 1, Shovel Test 3 @ 100m	0-50 cmbs: grayish brown (10YR 5/2) clay mottled with 5% iron stain	n/a	n/a	Negative
JEP111723A	Transect 1, Shovel Test 4 @ 150m	0-20 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) iron (15%)	20-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) iron (5%)	n/a	Negative
JEP111723A	Transect 1, Shovel Test 5 @ 200m	0-50 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 5/6) 14%	n/a	n/a	Negative
JEP111723A	Transect 1, Shovel Test 6 @ 250m	0-50 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 5/6) 14%	n/a	n/a	Negative
JEP111723A	Transect 1, Shovel Test 7 @ 300m	0-50 cmbs: gray (10YR 6/1) clay mottled with strong brown (7.5YR 5/6) iron (20%)	n/a	n/a	Negative
JEP111723A	Transect 1, Shovel Test 8 @ 350m	0-50 cmbs: gray (10YR 6/1) clay mottled with strong brown (7.5YR 5/6) iron (20%)	n/a	n/a	Negative
JEP111723A	Transect 1, Shovel Test 9 @ 400m	0-50 cmbs: gray (10YR 6/1) clay mottled with strong brown (7.5YR 5/6) iron (20%)	n/a	n/a	Negative
JEP111723A	Transect 1, Shovel Test 10 @ 450m	0-50 cmbs: gray (10YR 6/1) clay mottled with strong brown (7.5YR 5/6) iron (15%)	n/a	n/a	Negative
JEP111723A	Transect 1, Shovel Test 11 @ 500m	0-50 cmbs: gray (10YR 6/1) mottled with strong brown (7.5YR 5/6) iron (15%)	n/a	n/a	Negative
JEP111723A	Transect 1, Shovel Test 12 @ 550m	0-50 cmbs: gray (10YR 6/1) mottled with strong brown (7.5YR 5/6) iron (15%)	n/a	n/a	Negative
JEP111723A	Transect 1, Shovel Test 13 @ 600m	0-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) iron (5%)	n/a	n/a	Negative
JEP111723A	Transect 1, Shovel Test 14 @ 650m	0-50 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Negative
JEP111723A	Transect 1, Shovel Test 15 @ 700m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/6) iron (10%)	n/a	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP111723A	Transect 1, Shovel Test 16 @ 750m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/6) iron (10%)	n/a	n/a	Negative
JEP111723A	Transect 1, Shovel Test 17 @ 800m	0-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) iron (5%)	n/a	n/a	Negative
JEP111723B	Transect J, Shovel Test J1	0-20 cmbs: brown (10YR 5/3) silt loam	20-50 cmbs: light brownish gray (10YR 6/2) silt loam	n/a	Negative
JEP111723B	Transect J, Shovel Test J2	n/a	n/a	n/a	Not Excavated
JEP111723B	Transect J1, Shovel Test 1 @ 0m	0-25 cmbs: dark grayish brown (10YR 4/2) silty clay loam	25-50 cmbs: grayish brown (10YR 5/2) silty clay loam	n/a	Negative
JEP111723B	Transect J1, Shovel Test 2 @ 50m	0-20 cmbs: dark grayish brown (10YR 4/2) silty clay	20-50 cmbs: very pale brown (10YR 7/4) silty clay	n/a	Negative
JEP111723B	Transect J1, Shovel Test 3 @ 84m	n/a	n/a	n/a	Not Excavated
JEP111723B	Transect J2, Shovel Test 1 @ 0m	0-20 cmbs: brown (10YR 5/3) silt loam	20-50 cmbs: very pale brown (10YR 7/4) silt loam	n/a	Negative
JEP111723B	Transect J2, Shovel Test 2 @ 50m	0-20 cmbs: brown (10YR 5/3) silt loam	20-50 cmbs: very pale brown (10YR 7/3) silty clay loam	n/a	Negative
JEP111723B	Transect J2, Shovel Test 3 @ 96m	n/a	n/a	n/a	Not Excavated
JEP111723B	Transect 1, Shovel Test 1 @ 0m	0-15 cmbs: grayish brown (10YR 5/2) silty clay	15-50 cmbs: very pale brown (10YR 7/4) silty clay	n/a	Negative
JEP111723B	Transect 1, Shovel Test 2 @ 50m	0-20 cmbs: brown (10YR 4/3) silt loam	20-50 cmbs: light brownish gray (10YR 6/2) silt loam mottled with strong brown (7.5YR 5/6) iron (5%)	n/a	Negative
JEP111723B	Transect 1, Shovel Test 3 @ 100m	0-20 cmbs: brown (10YR 4/3) silt loam	20-50 cmbs: light yellowish brown (10YR 6/4) silt loam compact	n/a	Negative
JEP111723B	Transect 1, Shovel Test 4 @ 150m	0-15 cmbs: brown (10YR 4/3) silt loam	15-50 cmbs: Lgith yellowish brown (10YR 6/4) silt loam	n/a	Negative
JEP111723B	Transect 1, Shovel Test 5 @ 200m	0-20 cmbs: brown (10YR 4/3) silt loam	20-50 cmbs: light yellowish brown (10YR 6/4) silt loam	n/a	Negative
JEP111723B	Transect 1, Shovel Test 6 @ 250m	0-15 cmbs: brown (10YR 4/3) silt loam	n/a	n/a	Negative
JEP111723B	Transect 1, Shovel Test 7 @ 300m	0-15 cmbs: brown (10YR 4/3) silt loam	n/a	n/a	Negative
JEP111723B	Transect 1, Shovel Test 8 @ 350m	0-50 cmbs: dark grayish brown (10YR 4/2) clay mottled with strong brown (7.5YR 5/8) iron (15%)	n/a	n/a	Negative
JEP111723B	Transect 1, Shovel Test 9 @ 400m	0-20 cmbs: brown (10YR 4/3) silt loam	20-30 cmbs: light gray (10YR 7/1) mottled with pale brown (10YR 6/3) sandy loam	n/a	Negative
JEP111723B	Transect 1, Shovel Test 10 @ 450m	0-15 cmbs: dark grayish brown (10YR 4/2) silty clay	15-50 cmbs: dark grayish brown (10YR 4/2) silt loam mottled with light gray (10YR 7/1) silt loam	n/a	Negative
JEP111723B	Transect 1, Shovel Test 11 @ 500m	0-20 cmbs: brown (10YR 4/3) silt loam	20-50 cmbs: light gray (10YR 7/1) silt loam mottled with strong brown (7.5YR 5/6) Fe	n/a	Negative
JEP111723B	Transect 1, Shovel Test 12 @ 550m	0-25 cmbs: brown (10YR 4/3) silt loam	25-50 cmbs: light gray (10YR 7/1) silt loam mottled with strong brown (7.5YR 5/6) iron compact	n/a	Negative
JEP111723B	Transect 1, Shovel Test 13 @ 600m	0-15 cmbs: grayish brown (10YR 5/2) silty clay	15-50 cmbs: light gray (10YR 7/1) silty clay mottled with White (10YR 8/1) silty clay	n/a	Negative
JEP111723B	Transect 1, Shovel Test 14 @ 650m	0-10 cmbs: brown (10YR 4/3) silt loam	10-20 cmbs: light brownish gray (10YR 6/2) silt loam	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP111723B	Transect 1, Shovel Test 15 @ 700m	0-30 cmbs: brown (10YR 4/3) silt loam	30-50 cmbs: very pale brown (10YR 7/3) silt loam mottled with brownish yellow (10YR 6/6) silt loam compact	n/a	Negative
JEP111723B	Transect 1, Shovel Test 16 @ 750m	0-30 cmbs: brown (10YR 4/3) silt loam	30-50 cmbs: very pale brown (10YR 7/3) silt loam mottled with brownish yellow (10YR 6/6) silt loam	n/a	Negative
JEP111723B	Transect 1, Shovel Test 17 @ 800m	0-20 cmbs: brown (10YR 4/3) silt loam	20-50 cmbs: very pale brown (10YR 7/3) silt loam	n/a	Negative
JEP111723B	Transect 1, Shovel Test 18 @ 850m	0-25 cmbs: brown (10YR 4/3) silt loam	25-50 cmbs: very pale brown (10YR 7/3) silty clay loam	n/a	Negative
JEP111723B	Transect 1, Shovel Test 19 @ 900m	0-50 cmbs: brown (10YR 4/3) silt loam	n/a	n/a	Negative
JEP111723B	Transect 1, Shovel Test 20 @ 950m	0-25 cmbs: brown (10YR 4/3) silt loam	25-50 cmbs: very pale brown (10YR 7/3) silty clay loam	n/a	Negative
JEP111723B	Transect 1, Shovel Test 21 @ 1000m	0-30 cmbs: brown (10YR 4/3) silt loam	30-50 cmbs: light yellowish brown (10YR 6/4) silt loam	n/a	Negative
JEP111723B	Transect 1, Shovel Test 22 @ 1050m	0-20 cmbs: brown (10YR 4/3) silt loam	20-50 cmbs: light yellowish brown (10YR 6/4) silt loam	n/a	Negative
JEP111723B	Transect 1, Shovel Test 23 @ 1091m	n/a	n/a	n/a	Not Excavated
OGM102423A	Transect 1, Shovel Test 1 @ 0m	n/a	n/a	n/a	Not Excavated
OGM102423A	Transect 1, Shovel Test 2 @ 50m	0-20 cmbs: brown (10YR 4/3) clay loam wet	n/a	n/a	Negative
OGM102423A	Transect 1, Shovel Test 3 @ 100m	0-20 cmbs: gray (10YR 5/1) clay	20-50 cmbs: brownish yellow (10YR 6/6) clay	n/a	Negative
OGM102423A	Transect 1, Shovel Test 4 @ 150m	0-20 cmbs: brown (10YR 4/3) clay loam	20-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
OGM102423A	Transect 1, Shovel Test 5 @ 200m	0-50 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Negative
OGM102423A	Transect 1, Shovel Test 6 @ 250m	0-20 cmbs: dark gray (10YR 4/1) clay	20-50 cmbs: light brownish gray (10YR 6/2) silty clay	n/a	Negative
OGM102423A	Transect 1, Shovel Test 7 @ 300m	0-30 cmbs: gray (10YR 6/1) silt loam	30-50 cmbs: brownish yellow (10YR 6/6) silty clay	n/a	Negative
OGM102423A	Transect 1, Shovel Test 8 @ 350m	0-20 cmbs: gray (10YR 6/1) silt loam	20-50 cmbs: brownish yellow (10YR 6/6) silty clay	n/a	Negative
OGM102423A	Transect 1, Shovel Test 9 @ 400m	0-50 cmbs: gray (10YR 6/1) silt loam	n/a	n/a	Negative
OGM102423A	Transect 1, Shovel Test 10 @ 450m	0-50 cmbs: gray (10YR 6/1) silt loam	n/a	n/a	Negative
OGM102423A	Transect 1, Shovel Test 11 @ 500m	0-30 cmbs: gray (10YR 6/1) silt loam	30-50 cmbs: pale brown (10YR 6/3) silty clay	n/a	Negative
OGM102423A	Transect 1, Shovel Test 12 @ 550m	0-30 cmbs: gray (10YR 6/1) silt loam	30-50 cmbs: pale brown (10YR 6/3) silty clay	n/a	Negative
16AN89	N 1085 E 970	0-20 cmbs: dark grayish brown (10YR 4/2) clay	20-50 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR5/6) clay	n/a	Surface Collection
16AN89	N 1075 E 965	Positive	n/a	n/a	Positive and surface collection
16AN89	N 1085 E 965	0-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) clay	n/a	n/a	Negative
16AN89	N 1045 E 966	0-20 cmbs: dark grayish brown (10YR 4/2) clay	20-50 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR5/6) clay	n/a	Negative
16AN89	N 1022 E 1010	0-15 cmbs: dark gray (10YR 4/1) clay	15-50 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 5/6) clay	n/a	Surface Collection
16AN89	N 1000 E 1010	0-20 cmbs: dark gray (10YR 4/1) clay	TD @ 20 cmbs- H2O	n/a	Surface Collection
16AN89	N 970 E 1010	0-20 cmbs: brown (10YR 4/3) muck	20-50 cmbs: gray (10YR 5/1) clay mottled with strong brown 7.5YR 5/6) clay	n/a	Surface Collection

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
16AN89	N 1000 E 1015	0-50 cmbs: brown (10YR 4/3) silty clay	n/a	n/a	Positive and surface collection
16AN89	N 1140 E 1000	0-50 cmbs: grayish brown (10YR 5/2) clay saturated	n/a	n/a	Negative
16AN89	N 1120 E 980	0-50 cmbs: dark grayish brown (10YR 4/2) clay mottled with strong brown (7.5YR 5/8) iron oxide	n/a	n/a	Negative
16AN89	N 1120 E 1010	0-50 cmbs: grayish brown (10YR 5/2) clay saturated	n/a	n/a	Negative
16AN89	N 1120 E 990	0-20 cmbs: grayish brown (10YR 5/2) clay saturated	TD @ 20 cmbs- H2O	n/a	Negative
16AN89	N 1090 E 1015	0-50 cmbs: dark grayish brown (10YR 4/2) clay saturated	n/a	n/a	Negative
16AN89	N 1060 E 1020	n/a	n/a	n/a	Not Excavated
16AN89	N 1060 E 1010	0-30 cmbs: dark grayish brown (10YR 4/2) clay	30-50 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 5/6) clay	n/a	Negative
16AN89	N 1095 E 970	0-20 cmbs: dark grayish brown (10YR 4/2) clay	20-50 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR5/6) clay	n/a	Negative
16AN89	N 970 E 1015	0-20 cmbs: brown (10YR 4/3) muck	20-50 cmbs: gray (10YR 5/1) clay mottled with strong brown 7.5YR 5/6) clay	n/a	Negative
16AN89	N 910 E 1010	0-20 cmbs: brown (10YR 4/3) muck	20-50 cmbs: gray (10YR 5/1) clay mottled with strong brown 7.5YR 5/6) clay	n/a	Negative
16AN89	N 910 E 1015	0-30 cmbs: dark grayish brown (10YR 4/2) silty clay	TD @ 30 cmbs- H2O	n/a	Negative
16AN89	N 940 E 1010	0-20 cmbs: dark grayish brown (10YR 4/2) silty clay saturated	TD @ 20 cmbs- H2O	n/a	Surface Collection
16AN89	N 940 E 1015	0-20 cmbs: dark grayish brown (10YR 4/2) silty clay saturated	TD @ 20 cmbs- H2O	n/a	Negative
16AN89	N 890 E 1000	0-30 cmbs: dark grayish brown (10YR 4/2) silty clay	30-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/8) iron oxide	n/a	Negative
16AN89	N 900 E 1000	0-20 cmbs: dark grayish brown (10YR 4/2) silty clay saturated	TD @ 20 cmbs- H2O	n/a	Negative
16AN89	N 975 E 970	0-50 cmbs: dark grayish brown (10YR 4/2) clay mottled with strong brown (7.5YR 5/8) iron oxide	n/a	n/a	Negative
16AN89	N 885 E 970	0-50 cmbs: dark grayish brown (10YR 4/2) clay mottled with strong brown (7.5YR 5/6) iron oxide	n/a	n/a	Negative
16AN89	N 895 E 965	0-20 cmbs: dark grayish brown (10YR 4/2) clay mottled with strong brown (7.5YR 5/6) iron oxide saturated	TD @ 20 cmbs- H2O	n/a	Negative
16AN89	N 925 E 965	0-25 cmbs: dark grayish brown (10YR 4/2) silty clay	25-50 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 5/8) iron oxide	n/a	Negative
16AN89	N 955 E 965	0-20 cmbs: dark grayish brown (10YR 4/2) silty clay	20-50 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 5/8) iron oxide	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
16AN89	N 985 E 965	0-30 cmbs: dark grayish brown (10YR 4/2) silty clay	30-50 cmbs: light brownish gray (10YR 6/2) clay mottled with strong brown (7.5YR 5/8) iron oxide	n/a	Surface Collection
16AN89	N 1015 E 965	0-50 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Negative
16AN89	N 968 E 965	n/a	n/a	n/a	Not Excavated, Surface Collection
16AN32	N 750 E 1000	0-50 cmbs: dark grayish brown (10YR 4/2) clay with brick fragments	n/a	n/a	Negative
16AN32	N 720 E 1000	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
16AN32	N 710 E 1000	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
16AN32	N 730 N 990	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
16AN32	N 730 E 980	0-50 cmbs: dark grayish brown (10YR 4/2) clay mottled with strong brown (7.5YR5/6) iron oxide	n/a	n/a	Negative
16AN32	N 730 E 1009	0-50 cmbs: dark grayish brown (10YR 4/2) clay mottled with strong brown (7.5YR 5/6) iron oxide with 1% brick fragments	n/a	n/a	Negative
16AN32	N 930 E 980	0-50 cmbs: dark grayish brown (10YR 4/2) clay mottled with brown (7.5YR 5/4) clay	n/a	n/a	Negative
16AN32	N 930 E 990	0-50 cmbs: dark grayish brown (10YR 4/2) clay mottled with brown (7.5YR 5/4) clay	n/a	n/a	Negative
16AN32	N 950 E 970	0-50 cmbs: dark grayish brown (10YR 4/2) clay mottled with brown (7.5YR 5/4) clay	n/a	n/a	Negative
16AN32	N 960 E 970	0-50 cmbs: dark grayish brown (10YR 4/2) clay mottled with brown (7.5YR 5/4) clay	n/a	n/a	Negative
16AN32	N 920 E 1000	0-20 cmbs: brown (10YR 4/3) clay	20-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) clay	n/a	Negative
16AN32	N 910 E 1000	0-20 cmbs: brown (10YR 4/3) clay	20-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) clay	n/a	Negative
16AN32	N 930 E 960	0-50 cmbs: dark grayish brown (10YR 4/2) clay with 2% brick fragments	n/a	n/a	Negative
16AN32	N 740 E 1000	0-50 cmbs: dark grayish brown (10YR 4/2) clay with brick flecking	n/a	n/a	Negative
16AN32	N 1020 E 1000	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
16AN32	N 1010 E 1000	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
16AN32	N 1000 E 1009	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
16AN32	N 990 E 1000	0-20 cmbs: dark gray (10YR 4/1) clay	20-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) clay	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
16AN32	N 980 E 1000	0-20 cmbs: dark gray (10YR 4/1) clay	20-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) clay	n/a	Negative
16AN32	N 1000 E 990	0-20 cmbs: dark gray (10YR 4/1) clay	20-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) clay	n/a	Negative
16AN32	N 1000 E 980	0-20 cmbs: dark gray (10YR 4/1) clay	20-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) clay	n/a	Negative
AMH032923-01	N 1000 E 1000	0-20 cmbs: dark grayish brown (10YR 4/2) clay mottled with reddish yellow (7.5YR 6/6) iron oxide (20%)	20-30 cmbs: brown (10YR 5/3) clay mottled with reddish yellow (7.5YR 6/6) iron oxide (20%)	30-50 cmbs: gray (10YR 5/1) clay mottled with reddish yellow (7.5YR 6/6) iron oxide (20%)	Negative
AMH032923-01	N 1010 E 1000	0-30 cmbs: dark grayish brown (10YR 4/2) silty clay	30-50 cmbs: brown (10YR 5/3) silty clay	n/a	Brick fragment and modern glass on surface, did not collect
AMH032923-01	N 1020 E 1000	0-35 cmbs: dark grayish brown (10YR 4/2) silty clay	35-50 cmbs: brown (10YR 5/3) silty clay	n/a	Negative
AMH032923-01	N 1000 E 1010	0-30 cmbs: dark grayish brown (10YR 4/2) silty clay	30-50 cmbs: brown (10YR 5/3) silty clay	n/a	Negative
AMH032923-01	N 1000 E 1020	0-50 cmbs: dark grayish brown (10YR 4/2) silty clay	n/a	n/a	Negative
AMH032923-01	N 990 E 1000	0-35 cmbs: dark grayish brown (10YR 4/2) silty clay	35-50 cmbs: brown (10YR 5/3) clay mottled with reddish yellow (7.5YR 6/6) iron oxide (20%)	n/a	Negative
AMH032923-01	N 980 E 1000	0-10 cmbs: dark grayish brown (10YR 4/2) silty clay	10-50 cmbs: brown (10YR 5/3) silty clay	n/a	Negative
AMH032923-01	N 1000 E 990	0-25 cmbs: dark grayish brown (10YR 4/2) silty clay	25-50 cmbs: brown (10YR 5/3) silty clay	n/a	Negative
AMH032923-01	N 1000 E 980	0-50 cmbs: dark grayish brown (10YR 4/2) silty clay	n/a	n/a	Negative
AMH032923-02	N 1000 E 1000	0-50 cmbs: dark yellowish brown (10YR 4/4) silty clay mottled with dark gray (Gley 1 4/N) clay and reddish yellow (7.5YR 6/6) iron oxide	n/a	n/a	Negative
AMH032923-02	N 1010 E 1000	0-30 cmbs: brown (10YR 4/3) silty clay	30-40 cmbs: dark gray (Gley 1 4/N) clay	40-50 cmbs: brown (10YR 5/3) silty clay mottled with iron oxide	Negative
AMH032923-02	N 1020 E 1000	0-50 cmbs: dark grayish brown (10YR 4/2) silty clay mottled with dark gray (Gley 1 4/N) clay and reddish yellow (7.5YR 6/6) iron oxide	n/a	n/a	Negative
AMH032923-02	N 1000 E 1010	0-15 cmbs: dark grayish brown (10YR 4/2) silty clay	15-30 cmbs: dark gray (Gley 1 4/N) clay mottled with reddish yellow (7.5YR 6/6) iron oxide	30-50 cmbs: brown (10YR 5/3) silty clay mottled with iron oxide	Negative
AMH032923-02	N 1000 E 1020	0-20 cmbs: dark grayish brown (10YR 4/2) silty clay	20-50 cmbs: dark gray (Gley 1 4/N) clay mottled with reddish yellow (7.5YR 6/6) iron oxide	n/a	Negative
AMH032923-02	N 990 E 1000	0-10 cmbs: very dark gray (10YR 3/1) silty clay	10-50 cmbs: brown (10YR 5/3) silty clay mottled with reddish yellow (7.5YR 6/6) iron oxide	n/a	Negative
AMH032923-02	N 1000 E 980	0-10 cmbs: dark grayish brown (10YR 4/2) silty clay wet	10-35 cmbs: dark gray (Gley 1 4/N) clay mottled with strong brown (7.5YR 5/8) iron oxide	35-50 cmbs: grayish brown (10YR 5/2) silty clay mottled with iron oxide	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
AMH032923-02	N 1000 E 990	0-20 cmbs: dark grayish brown (10YR 4/2) silty clay	20-50 cmbs: brown (10YR 5/3) silty clay mottled with reddish brown (7.5YR 6/6) iron oxide	n/a	Negative
AMH032923-02	N 980 E 1000	0-50 cmbs: dark grayish brown (10YR 4/2) silty clay mottled with reddish yellow (7.5YR 6/6) iron oxide	n/a	n/a	Negative
AMH032923-07	N 1000 E 1000	0-50 cmbs: dark grayish brown (10YR 4/2) clay mottled with reddish brown (7.5YR 6/8) iron oxide (15%)	n/a	n/a	Negative
AMH032923-07	N 1010 E 1000	n/a	n/a	n/a	Not Excavated
AMH032923-07	N 1020 E 1000	n/a	n/a	n/a	Not Excavated
AMH032923-07	N 1000 E 1010	n/a	n/a	n/a	Not Excavated
AMH032923-07	N 1000 E 1020	n/a	n/a	n/a	Not Excavated
AMH032923-07	N 990 E 1000	0-50 cmbs: dark gray (10YR 4/1) silty clay	n/a	n/a	Negative
AMH032923-07	N 980 E 1000	0-50 cmbs: dark gray (10YR 4/1) silty clay	n/a	n/a	Negative
AMH032923-07	N 1000 E 990	n/a	n/a	n/a	Not Excavated
AMH032923-07	N 1000 E 980	n/a	n/a	n/a	Not Excavated
AMH032423A	Transect 1, Shovel Test 1 @ 0 m	n/a	n/a	n/a	Not Excavated
AMH032423A	Transect 1, Shovel Test 2 @ 30 m	n/a	n/a	n/a	Not Excavated
AMH032423A	Transect 1, Shovel Test 3 @ 60 m	0-20 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 4/6) compact	20-50 cmbs: brown (10YR 5/3) clay mottled with yellowish brown (10YR 5/8) clay iron oxide	n/a	Negative
AMH032423A	Transect 2, Shovel Test 1 @ 0 m	n/a	n/a	n/a	Not Excavated
AMH032423A	Transect 2, Shovel Test 2 @ 30 m	0-20 cmbs: light gray (10YR 7/1) silty clay	20-50 cmbs: dark gray (10YR 4/1) silty clay	n/a	Negative
AMH032423A	Transect 2, Shovel Test 3 @ 60 m	0-10 cmbs: dark gray (Gley 1 4/N) clay	10-50 cmbs: brown (10YR 5/3) silty clay mottled with reddish yellow (7.5YR 6/6) iron oxide	n/a	Negative
AMH032423A	Transect 3, Shovel Test 1 @ 0 m	n/a	n/a	n/a	Not Excavated
AMH032423A	Transect 3, Shovel Test 2 @ 30 m	0-20 cmbs: gray (10YR 5/1) silty clay	20-50 cmbs: gray (10YR 6/1) silty clay mottled with reddish yellow (7.5YR 6/6) iron oxide	n/a	Negative
AMH032423A	Transect 3, Shovel Test 3 @ 60 m	0-10 cmbs: dark gray (Gley 1 4/N) clay mottled with strong brown (7.5YR 4/6) iron oxide	10-50 cmbs: gray (10YR 5/1) clay mottled with reddish yellow (7.5YR 6/6) iron oxide	n/a	Negative
AMH032423A	Transect 4, Shovel Test 1 @ 0 m	n/a	n/a	n/a	Not Excavated
AMH032423A	Transect 4, Shovel Test 2 @ 30 m	n/a	n/a	n/a	Not Excavated
AMH032423A	Transect 4, Shovel Test 3 @ 60 m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with reddish brown (5YR 4/4) staining with 15% rangia shell	n/a	n/a	Negative
AMH032923A	Transect J, Shovel Test J1	0-20 cmbs: gray (Gley 1 5/N) clay mottled with strong brown (7.5YR 4/6) iron oxide (30%)	20-50 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 4/6) iron oxide (30%)	n/a	Negative
AMH032923A	Transect J, Shovel Test J2	0-50 cmbs: brown (10YR 5/3) clay; from 30-50 cmbs mottled with strong brown (7.5YR 4/6) iron oxide	n/a	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
AMH032923A	Transect J, Shovel Test J3	0-50 cmbs: dark grayish brown (10YR 4/2) silty clay mottled with reddish yellow (7.5 YR 6/6) iron oxide	n/a	n/a	Negative
AMH032923A	Transect 1, Shovel Test 1 @ 0 m	0-50 cmbs: grayish brown (10YR 5/2) silty clay mottled with reddish yellow (7.5YR 6/6) iron oxide	n/a	n/a	Negative
AMH032923A	Transect 1, Shovel Test 2 @ 30 m	0-20 cmbs: grayish brown (10YR 5/2) silty clay mottled with reddish yellow (7.5YR 6/6) iron oxide	20-50 cmbs: light brownish gray (10YR 6/2) silty clay mottled with reddish yellow (7.5YR 6/6) iron oxide	n/a	Negative
AMH032923A	Transect 2, Shovel Test 1 @ 0 m	0-50 cmbs: brown (10YR 5/3) clay dry	n/a	n/a	Negative
AMH032923A	Transect 2, Shovel Test 2 @ 30 m	0-50 cmbs: grayish brown (10YR 5/2) clay mottled with strong brown (7.5YR 4/6) iron oxide (20%)	n/a	n/a	Negative
AMH032923A	Transect 2, Shovel Test 3 @ 60 m	0-50 cmbs: grayish brown (10YR 5/2) clay mottled with reddish yellow (7.5YR 6/8) clay iron oxide (30%)	n/a	n/a	Negative
AMH032923A	Transect 2, Shovel Test 4 @ 90 m	0-10 cmbs: dark gray (Gley 1 4/N) clay mottled with strong brown (7.5YR 4/6) iron oxide (40%)	10-50 cmbs: grayish brown (10YR 5/2) clay mottled with reddish yellow (7.5YR 6/8) clay iron oxide (30%)	n/a	Negative
AMH032923A	Transect 2, Shovel Test 5 @ 120 m	0-30 cmbs: grayish brown (10YR 5/2) clay	30-50 cmbs: light brown (10YR 6/4) silty clay mottled with strong brown (7.5YR 4/6) silty clay iron oxide (20%)	n/a	Negative
AMH032923A	Transect 2, Shovel Test 6 @ 150 m	0-30 cmbs: grayish brown (10YR 5/2) clay	30-50 cmbs: light brown (10YR 6/4) silty clay mottled with strong brown (7.5YR 4/6) silty clay iron oxide (20%)	n/a	Negative
AMH032923A	Transect 2, Shovel Test 7 @ 180 m	0-50 cmbs: dark gray (Gley 1 4/N) clay mottled with strong brown (7.5YR 4/6) iron oxide wet	n/a	n/a	Negative
AMH032923A	Transect 2, Shovel Test 8 @ 210 m	0-40 cmbs: dark grayish brown (10YR 4/2) clay very dry	TD @ 40 cmbs- very compact	n/a	Negative
AMH032923A	Transect 2, Shovel Test 9 @ 236 m	n/a	n/a	n/a	Not Excavated
AMH032923A	Transect 3, Shovel Test 1 @ 0 m	n/a	n/a	n/a	Not Excavated
AMH032923A	Transect 3, Shovel Test 2 @ 30 m	0-20 cmbs: grayish brown (10YR 5/2) clay mottled with gray (10YR 5/1) clay (10%) and reddish yellow (7.5YR 6/6) iron oxide	20-50 cmbs: gray (10YR 6/1) clay mottled with reddish brown (7.5YR 6/6) iron oxide	n/a	Negative
AMH032923A	Transect 3, Shovel Test 3 @ 60 m	0-30 cmbs: grayish brown (10YR 5/2) clay mottled with dark black gray (Gley 1) and strong brown (7.5YR 4/6) iron oxide	30-50 cmbs: gray (10YR 6/1) clay mottled with reddish brown (7.5YR 6/6) iron oxide	n/a	Negative
AMH032923A	Transect 3, Shovel Test 4 @ 90 m	0-50 cmbs: grayish brown (10YR 5/2) clay mottled with dark black gray (Gley 1) and strong brown (7.5YR 4/6) iron oxide	n/a	n/a	Negative
AMH032923A	Transect 3, Shovel Test 5 @ 120 m	0-30 cmbs: gray (10YR 5/1) silty clay mottled with black gray (Gley 1)	30-50 cmbs: gray (10YR 6/1) silty clay	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
AMH032923A	Transect 3, Shovel Test 6 @ 150 m	0-10 cmbs: gray (10YR 5/1) silty clay mottled with black gray (Gley 1)	10-50 cmbs: brown (10YR 5/3) silty clay mottled with reddish yellow (7.5YR 6/6) iron oxide	n/a	Negative
AMH032923A	Transect 3, Shovel Test 7 @ 180 m	0-50 cmbs: gray (10YR 5/1) silty clay mottled with black gray (Gley 1)	n/a	n/a	Negative
AMH032923A	Transect 3, Shovel Test 8 @ 210 m	0-50 cmbs: gray (10YR 5/1) silty clay mottled with black gray (Gley 1)	n/a	n/a	Negative
AMH032923A	Transect 4, Shovel Test 1 @ 0 m	n/a	n/a	n/a	Not Excavated
AMH032923A	Transect 4, Shovel Test 2 @ 30 m	0-50 cmbs: dark grayish brown (10YR 4/2) silty clay mottled with reddish yellow (7.5YR 6/6) iron oxide	n/a	n/a	Negative
AMH032923A	Transect 4, Shovel Test 3 @ 60 m	0-50 cmbs: dark grayish brown (10YR 4/2) clay mottled with dark gray (Gley 1 4/N) 30 % and reddish yellow (7.5YR 6/6) iron oxide	n/a	n/a	Negative
AMH032923A	Transect 4, Shovel Test 4 @ 90 m	0-50 cmbs: dark grayish brown (10YR 4/2) clay mottled with dark gray (Gley 1 4/N) 30 % and reddish yellow (7.5YR 6/6) iron oxide	n/a	n/a	Negative
AMH032923A	Transect 4, Shovel Test 5 @ 120 m	0-50 cmbs: brown (10YR 4/3) silty clay	n/a	n/a	Negative
AMH032923A	Transect 4, Shovel Test 6 @ 150 m	0-50 cmbs: dark grayish brown (10YR 4/2) silty clay mottled with dark gray (Gley 1 4/N) and reddish yellow (7.5YR 6/6) iron oxide	n/a	n/a	Negative
AMH032923A	Transect 4, Shovel Test 7 @ 180 m	0-50 cmbs: dark grayish brown (10YR 4/2) silty clay mottled with dark gray (Gley 1 4/N) and reddish yellow (7.5YR 6/6) iron oxide	n/a	n/a	Negative
AMH032923A	Transect 4, Shovel Test 8 @ 197 m	0-50 cmbs: dark grayish brown (10YR 4/2) silty clay mottled with dark gray (Gley 1 4/N) and reddish yellow (7.5YR 6/6) iron oxide	n/a	n/a	Surface Collection
LAC021723A	Transect 1, Shovel Test 4 @ 150 m	0-10 cmbs: gray (10YR 5/1) clay	10-50 cmbs: light brownish gray (10YR 6/2) silty clay mottled with strong brown (7.5YR 5/8) silty clay	n/a	Negative
LAC021723A	Transect 1, Shovel Test 5 @ 200 m	0-10 cmbs: dark grayish brown (10YR 4/2) clay saturated	TD @ 10 cmbs- H_2O	n/a	Negative
LAC021723A	Transect 1, Shovel Test 6 @ 245 m	0- 15 cmbs: very dark gray (10YR 3/1) sandy loam with 25% gravel	15-30 cmbs: very pale brown (10YR 7/4) sandy loam with 25% gravel	TD @ 30 cmbs- gravel	Negative
LAC021723A	Transect 2, Shovel Test 3 @ 100 m	0-30 cmbs: gray (10YR 5/1) clay	TD @ 30 cmbs- compact	n/a	Negative
LAC021723A	Transect 2, Shovel Test 4 @ 150 m	0-30 cmbs: dark gray (10YR 4/1) clay	TD @ 30 cmbs- compact	n/a	Negative
LAC021723A	Transect 2, Shovel Test 5 @ 181 m	0-30 cmbs: grayish brown (10YR 5/2) clay	TD @ 30 cmbs- compact	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
LAC021723A	Transect 3, Shovel Test 1 @ 0 m	n/a	n/a	n/a	Not Excavated
LAC021723A	Transect 3, Shovel Test 2 @ 50 m	0-35 cmbs: very dark gray (10YR 3/1) silt loam with 25% gravel	TD @ 35 cmbs- dense gravel	n/a	Negative
LAC021723A	Transect 3, Shovel Test 3 @ 90 m	0-15 cmbs: grayish brown (10YR 5/2) silt loam	TD @ 15 cmbs- water	n/a	Negative
JEP061223-01	N 974 E 983	0-50 cmbs: gray (10YR 5/1) clay very compact	n/a	n/a	Surface Collection
JEP061223-01	N 984 E 983	0-50 cmbs: grayish brown (10YR 5/2) clay very dry and compact	n/a	n/a	Negative
JEP061223-01	N 970 E 1009	0-50 cmbs: grayish brown (10YR 5/1) clay	n/a	n/a	Surface Collection
JEP061223-01	N 950 E 1000	0-20 cmbs: gray (10YR 6/1) silty clay	20-50 cmbs: dark gray (10YR 4/1) silty clay	n/a	Negative
JEP061223-01	N 950 E 980	0-30 cmbs: dark grayish brown (10YR4/2) clay	30-50 cmbs: yellowish brown (10YR 5/6) sand	n/a	Surface Collection
JEP061223-01	N 880 E 980	0-20 cmbs: dark grayish brown (10YR 4/2) clay	20-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP061223-01	N 880 E 990	0-30 cmbs: gray (10YR 5/1) silty clay	30-50 cmbs: dark gray (10YR 4/1) silty clay	n/a	Negative
JEP061223-01	N 880 E 1009	0-50 cmbs: dark gray (10YR 4/1) clay very compact	n/a	n/a	Negative
JEP061223-01	N 910 E 990	0-20 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/8) iron oxide	20-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/8) iron oxide compact	n/a	Surface Collection
JEP061223-01	N 900 E 990	0-10 cmbs: gray (10YR 5/1) silty clay	10-50 dark gray (10YR 4/1) silty clay	n/a	Negative
JEP061223-01	N 910 E 980	0-20 cmbs: dark gray (10YR 4/1) clay	20-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR5/8) clay	n/a	Surface Collection
JEP061223-01	N 910 E 960	0-20 cmbs: gray (10YR 6/1) silty clay	20-50 cmbs: dark gray (10YR 4/1) silty clay	n/a	Negative
JEP061223-01	N 950 E 970	0-20 cmbs: gray (10YR 6/1) silty clay	20-50 cmbs: brown (10YR 5/3) silty clay	n/a	Negative
JEP061223-01	N 950 E 960	0-50 cmbs: dark gray (10YR 4/1) clay very dry and compact	n/a	n/a	Negative
JEP061223-01	N 930 E 970	0-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/8) clay	n/a	n/a	Negative
JEP061223-01	N 970 E 960	0-20 cmbs: gray (10YR 5/1) silty clay	20-50 cmbs: dark grayish brown (10YR 4/2) silty clay	n/a	Negative
JEP061223-01	N 980 E 1009	0-20 cmbs: dark gray (10YR 4/1) clay	20-50 cmbs: gray (10YR 6/1) clay	n/a	Negative
JEP061223-01	N 950 E 1009	0-20 cmbs: gray (10YR 6/1) silty clay	20-50 cmbs: brown (10YR 5/3) silty clay	n/a	Negative
JEP061223-01	N 960 E 1009	0-25 cmbs: brown (10YR 4/3) clay very dry and compact	25-50 cmbs: gray (10YR 5/1) silty clay mottled with strong brown (7.5YR 5/6) silty clay	n/a	Negative
JEP061223-01	N 930 E 1000	0-20 cmbs: gray (10YR 5/1) silty clay	20-50 cmbs: brown (10YR 5/3) silty clay	n/a	Negative
JEP061223-01	N 930 E 1009	0-30 cmbs: brown (10YR 5/3) clay	30-50 cmbs: gray (10YR 5/1) clay	n/a	Negative
JEP061223-01	N 870 E 1000	n/a	n/a	n/a	Not Excavated
JEP061223-01	N 860 E 1000	0-30 cmbs: dark grayish brown (10YR 4/2) silt loam	30-50 cmbs: gray (10YR 5/1) silty clay	n/a	Negative
JEP061223-01	N 900 E 1000	0-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/6) clay	n/a	n/a	Negative
JEP061223-01	N 900 E 980	0-20 cmbs: gray (10YR 5/1) silty clay	20-50 cmbs: dark gray (10YR 4/1) silty clay	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP061223-01	N 910 E 1009	0-50 cmbs: dark gray (10YR 4/1) clay very dry and compact	n/a	n/a	Negative
JEP061223-01	N 920 E 1000	0-50 cmbs: dark gray (10YR 4/1) clay	n/a	n/a	Negative
JEP061223-01	N 930 E 980	0-50 cmbs: brown (10YR 5/3) silty clay	n/a	n/a	Negative
JEP061223-01	N 940 E 980	0-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) clay	n/a	n/a	Negative
JEP061223-01	N 950 E 990	0-20 cmbs: gray (10YR 6/1) silty clay	20-50 cmbs: brown (10YR 5/3) silty clay	n/a	Surface Collection
JEP061223-01	N 930 E 990	0-20 cmbs: brown (10YR 5/3) silty clay	20-50 cmbs: gray (10YR 5/1) clay	n/a	Surface Collection
JEP061223-01	N 1020 E 1000	0-30 cmbs: dark grayish brown (10YR 4/2) silty clay	30-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) clay	n/a	Negative
JEP061223-01	N 1010 E 1000	0-40 cmbs: dark grayish brown (10YR 4/2) silty clay	40-50 cmbs: gray (10YR 5/1) clay mottled with strong brown (7.5YR 5/6) clay	n/a	Negative
JEP061223-01	N 1000 E 980	0-20 cmbs: gray (10YR 6/1) silty clay	20-50 cmbs: brown (10YR 5/3) silty clay	n/a	Negative
JEP061223-01	N 1000 E 990	0-10 cmbs: gray (10YR 6/1) silty clay	10-50 cmbs: dark gray (10YR 4/1) silty clay	n/a	Positive
JEP061223-01	N 1000 E 1009	0-50 cmbs: grayish brown (10YR 5/2) clay very dry and compact	n/a	n/a	Negative
JEP061223-01	N 1020 E 990	0-50 cmbs: dark gray (10YR 4/1) clay very compact	n/a	n/a	Negative
JEP061223-01	N 1010 E 990	0-50 cmbs: dark gray (10YR 4/1) clay very dry and compact	n/a	n/a	Negative
JEP061223-01	N 980 E 990	0-20 cmbs: gray (10YR 6/1) silty clay	20-50 cmbs: dark gray (10YR 4/1) silty clay	n/a	Negative
JEP061223-01	N 980 E 1000	0-45 cmbs: grayish brown (10YR 5/2) silt loam	45-50 cmbs: yellowish brown (10YR 5/4) silty clay mottled with yellowish brown (10YR 5/8) iron oxide	n/a	Negative
JEP061223-01	N 960 E 1000	0-50 cmbs: yellowish brown (10YR 5/4) sandy loam	n/a	n/a	Negative
JEP061223-01	N 990 E 1000	0-50 cmbs: yellowish brown (10YR 5/4) sandy loam	n/a	n/a	Negative
JEP061223-01	N 990 E 990	0-50 cmbs: grayish brown (10YR 5/2) silt loam	n/a	n/a	Negative
JEP061223-01	N 970 E 990	0-35 cmbs: grayish brown (10YR 5/2) silt loam	35-50 cmbs: yellowish brown (10YR 5/4) silty clay	n/a	Negative
JEP061223-01	N 960 E 990	0-35 cmbs: grayish brown (10YR 5/2) silt loam	35-50 cmbs: Light gray (10YR 7/1) silty clay	n/a	Negative
JEP061223-01	N 970 E 980	0-35 cmbs: grayish brown (10YR 5/2) silt loam	35-50 cmbs: Light gray (10YR 7/1) silty clay mottled with iron oxide	n/a	Positive
JEP061223-01	N 940 E 990	0-35 cmbs: grayish brown (10YR 5/2) silt loam	35-50 cmbs: yellowish brown (10YR 5/4) silty clay	n/a	Negative
JEP061223-01	N 960 E 980	0-30 cmbs: grayish brown (10YR 5/2) silt loam	30-50 cmbs: yellowish brown (10YR 5/4) silty clay mottled with yellowish brown (10YR 5/8) iron oxide	n/a	Negative
JEP061223-01	N 920 E 990	0-35 cmbs: grayish brown (10YR 5/2) silt loam	35-50 cmbs: yellowish brown (10YR 5/4) clay mottled with Light gray (10YR 7/1) clay	n/a	Negative
JEP061223-01	N 920 E 980	0-50 cmbs: brown (10YR 5/3) silty clay	n/a	n/a	Negative

EXHIBIT E

Segment/ Area	Location	Stratum I	Stratum II	Stratum III	Results
JEP080323B	Transect J, Shovel Test 1 @ 0m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080323B	Transect J1, Shovel Test 1 @ 0m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080323B	Transect J1, Shovel Test 2 @ 50m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080323B	Transect J2, Shovel Test 1 @ 0m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP080323B	Transect J2, Shovel Test 2 @ 50m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080323B	Transect 1, Shovel Test 1 @ 0m	0-50 cmbs: dark gray (10YR 4/1) clay mottled with strong brown (7.5YR 5/8) iron staining	n/a	n/a	Negative
JEP080323B	Transect 1, Shovel Test 2 @ 50m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080323B	Transect 1, Shovel Test 3 @ 100m	0-50 cmbs: grayish brown (10YR 5/2) clay	n/a	n/a	Negative
JEP080323B	Transect 1, Shovel Test 4 @ 150m	0-50 cmbs: grayish brown (10YR 5/2) silty clay	n/a	n/a	Negative
JEP080323B	Transect 1, Shovel Test 5 @ 200m	0-50 cmbs: dark grayish brown (10YR 4/2) clay	n/a	n/a	Negative
JEP080323B	Transect 1, Shovel Test 6 @ 250m	0-50 cmbs: gray (10YR 5/1) silty clay	n/a	n/a	Negative

EXHIBIT E

PHASE ONE CULTURAL RESOURCES SURVEY

OF 673.9 ACRES (272.67 HECTARES)

PROPOSED FOR INDUSTRIAL USE,

BURNSIDE, ASCENSION PARISH, LOUISIANA

for

Impala Warehousing (US), LLC
4258 Highway 44
Darrow, LA 70725

SURA, Inc.
P.O. Box 14414
Baton Rouge, LA 70898-4414
Since 1986

EXHIBIT F

PHASE ONE CULTURAL RESOURCES SURVEY

OF 673.9 ACRES (272.67 HECTARES)

PROPOSED FOR INDUSTRIAL USE,

BURNSIDE, ASCENSION PARISH, LOUISIANA

Final Report

By

Malcolm K. Shuman, Lea Taylor Gabour, Brandy Kerr and Phillip K. Taylor
SURA, Inc.
P.O. Box 14414
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For

Impala Warehousing (US), LLC
4258 Highway 44
Darrow, LA 70725

April 25, 2014

EXHIBIT F

ABSTRACT

Beginning in March, 2012, and ending in December, 2013, SURA completed four Phase I cultural resources surveys of contiguous areas to be utilized as part of a major industrial development in Burnside, Ascension Parish, Louisiana. Total area surveyed was 673.9 acres (272.67 hectares). Survey methodology consisted of map research and shovel testing at high probability (HP) intervals. Shovel test total was 3,164.

During the survey, four historic cultural resource locations (Locations 1-4) were recorded. These included a possible plantation store; the area of the principal house and adjacent tenant houses; a possible sugar-mill location and adjacent tenant houses; and a cemetery. These locations were all assigned the site number 16AN89, Orange Grove Plantation.

Locations 1-3 were considered of unknown, but potential, NRHP eligibility, and will be avoided during construction. The cemetery (Orange Grove Cemetery) is a part of 16AN89 and is protected by a cyclone fence but SURA, Inc. recommended a 100 ft (30.8 m) buffer on three sides, the fourth side being located a few feet from a canal.

ACKNOWLEDGMENTS

The authors are grateful to many people for assistance during this project. First, Mr. David Ackerman, of Impala Warehousing, LLC, provided maps and guidance. Mr. Chris Williams, P.E., of Moffatt and Nichol, Inc., made the initial contact and coordinated the project. The field crew consisted of Dr. Malcolm K. Shuman, Mr. Phillip K. Taylor, Ms. Taylor Gabour, Ms. Karen Field, Mr. Eddie Rowzee, Mr. Elio Madan, Ms. Brandy Kerr, Mr. Karl Shuman and Ms. Rebecca Hood. Ms. Rachel Watson made a field visit and rendered valuable assistance regarding directions for the investigation to take. Dr. Chip McGimsey provided important comments on the draft report.

A special debt is owed Mr. Thurston H. G. Hahn III, of Coastal Environments, Inc., who provided photos of the Orange Grove Plantation house and a nearby brick building, from 1987.

.

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CHAPTER ONE:
INTRODUCTION

Beginning in March, 2012, and ending in December, 2013, SURA completed four Phase I cultural resources surveys of contiguous areas to be utilized as part of a major industrial development in Burnside, Ascension Parish, Louisiana. Total area surveyed was 673.9 acres (272.67 hectares) (Figures 1 and 2).

Survey methodology consisted of map research and shovel testing at high probability (HP) intervals. The survey was carried out to fulfill the requirements of Section 106 of the National Historic Preservation Act and had been recommended by the State Historic Preservation Officer (SHPO).

The survey crew consisted, at various times, of three to six persons.

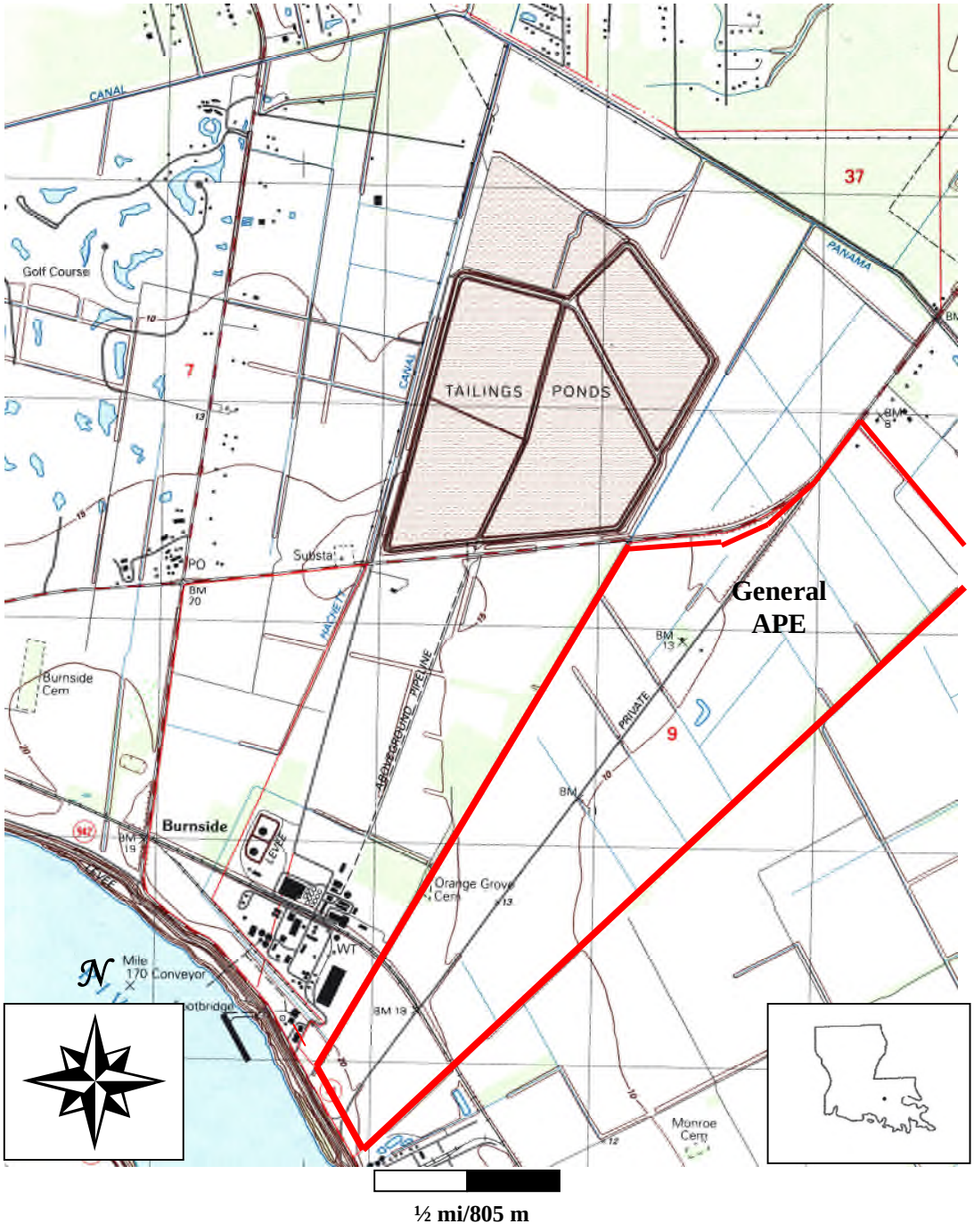

Figure 1. Portion of Gonzales, La. (1998) 7.5-minute topographic quadrangle, showing general project area (red).

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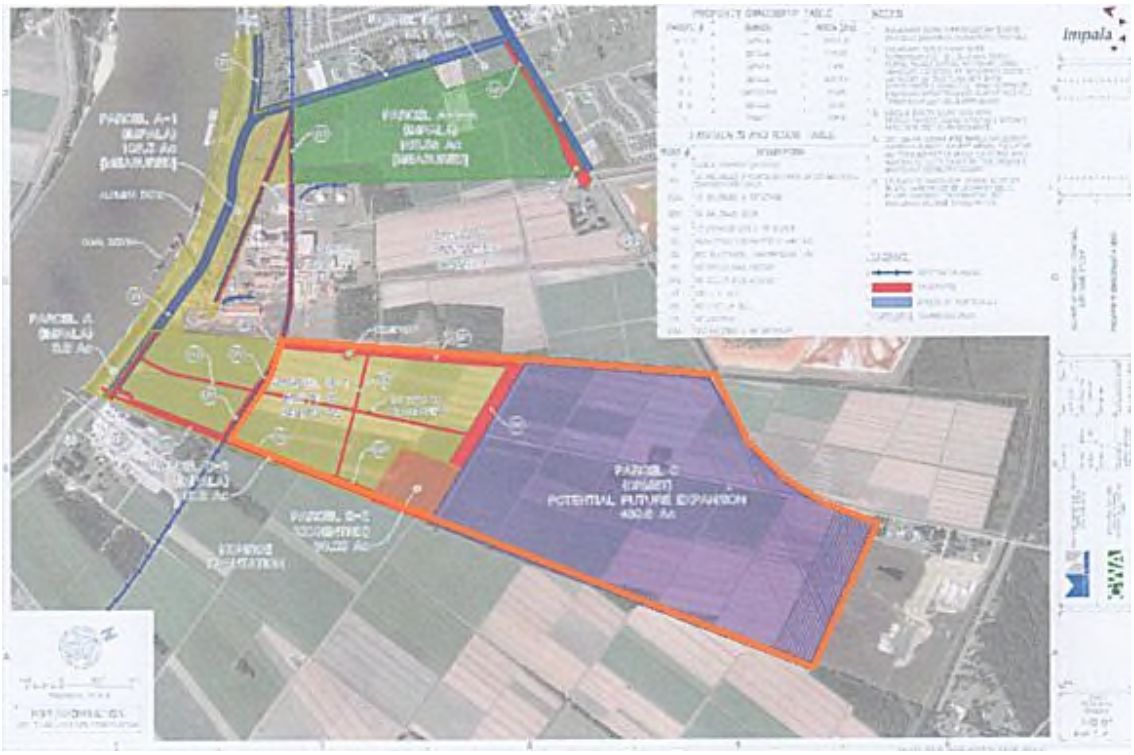

Figure 2. Aerial photo of general project area (orange boundary lines) (Source: Client).

CHAPTER TWO:
ENVIRONMENT

Geomorphology

The most influential factors in determining the natural setting of the project area are the fluvial geomorphological processes associated with the lower Mississippi River. The meandering nature of the river, its associated tributaries and distributaries, the building of natural levees, and crevasses in the natural levee, affected the extent, time, and nature of prehistoric and historic occupations.

The Mississippi River changed abruptly, in geological terms, from a river of braided channels to a meandering stream approximately 12,000 years ago. This change is generally though to have been caused by a rise in sea level dating from the end of the last Ice Age (Gagliano 1984). Figure 3 shows major delta complexes of the Mississippi River and the prehistoric occupations that have been associated with them.

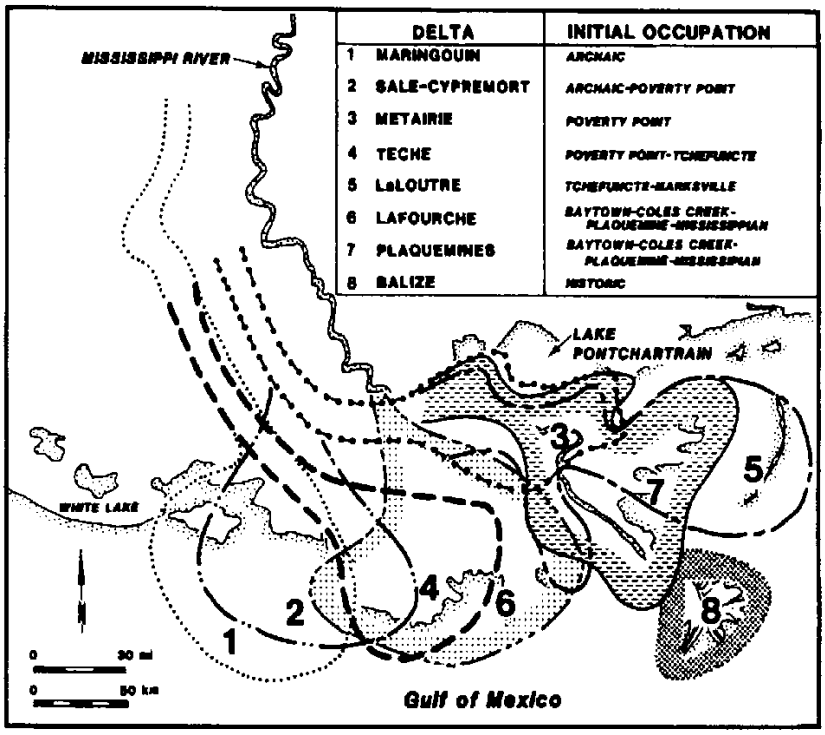

Figure 3. Major delta complexes and associated archaeological complexes in the Mississippi River deltaic plain (Adapted from Gagliano 1984:40).

This geomorphological event may have also coincided roughly with the arrival of man into what is now the Mississippi Valley-Gulf Coast region. In fact, archaeology and geomorphology have aided each other in dating the locations and times of the various shifts in the Mississippi River and its attendant streams because aboriginal occupations appear to have generally occurred along active stream channels (e.g. Russell 1938, Mclntire 1958, Gagliano 1984).

Soils

The soils in the study area are mapped as pertaining to the Commerce and Sharkey associations. The first consists of loamy soils on the highest portions of the natural levees of the Mississippi River. Sharkey soils are clays that occur on the lower elevations of natural levees of the Mississippi River (USDA 1971). The distribution of these soils is shown in Figure 4.

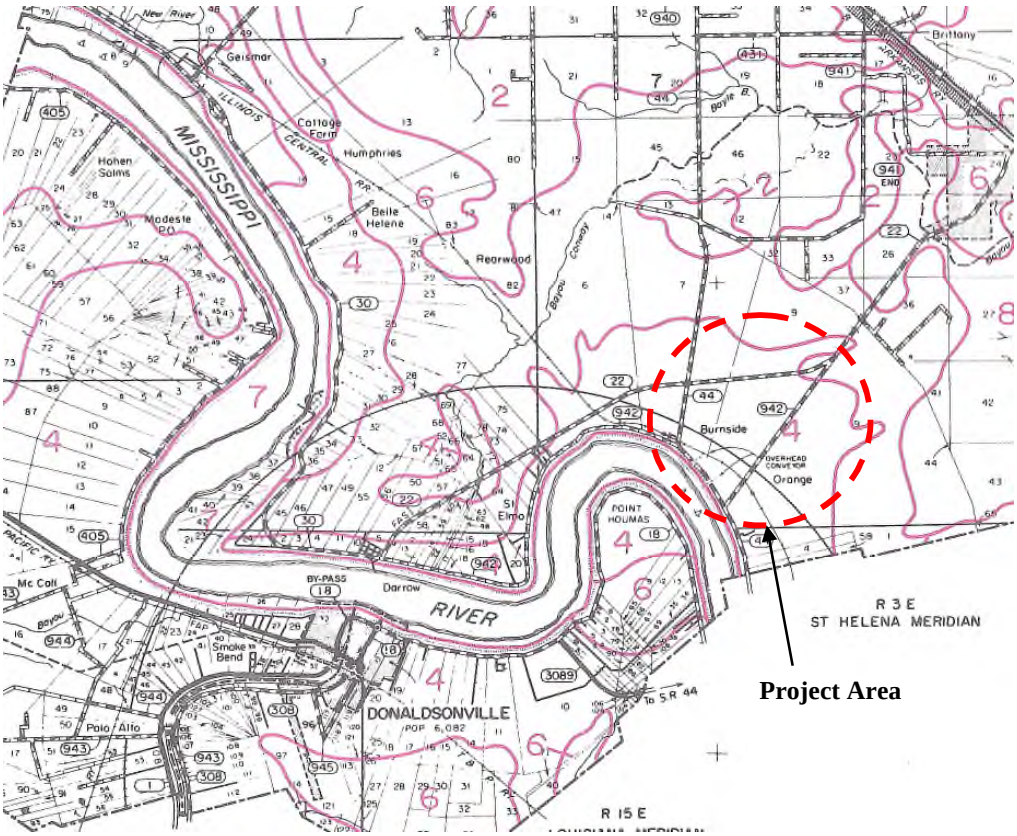

Figure 4. Portion of soils map for Ascension Parish, showing soils in project area (Source: USDA 1971).

Vegetation

In terms of natural vegetation, this region contains a mix of cypress *(Taxodium distichum)* and such hardwood varieties as water oak *(Quercus nigra),* hickory *(Carya spp.),* and hackberry *(Celtis laevigata).* In the areas of lower elevation that are affected by alluviation, species such as palmetto *(Sabal minor)* and water willow *(Salix nigra)* grow in abundance. Other flora are rich and varied and include broomsedges, briars, and poison ivy (Brown 1945).

Fauna

Animal life is likewise diverse and most of the 62 mammal species found in Louisiana may at one time have been found within the area. These include white-tail deer *(Odocoileus virginianus),* cottontail rabbit *(Sylvilagus floridanus),* swamp rabbit *(Sylvilagus aquaticus),* gray squirrel *(Sciurus carolinensis),* fox squirrel *(Sciurus niger),* skunk *(Mephitis mephitis),* black bear *(Euarctos americanus),* raccoon *(Procyon lotor),* mink *(Mustela vison),* beaver *(Castor canadensis),* opossum *(Didelphus virginiana),* bobcat *(Lynx rufus),* gray fox *(Urocyon cinereoargenteus)* and red fox *(Vulpes fulva)* (Lowery 1974). Birds include such predators as the great horned owl *(Bubo virginianus),* barred owl *(Strix platypterus),* marsh hawk *(Circus cyaneus),* and many others. Non-predatory types include woodcocks *(Philohela minor),* wood ducks *(Aix sponsa),* bobwhite quail *(Colinus virginianus),* and mourning doves *(Zenaidura macroura)* (Lowery 1955).

Reptile life is particularly diverse, owing to the heterogeneity of habitats in the area. Included are alligators *(Alligator mississippiensis),* several species of snakes, including the cotton mouth *(Agkistrodon contortrix),* and varied species of lizards and turtles. Amphibians include species of salamanders, frogs, and toads (Dundee and Rossman 1989).

Fish life is very prolific in this part of Louisiana and no doubt was likewise prehistorically. Prominent fish species are gar *(Lepisosteus spp),* largemouth bass *(Micropterus salmoides),* and bluegill *(Lepmis macrochirus),* among many others. Brackish water clams *(Rangia cuneata)* are frequently found in archaeological deposits near coastal Louisiana, although there are several archaeological sites in the vicinity of the project area that contain these shells indicating a more brackish water environment than exists currently.

CHAPTER THREE:
PREHISTORIC CULTURE HISTORY

Paleoindian Period (? – 6000 B.C.)

It is unknown when humans first entered the New World. Some researchers would place this event as early as 40,000 years ago, but more conservative investigators would place the first Americans at no earlier than 23,000 B.P. Whatever the case, by 10,000 years ago Paleoindians were living in caves at the Straits of Magellan, so that their entry into the New World must have occurred several thousand years prior to that, as a minimum (Neuman 1984:58) (See Figure 5).

In Louisiana, there is evidence of Paleoindians, both from a series of surface finds of fluted points, and from excavations (e.g., Webb et al. 1971). Most of these data derive from the northern half of the state; evidence from the Coastal Zone is somewhat more ambiguous. During the 1960s, Sherwood Gagliano carried out a series of investigations at Avery Island, a salt dome island in Iberia Parish (Gagliano 1963; 1967; 1970). The results of these investigations led Gagliano to conclude that Avery Island had been inhabited by a "pre-Clovis" culture associated with a bipolar tool industry. As Neuman has written, however, Gagliano has been unable to point to a single Paleoindian artifact *in situ*, and his bipolar industry could just as easily be Archaic in date, judging from similar assemblages found elsewhere in Archaic contexts. In fact, a radiocarbon date for split cane matting found *beneath* extinct animal bones is Archaic (2310 +1590 B.C.), a fact that suggests that some of the important material found by Gagliano had been contextually disturbed (Neuman 1984:63-65). Finds of Dalton, Plainview and San Patrice points at the Blackwater Bayou (16EBR33) and Jones Creek (16EBR13) sites indicates that Paleoindian occupations were present in the region of the current project area (Weinstein et al. 1977).

Archaic Period (6000 B.C. – 1500 B.C.)

This period represents a time of heavy exploitation of wild plant foods and of small game, representing adaptation to an expanding boreal environment (Weinstein and Kelley 1992:32-34). The initial part of this period, the Early Archaic (6000-5000 B.C.), is defined by a series of distinctive projectile points and it has been suggested that society was organized at the band level and focused on a seasonal round of hunting and gathering. The succeeding Middle Archaic period (5000-3000 B.C.) was hallmarked by widespread regional differentiation of cultures and the development of ground stone technology (Weinstein and Kelley 1992:30). This subperiod corresponds to the Hypsithermal Interval, a time of increased warmth and aridity in areas around the Great Plains. It is presently unclear what effect this may have had on the Southeast.

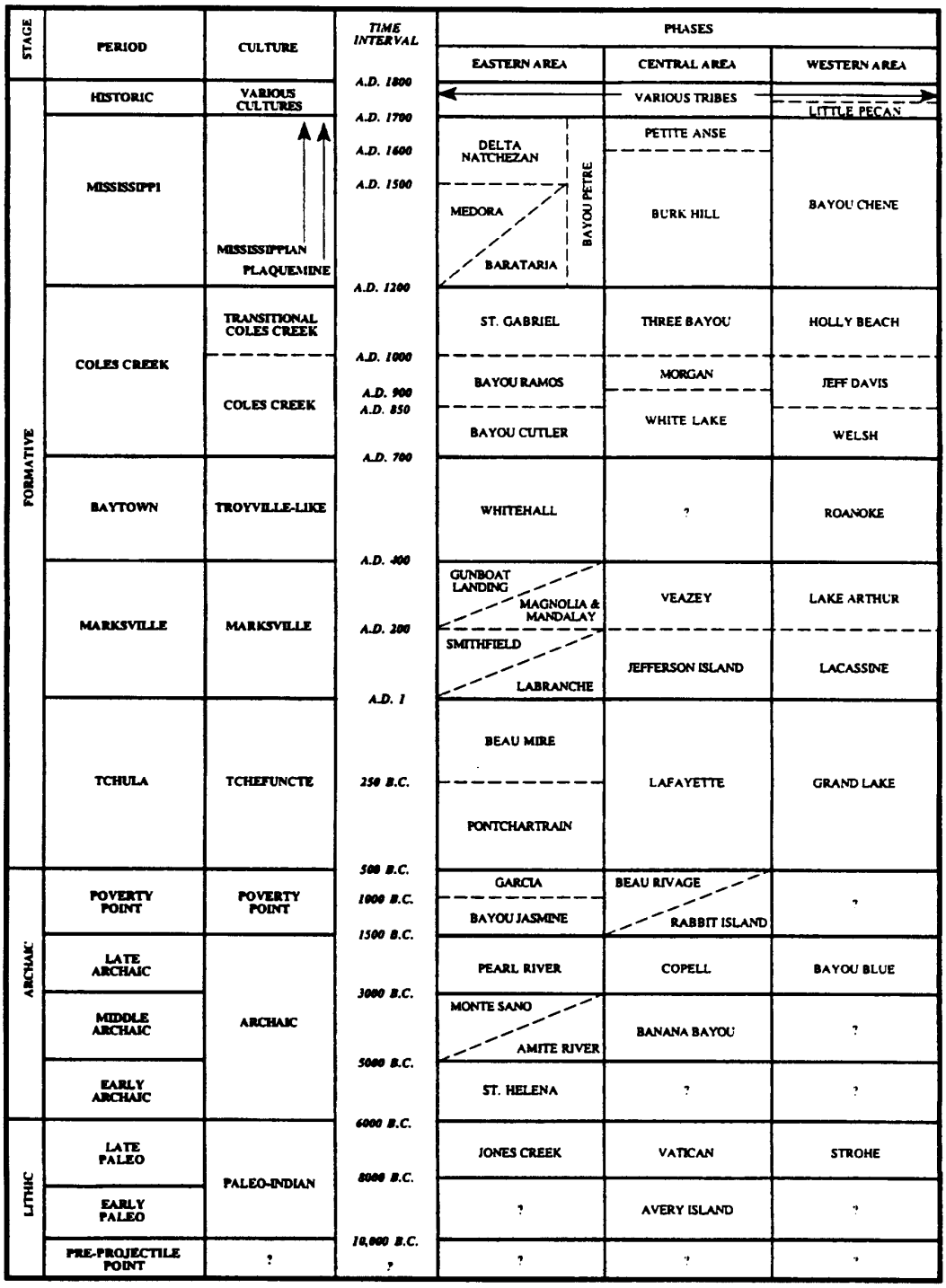

Figure 5. Prehistoric cultural chronology of southern Louisiana (Source: Weinstein et al. 1986).

The Middle Archaic is poorly represented in south Louisiana. Weinstein and Kelley (1992:30-31) suggest that components of the Banana Bayou phase may be identified in this area in the future. Banana Bayou (16IB24) is a site on Avery Island where the mound at the site yielded Williams and Pontchartrain points, crude bifaces, lithic debitage and a fairly large number of based clay objects (Brown and Lambert-Brown 1978). Another site of some importance is 16IB101, which is located on the edge of the Prairie Terrace, overlooking the Teche channel, just south of New Iberia. This site contains a Middle Archaic component and "may represent an elevated habitation locale associated with the active Teche-Mississippi" (Weinstein and Kelley 1992:33).

The Late Archaic subperiod (3000-1500 B.C.) was a time of pronounced population increase and the development of extensive trade networks. Three geographically distinct phases have been identified for Coastal Louisiana, but only one of these, the Pearl River Phase, is well known (Gagliano and Webb 1970; Weinstein and Kelley 1992:33). The remaining two phases are the Copell phase, derived from a preceramic cemetery on Pecan Island (Collins 1941), while the Bayou Blue Phase comes from a site (16AL1) in Allen Parish (Coastal Environments, Inc. [CEI] 1977; Gagliano et al. 1982; Weinstein et al. 1977; 1979). Typical diagnostic artifacts include Evans, Palmillas, Ensor, Macon, Gary, and Pontchartrain points and such ground stone implements as winged atlatl weights and tubular pipes (Weinstein and Kelley 1992:33).

The only Late Archaic phase so far identified for southeast Louisiana is the Pearl River phase, suggested by Gagliano on the basis of oyster shell middens associated with early coastal features. Artifacts associated with this phase are Kent, Macon, Hale, and Palmillas projectile points and certain types of atlatl weights (Gagliano 1963).

Neo-Indian Period (1500 B.C. – A.D. 1200)

The Neo-Indian period saw the introduction of ceramics, the widespread use of cultigens and the importation of the bow-and-arrow. The construction of earthen mounds, while apparently practiced to some extent during the Late Archaic (Gibson 1994, Russo 1994, and Saunders 1994), became highly developed during the Neo-Indian period and the focus of ceremonial, mortuary and political activity (Neuman 1984). A number of cultures flourished during this time span, as detailed below.

Poverty Point Culture (1500 B.C.-500 B.C.)

This culture, named for the gigantic semi-circular earthworks in West Carroll Parish (16WC5), was widespread throughout Louisiana, Arkansas and Mississippi and was closely related to similar cultures in Missouri, Tennessee, Alabama and Florida (Neuman 1984:90). The origins of Poverty Point remain obscure, although Neuman suggests that both local adaptation and influences from Meso-America were involved (Neuman 1984:91). The material culture of Poverty Point featured baked clay balls (Poverty Point Objects),

microlithic and lapidary industries and the construction of earthworks. The presence of pottery is debatable, although Clarence Webb (1982:40-42) discusses a number of cases in which ceramics have been found at Poverty Point sites. Hunting and gathering seem to have been the mainstays of Poverty Point subsistence and squash and chenopodium may have been cultivated during this period (Webb 1982:13). Webb (1968), on the other hand, sees agriculture as having a more important function.

Other important Poverty Point sites in the region are Jaketown and Teoc Creek, in Mississippi; the Terral Lewis Site (16MA16) and the J.W. Copes Site (16MA36), both in Madison Parish, Louisiana; the Aaron site (16EC39) in East Carroll Parish and the Cowpen Slough (16CT147) and Dragline (16CT36) sites in the Tensas Basin. In South Louisiana, sites with probable Poverty Point components include: Rabbit Island (16SMY8), Cargill Canal (16SMY102) and 16SMY132 (Weinstein and Kelley 1992:34). It should be noted in connection with the latter site, however, that more recent investigations by Kuttruff and Shuman failed to find a Poverty Point component at this site (Kuttruff et al. 1993). By 800 B.C., Poverty Point culture had begun to decline and the extensive trade network that formed a pivotal part of the culture had withered. For several centuries thereafter, prehistoric society in Louisiana centered on small bands of hunters and gatherers.

Tchefuncte Culture (500 B.C.-A.D.1)

The successors of Poverty Point culture were the Tchefuncte people, whose name derives from the site of that name in St. Tammany Parish (16ST1). Smith et al. (1983:163) have defined this period as being characterized by a simpler way of life, similar to the Late Archaic, but with the introduction of a ceramic complex. The Tchefuncte people were hunter-gatherers who also, apparently, possessed horticulture to some degree, cultivating squash and bottle gourd (Byrd 1974). A wide variety of animals were hunted, including deer, raccoon, ducks, muskrat, otter, bear, gray fox, ocelot and alligator. It seems that crustaceans were not eaten.

In south Louisiana, the Tchefuncte culture is especially known for its shell middens, heaps of shells from the brackish water clam, *Rangia cuneata.* These clams were evidently widely eaten although Byrd has shown that their nutritive value is minimal (Byrd 1977; Neuman 1984:118).

The lithic artifact inventory of Tchefuncte people included adzes, drills, hammer stones, knives, scrapers and projectile points. Ground stone artifacts include abraders, atlatl weights, beads, cobble hammer stones, grooved plummets, mortars and pitted stones. Baked clay objects continued to be made, but in less variety and in fewer numbers than at Poverty Point (Smith et al. 1983:163).

Weinstein and Kelley (1992:34-35) suggest that the Tchefuncte people were mound builders, but Neuman (1984:135) writes, “the evidence to support the theory that the

Tchefuncte Culture Indians were mound builders is most vague." Significant sites in the current project area with Tchefuncte components are the Kleinpeter site (16EBR5), the Lee site (I6EBR51), the Sarah Peralta site (16EBR67), and the Beau Mire site (16AN17).

Marksville Culture (A.D. 1-400)

This culture, named for the type site in Avoyelles Parish (16AV1), was closely allied to the Hopewell culture of the Ohio and Illinois river valleys. The Marksville people constructed domed earthen mounds in which they buried their dead leaders, usually with funerary offerings (Neuman 1984). Marksville ceramics are finely made, with characteristic broadly incised lines and rocker stamping. The bird design is a frequent motif. Marksville ceramics are, in fact, often hard to distinguish from those made by Hopewellian peoples, leading to much speculation about the nature of the Marksville-Hopewell interaction. Toth (1988) felt that the main evidence for such an interaction derives from Marksville mortuary practices and the comparison of ceramic types. Other cultural practices, such as subsistence and settlement pattern, may not have been a part of whatever relationship existed between the two groups. It has been speculated that Marksville subsistence was based on hunting and the intensive gathering of wild foods; the evidence for maize agriculture is still weak (Weinstein and Kelley 1992:35).

On the basis of his survey of sites along the Amite River, east of Baton Rouge, Weinstein identified two phases for Marksville (Smithfield and Gunboat Landing) for the eastern part of Louisiana (Weinstein 1974). The Kleinpeter site (16EBR5), located on a terrace overlooking Bayou Fountain, also contains a significant late Marksville component (Jones et al. 1994). Other significant sites in South Louisiana appear to be the Gibson Mounds (16TR5) and Mandalay Plantation (16TR1), both in Terrebonne Parish. Other late Marksville locations are 16TR4, 16TR47, 16TR76 and 16TR77. In addition, Gibson (1978) produced evidence of a late Marksville occupation from a test pit into the Oak Chenier site (16SMY49), near the confluence of bayous Penchant and Chene. This excavation also yielded a flexed human burial. Surveys Unlimited Research Associates (SURA) reported a late Marksville component from two test units south of Mound B at the Broussard Mounds site (16AN1) on New River in Ascension Parish. They were not able to determine, however, if the other two mounds at the site were contemporary with this time period (Shuman et al. 1995).

Baytown Culture (A.D. 400-700)

Baytown (or Troyville) is perhaps the most problematical period in Louisiana prehistory. Partly this owes to the manner of its original definition (Gibson 1982; Belmont 1982). But it is also true that the period has been dealt with differently by different authors. Neuman, for instance, places it with Coles Creek, calling the two "Troyville-Coles Creek." Some authors, on the other hand, separate it, as a distinct period between Tchefuncte and Coles Creek (Weinstein and Kelley 1992:36-37). Weinstein and Kelley (1992:36) suggest

that the development of Baytown in the Lower Mississippi Valley is associated with the appearance of Quafalorma and Woodville painted pottery, along with Mulberry Creek cord-marked, Salomon Brushed, and Alligator Incised ceramics. The attempt to devise phases for South Louisiana has been difficult. For example, the Whitehall Phase, named for a site on the Amite River (16LV19), is the only representative of its phase in the vicinity of the project area (Weinstein and Kelley 1992:36).

Even so, Baytown components have been found at several locations in south Louisiana. These include, again, 16EBR5; 16EBR51; 16EBR67; The Gibson Mounds (16TR5), investigated by Weinstein et al. (1978); and Richeau Field (16TR82), a low mound on the Teche-Mississippi natural levee just southwest of Gibson (Weinstein et al. 1978). Finally, there is likely a Baytown component at 16IB3, the Morton Shell mound, of which its excavator writes..."Although there were no unequivocal occurrences of funerary accompaniments with the Morton Shell Mound burials, the shell midden matrix did contain sherds attributable to late Marksville and Troyville-Coles Creek times" (Neuman 1984:200).

Coles Creek Culture (A.D. 700-1200)

The Coles Creek culture represents a cultural florescence in the Lower Mississippi Valley. The settlement pattern involved hamlets and small villages, centered around one or more pyramidal earthen mounds. These mounds served as platforms for temples and the houses of leaders. Coles Creek culture was widespread in Louisiana and Mississippi and appears to have been related to the very similar Weeden Island culture of northwest Florida (Weinstein and Kelley 1992:37).

Ceramic decoration in Coles Creek time centered around incised, stamped and punctated designs that usually were restricted to a band around the rim of the vessel (Weinstein and Kelley 1992:37; Neuman 1984:186). The economic basis of Coles Creek society is not clear. It has been widely assumed that maize was important to these people (e.g., Smith et al. 1983:182), but it has been impossible to demonstrate this due to a lack of *Zea mays* in securely dated Coles Creek contexts (Weinstein and Kelley 1992:37).

South Louisiana contains an abundance of Coles Creek sites, several of which (e.g., 16IV6, 16VM9, 16AS35, 16SMY1 and 16EBR5) have been at least partially excavated. From this several temporally distinct phases have been developed. These are the Bayou Cutler, Bayou Ramos and St. Gabriel Phases. Bayou Cutler derives from the work of Kniffen (1938), and was refined by Phillips (1970), who utilized data on 74 sites in the lower reaches of the Lower Mississippi Valley. The Bayou Ramos phase was developed by Weinstein in St. Mary Parish at Bayou Ramos I (16SMY133). And the St. Gabriel Phase was defined at a site in Iberville Parish (16IV128) excavated by Woodiel (1993).

Mississippi Period (A.D. 1200-1700)

The Mississippi period in the Southeastern United States is a time when cultural influences from the Central Mississippi Valley increasingly influenced the indigenous cultures of the region. In Louisiana, this is reflected both in the Plaquemine culture, an outgrowth of the preceding Coles Creek, and the Mississippian culture proper. It is represented by vast complexes of truncated earthen pyramids and the use of shell temper in ceramics, as well as in distinctive ceramic forms, such as effigy vessels. Mississippian culture sites were often fortified (Stoltman 1978:725). During this period, social and political organization appears to have centered on a chiefdom and subsistence was based on the triad of maize, beans and squash.

Mississippian culture seems to have radiated from the Cahokia mounds group in Illinois, with its influence eventually extending both down the Mississippi River and along the Gulf Coast. In Louisiana, Plaquemine culture is represented at such sites as the Medora site (16WBR1), the Kleinpeter Site (16EBR5), the Bayou Goula Site (16IV11), Pritchard's Landing (16CT14), the Fitzhugh Site (16MA1), and many others (Smith et al. 1983:197; Jones et al. 1994).

The nature of the relationship between Plaquemine and Mississippian culture is as yet unclear. Phillips (1970), for example, considered Plaquemine culture to have evolved by about A.D. 1000 and to have thereafter been steadily influenced by the Mississippians until about A.D. 1400, when Mississippian groups actually displaced the indigenous Plaquemine peoples. Brain (1978), however, would place Coles Creek as lasting until approximately A.D. 1200, when it was influenced so heavily by Mississippian culture that it evolved into Plaquemine, which is, in his view, a hybrid.

Based on information developed largely from ceramic analyses, three regional phases have been suggested for early Plaquemine culture in this general area. The first is the Medora Phase, based on the work of Quimby (1951) at the Medora Site (16WBR1) in West Baton Rouge Parish. The second is the Barataria Phase, based largely on work at the Fleming Site (16JE36) (Holley and DeMarcay 1977), and the third is Burk Hill, which derives from the work of Brown (1982) at the Burk Hill site (16IB100) on Cote Blanche Island. It was also during early Plaquemine times that material relating to the "Southern Cult" appears. This term is used to denote a complex of traits that first appears around A.D. 1000 and reaches its zenith about A.D. 1500. This complex is associated especially with Mississippian culture proper but it crossed cultural boundaries in the eastern United States (Neuman 1984:276). The complex focuses on an art style involving certain specific motifs, such as the cross, the sun, a bi-lobed arrow, the circle, the forked eye, the open eye, the barred oval, the hand and eye, and death motifs (Neuman 1984:277).

Perhaps the preeminent Plaquemine site near the study area is the Kleinpeter site (16EBR5), a location consisting of six mounds and extensive midden areas. The site appears to have been abandoned prior to the arrival of the first Europeans, probably at some time during the Delta Natchezan phase (Jones et al. 1994).

Protohistoric Cultures and Groups

The first Europeans to see this area were probably the survivors of the De Soto expedition, who passed down the Mississippi River en route to the Gulf in 1542. The beginning of sustained contact with whites, however, was the La Salle exploration of 1682. This party, led by Rene Robert Cavelier, Sieur de La Salle, sailed all the way from Canada to the mouth of the Mississippi and claimed the entire area for France before returning to Canada. Two years later La Salle attempted to relocate the mouth of the river from the Gulf and to establish a colony in the new land. Unfortunately, he missed the mouth of the river and landed in Texas, where he was eventually murdered by his men. It would not be until 1698 that another French expedition was sent.

This time the leaders were Pierre le Moyne, Sieur d'Iberville, and his brother, Jean-Baptiste Le Moyne, Sieur d'Bienville. That year, after landing near Biloxi, Iberville led an exploring party up the Mississippi to the mouth of the Red River (McWilliams 1981). During his trip, Iberville encountered a number of aboriginal groups. These included the Bayogoula, Quinapissa, Houma and the Mugulasha. The Bayogoula and Mugulasha lived in a single village on the west bank of the Mississippi above Bayou Lafourche (Swanton 1911:274). The Houma lived just north of them, their main village being in Wilkinson County, Mississippi or West Feliciana Parish, Louisiana (Swanton 1911:285; Guevin 1983:49-64). The dividing line between the territories of the two nations was just above Baton Rouge (McWilliams 1981). The Quinapissa lived in seven villages "eight days' travel overland east-northeast of (the Bayogoula) village."

Iberville, who wished to visit the Quinapissa, found that they and the Bayogoula "are not on visiting terms because of some pique between the two chiefs" (McWilliams 1981:56). Apparently, the Quinapissa were not on very good terms with the Houma either, for Iberville writes that "The Bayogoula told me that the Ouma were the ones that had destroyed the village of the Tangibao, which was one of the Quynypyssa's seven villages and that now they are only six, as the Ouma carried off the remnant families of Tangibao and brought them to their village...(McWilliams 1981:61)." After proceeding upstream into the territory of the Houma, Iberville turned back and made his way to his ships in the Gulf via the short-cut of Bayou Manchac (McWilliams 1981).

The continued arrival of Europeans in the Lower Mississippi Valley and the Southeast throughout the eighteenth century set in motion a chain of major population upheavals among the native Americans. The Houmas, for instance, after an attack by the Tunicas, moved south to the vicinity of New Orleans in 1706 and then, in 1709, to Ascension Parish. In Ascension they built two, or possibly three, villages. One village, the Grand Village of the Houmas, was located near Burnside; Guevin has identified the Grand Village as site 16AN35 (Guevin 1983). The second village may be associated with site 16AN3 near Geismar (D'Anville 1732). Charlevoix visited this village in 1722 and mentioned that there were French houses associated with it (Charlevoix 1976:165). The Houma lived in Ascension parish until the late eighteenth century, finally selling their land and moving to Terrebonne Parish (Swanton 1911:290-291). The Bayogoula, in 1706, allowed the Taensa to come live

with them, but seven years later the latter rose up and slew their hosts (Swanton 1946). The remainder of the Bayogoula fled to Plaquemine Parish. By the 1730s they seem to have merged with the Houma (Guevin 1990:13).

CHAPTER FOUR:
HISTORY OF THE AREA

This chapter presents a broad overview of historic patterns in the vicinity of the project area. In addition, there are descriptions of several specific places, events, or organizations in the area.

Early European Exploration and Settlement

European explorers, lured by prospects of gold, began exploring the southeast United States within decades after Columbus' arrival in the New World. Early exploration efforts, however, ignored much of Louisiana. The Spaniard Cabeza de Vaca, a member of the ill-fated Panfilo de Narvaez expedition, sailed along the coast of southwest Louisiana in 1527 on his way to Texas, but did not travel into the interior. In 1541, Hernando de Soto became the first European interloper into what is now Louisiana. Hernando de Soto's men followed the Mississippi River to the Gulf of Mexico in 1542. This early Spanish claim to Louisiana was tenuous, as no Spanish settlers moved in to maintain the claim (Louisiana Work Projects Administration 1941:37-43).

The French were more successful in establishing a right to Louisiana. During the seventeenth century, the French began scouting the major waterways. Traveling down the Mississippi River in 1682, French explorer Robert Cavelier, Sieur de la Salle, claimed Louisiana and named it for the French King, Louis XIV. But to maintain that claim, there would have to be a French presence. In 1698, Pierre le Moyne, Sieur d'Iberville led a French expedition to establish settlement in Louisiana. Upon reaching the Gulf Coast in early 1699, d'Iberville followed the coast westward to the mouth of the Mississippi River and moved upriver. He came across several Indian villages as he moved upstream, and from the Bayogoulas he learned about Bayou Manchac or the Ascantia River that provided an alternate route between the Gulf coast and the Mississippi River. By following Bayou Manchac, a Mississippi River distributary, eastward to Lake Maurepas, then through Pass Manchac into Lake Pontchartrain, travelers could get to the gulf easily and bypass the long and difficult trip down the Mississippi River. Europeans initially referred to the waterway as the Iberville River (Wall 1990: 15-27; McWilliams 1981:64-65).

As they continued up the Mississippi, the Iberville party came to an area of higher ground with a red stick in the soil. This "baton rouge" marked the boundary between the Bayogoulas and the Oumas. The settlement later founded on this spot was named for the red stick. Iberville returned to his camp at Biloxi by way of Bayou Manchac, cutting days off his trip. Although the passage required many portages, he believed that it could be cleared for easier travel (McWilliams 1981:25, 64-8 1).

France quickly recognized the potential of Louisiana, and established settlements along the Mississippi, Red, and Ouachita Rivers during the early eighteenth century in order to maintain their claim to the territory. British settlements in the interior of North America spurred the French on to more actively promote settlement. In 1712, Louis XIV contracted with Antoine Crozat, and in 1717 with John Law, to establish trade and colonize Louisiana. Law's Company of the West granted land to willing settlers. Those settlers founded New Orleans in 1718 (Williamson and Goodman 1939:9-28; Louisiana Work Projects Administration 1941:37-43).

Captain Bernard Diron Dartaguette also established a settlement at the first permanently dry high ground on the Mississippi River, at what is now Baton Rouge, in 1718. The settlement was abandoned a few years later (Albrecht 1945:59-62). By 1740, there were French people living along the navigable waterways in Louisiana, but political events in Europe changed the course of settlement. In 1762, France ceded Louisiana to Spain under the Treaty of Fountainbleau. But in 1763 with the Treaty of Paris, Spain relinquished to Great Britain the territory of West Florida in exchange for Havana. West Florida included the land east of the Mississippi River and west of the Apalachicola River, but north of Bayou Manchac and Lakes Maurepas and Pontchartrain. The British immediately began efforts to settle the Florida Parishes by conferring land grants to British officers and soldiers. The amounts of land varied according to military rank, from 5,000 acres for field officers, to 300 acres for privates (Williamson and Goodman 1939:9-28; Louisiana Work Projects Administration 1941:37-43; Arthur 1935:12-15).

Unfortunately for Great Britain, Spain continued to control the mouth of the Mississippi River and New Orleans, both of great strategic importance. In 1779, Spain declared war against Great Britain. Due to its strategic location between Natchez and New Orleans, Spain reclaimed West Florida. Upon recapturing West Florida in 1779, Don Bernardo de Galvez encouraged settlement by giving out large land grants to settlers loyal to the Spanish crown. Spain recognized the agricultural potential of Louisiana as well, and in return for Spanish land grants, settlers were required to clear land for agriculture and to build and maintain levees (Williamson and Goodman 1939:9-28; Louisiana Work Projects Administration 1941:37-43; Arthur 1935:12-15).

As a result, Spanish, English and French immigrants moved into the region. Acadian refugees, fleeing political and religious persecution from the British in Canada, also settled in south Louisiana. The first Acadians settled near Fausse Point in 1765, but Acadians or Cajuns dispersed throughout southern Louisiana.

In 1800, after nearly four decades of Spanish rule, the Treaty of San Ildefonso returned control of most of Louisiana to France. The Florida Parishes remained under the control of Spain. Shortly after the actual restoration in 1803, France sold Louisiana to the United States. West Florida, including East Baton Rouge Parish, was in an area disputed by the United States and Great Britain, but held by Spain (Padgett 1938:1-3).

In 1810, residents of West Florida, including leaders John Rhea, John H. Johnson, and William Barrow, rebelled against Spain, established the Republic of West Florida, adopted a constitution, and elected Fulwar Skipwith governor. St. Francisville was initially made the capital, but it was later moved to Baton Rouge. Later that same year, the United States claimed and took possession of West Florida, which it held illegally until the Adams-Onis Treaty in 1819 gave all of Florida to the United States (Butler 1980:94-99; Padgett 1938:1-3).

American Acquisition

After the United States purchased Louisiana from France in 1803, President Thomas Jefferson recognized the need to scientifically explore the area west of the Mississippi River. In the interest of exploration, settlement, and natural science, Jefferson sent two expeditions into Louisiana to report on the natural flora, fauna, and physical geography of the Red and Ouachita Rivers, but the expeditions did not explore south Louisiana which was better known (Flores 1984:3-45, 99).

Louisiana was admitted to the Union in 1812, although the Florida Parishes (those that were the part of West Florida west of the Pearl River) were not added to the state for several months (Wall 1990:102-108). Louisiana's capital was originally in New Orleans, but voters preferred a different location. In 1825 Donaldsonville, the seat of Ascension Parish, was made the capital, although it wasn't until 1830 that the legislature actually moved to Donaldsonville, and they quickly moved back to the more exciting New Orleans. Baton Rouge became the state capital in 1846. The seat of state government moved around during the Civil War and Reconstruction, but was returned to Baton Rouge in 1879 (Marchand 1936:85-94; Wall 1990: 125-126).

The Civil War

The Union Army sought to dominate the Mississippi River, and early in the war gained control of New Orleans and Baton Rouge. If the Union Army controlled the lower Mississippi Valley, they would control access to the mouth of the Red River and points west. The Confederate Army recognized the danger in August 1862 and constructed a bastion at Port Hudson, north of Baton Rouge. Union Admiral David G. Farragut and General Nathaniel P. Banks did gain control of the Mississippi River, including Port Hudson, in 1863 (Hewitt 1987:x-xiv; Spedale 1986:ix-xv).

The Union Army established a stockade at Doyal's Mount Houmas plantation at Geismar, but in 1864 it was captured by the Confederate Army. Major S.P. Remington of the Union Army reported on the incident, and mentioned some of the facilities at or near Mount Houmas, such as a telegraph station. Equipment and stock were taken from Mount Houmas as well as from John Minor's Waterloo Plantation adjoining (Marchand 1936:161-2).

Ascension Parish

After their expulsion from Canada in the mid-eighteenth century, many of the Acadian French immigrated to southern Louisiana, some settling in what became Ascension Parish. By 1772, the settlement acquired a resident priest, Father Angelus de Reuillagodos, who named the Catholic parish "Ascension" (Marchand 1936:1).

In 1806, William Donaldson purchased the land on the Mississippi River at the head of Bayou Lafourche from Mrs. Marguerite Allain and established the town of Donaldsonville, originally known as Donaldson Town. Donaldsonville was strategically located for commerce because Bayou Lafourche (earlier referred to as Riviere des Chetimaches) provided seasonal access to the Attakapas region of Louisiana from the Mississippi River. Donaldson himself continued to reside in New Orleans for a couple of years before moving to the town he founded. The town was incorporated in 1813 (Marchand 1936:16-20, 25, 37, 55)

The political unit Ascension Parish was established in 1807, when the United States began organizing the territory that would become the State of Louisiana, and was named after the ecclesiastical district. Donaldsonville is the parish seat. In 1808, Ascension Parish got a post office, in Donaldsonville (Louisiana Legislative Council 1964:281, 283; Marchand 1936:24)

By 1827, the wealthiest planters in the state lived between New Orleans and Baton Rouge in what were known as the Acadian and German coasts, according to the origin of the predominant settlers. Sugar was the dominant crop, generating yet another appellation for the area: the "Golden Coast" (Marchand 1936:67).

In 1860, Ascension Parish was the fourth largest sugar producing parish in Louisiana with four large scale sugar refineries and several small ones. The parish had about 125,000 acres, of which 85,000 were uncultivated, 20,000 were in sugar cane, 17,000 were planted in corn, and less than 500 were planted in cotton. The population was about 15,000; nearly one-half were slaves (Prichard 1938:1122-25).

In the decades following the Civil War, Ascension Parish's population has waxed and waned, with an increase to 24,142 in 1890, but a decrease to 18,436 in 1930. Since then, however, the population has grown steadily to 58,214 in 1990 as the petrochemical industry has created employment and Ascension Parish has become part of the Baton Rouge metropolitan area.

Economic Base

Agriculture has served as the primary economic base for these parishes since permanent settlement in the mid-seventeenth century. Proximity to the Mississippi River, slaveholding, and large landholdings contributed to a prosperous economy during the colonial and antebellum period.

The most important agricultural export of the lower Mississippi Valley in the colonial period was indigo. Although Louisiana's indigo crop may have been of a lower quality, it easily sold in Europe. Indigo was a labor intensive crop that was also expensive to cultivate, so only wealthy planters with a large number of slaves were able to raise it (Dalrymple 1978:4-6).

During the early nineteenth century, sugar became an important cash crop throughout the South. In the colonial period, some sugar was grown and converted into rum, but it wasn't until technological changes in the processing of sugar made the crop economically successful. In 1795, Etienne de Bore developed a commercial process for granulating sugar, thus making it a more valuable crop. Further improvements in the refining process occurred during the next half century (Louisiana Work Projects Administration 1941:221-223).

In addition, steamboat service began on the Mississippi River in 1811, further increasing commercial traffic for planters along the river. William Donaldson, founder of Donaldsonville and a member of a committee appointed by Governor William C. C. Claiborne to oversee steamboats, inspected the first steamboat to travel down the Ohio and Mississippi Rivers. Subsequently, the Louisiana legislature gave Robert Fulton and Robert Livingston exclusive right to use steamboats in south Louisiana for a limited time (Marchand 1936:32).

William Edwards Clement wrote about his experiences growing up on a sugar plantation in Iberville Parish in the late nineteenth century. When he was a child, the plantation ground and processed its own sugar cane, but eventually the plantation took its sugar cane to a larger mill for processing. This probably reflects the general trend in sugar cane farming in the last 100 years. Clement described the sugar harvest and processing. Cane was harvested during the last three months of the year. After grinding at the steam-powered or horse-drawn mill, the cane juice was boiled in "big old-fashioned boilers" over large wood fires. Once the cane juice had reached the right consistency for molasses, it was poured into homemade barrels, although some cane juice was processed into soft brown sugar. Sugar products were then shipped downriver to New Orleans. Clement's family's plantation did not have enough wood to fuel the sugar processing, so uprooted trees were collected from the Mississippi River during periods of high water. The wood was dried out and later used as fuel (Clement 1952:13-15).

Slave labor for agricultural production gradually became more and more important to the economy of the parishes. Some cotton and indigo were grown in the area, but sugar

remained the dominant crop. Cotton was important, but it was usually grown inland, away from the Mississippi River. Sugar cane was very lucrative, but because it required a greater capital investment, it was usually grown nearer to the Mississippi River on more valuable tracts of land. Because sugar cane required intensive labor, most planters had slaves to work in the fields. As the white population and number of acres under cultivation increased, so did the slave population (Prichard 1938:1124).

According to Joseph Karl Menn, in his book, *The Large Slaveholders of Louisiana,* in 1860 West Baton Rouge Parish had about 3700 slaves, East Baton Rouge Parish had about 3000, Ascension Parish had about 5600, and Iberville had about 7300. Of those, most belonged to 176 large slaveholders who owned 50 or more slaves each (Menn 1964:120-126, 138-150, 237-249).

For many decades, Ascension Parish had a thriving cypress timber and lumber industry. In 1807, William Donaldson, founder of Donaldsonville, built the first sawmill in Iberville Parish, on the Mississippi River just south of Bayou Manchac. More sawmills followed, and by the turn of the century, nearly 5,000 people were employed in the timber industry in Iberville Parish alone. By the late 1930s, most of the old cypress had been logged out (Grace 1946:91-94). Though sugar remains an important part of the economy of parishes along the Mississippi River south of Baton Rouge, the petrochemical industry has emerged as a major force in this area.

EXHIBIT F

CHAPTER FIVE:
PREVIOUS INVESTIGATIONS

Early Archaeological Studies

The first interest in the archaeology of this area may be traced back to Henry Marie Brackenridge who, in 1813, wrote to Thomas Jefferson about the Indian mounds along the Mississippi and Ohio Rivers. In this communication, Brackenridge listed a number of mounds, including the great Monk's mound at Cahokia, Illinois, the mound at Troyville (now Jonesville) (16CT7), Louisiana, since destroyed, and mounds "at Baton Rouge, and on the Manchac" (Brackenridge 1818).

Several decades later, Judge Carrighan, of Baton Rouge, writing in De Bow's Review, mentions that "...on the plantations of the Messrs. McHattons, near the Higland (sic) road, about two miles from the town, are two other large mounds...and several more are to be found on the Messrs. Daigle, Kleinpeter and Bexler" (Carrighan 1851:611). Clearly, the McHatton mounds are the pair of conical structures on the campus of Louisiana State University (16EBR6). The other mounds may have been located on the lands of the several plantation owners mentioned, although, as Jones et al. (1994:35) make clear, the Kleinpeter mounds referred to are not to be confused with the mound site (16EBR5) of that name.

The first true archaeological investigation of this area may be attributed to Clarence B. Moore, who examined a number of sites in Iberville Parish in 1912 (Moore 1913). He did not, however, cross the Mississippi into Ascension Parish. Following Moore, there was apparently little archaeological activity in the area until Dr. Fred B. Kniffen arrived at Louisiana State University in the late 1920s. Kniffen set out to make a number of cultural, archaeological, and geomorphological studies. In 1935, for instance, he visited 16EBR5 and gave the location the name Kleinpeter, after the nearest settlement (Kniffen, personal communication 1990). He went on to describe the site and to list other mounds in nearby Iberville Parish in a Louisiana Geological Survey bulletin (Kniffen 1938).

Kniffen, however, was primarily a geographer, and his archaeological work consisted largely of identifying sites and suggesting their temporal placement. Others of his contemporaries carried out more explicitly archaeological investigations. Among these, special mention should be made of the work of George Quimby. Working under WPA auspices, Quimby excavated the mound site (16WBR1) on Medora Plantation in West Baton Rouge Parish and gave Southeastern archaeology the concept of Plaquemine culture (Quimby 1951). He also carried out investigations at the Bayou Goula site (16IV11), in Iberville Parish, providing insight into what is now considered the protohistoric Delta Natchezan phase (Quimby 1957). Notwithstanding the inevitable refinements and challenges of later investigators, a great deal of our understanding of late prehistoric and protohistoric groups in this area derives from Quimby's two studies.

Although Quimby published these two monographs in the 1950s, the excavations themselves were carried out in the late 1930s and early 1940s. Nevertheless, the 1950s and 1960s were a time during which important original research was done in this area. Mclntire performed an investigation of Mississippi delta prehistoric settlement patterns and, while his study focused on the coastal zone, much of what he wrote is still applicable (McIntire 1958). Saucier published a monograph on the recent geomorphic history of the Pontchartrain Basin, dating many of the geomorphic features he described through the ages of known archaeological sites (Saucier 1963). Finally, Gagliano published a compendium of information on known Archaic sites in the region (Gagliano 1963). It should be mentioned that these three scholars published only after several years of formal and informal field explorations, which caused the list of known archaeological sites in the area to expand dramatically.

The Modern Era (1970-Present)

Beginning with the 1970s, most of the archaeological work done in the study area and its environs has been the result of contract archaeologists carrying out research pursuant to Section 106 of the National Historic Preservation Act of 1966. Work during this period has included highway and road surveys (e.g., Rivet 1974; 1976), levee surveys for the U.S. Corps of Engineers (e.g., Castille 1979; Gagliano 1977; Stuart and Greene 1983; Goodwin et al. 1985; 1989; Hinks et al. 1993; Rader 1978; Lee et al. 1996; Wheaton et al. 1997; George et al. 2000a,b); pipeline surveys (e.g., Bryant 1985; Heartfield, Price and Green, Inc. [HPG] 1985; McIntire 1976, 1981; Madden 1985; Neuman 1978; Price 1977; 1987; Skinner et al. 1995; Davies et al. 1998; Smith et al. 2001); surveys for sewer projects (e.g., Neuman 1977; Landry et al. 1980; Robblee et al. 1997a,b; Robblee and Davis 1997); studies for industrial expansion projects (e.g., Carpenter et al. 1981; Coastal Environments, Inc. (CEI) 1977; Guevin 1990; McCloskey et al. 1981; South and Maygarden 2000a,b); a survey for a proposed fiber-optic cable (Jackson et al. 2000); a proposed railroad right-of-way (Shuman et al. 1997) and literature searches (e.g., Goodwin et al. 1990). Establishment of a regional archaeology program headquartered at Louisiana State University in Baton Rouge has led to state-sponsored archaeology in this area since the early 1990s (Hays 1996, 1997, 1998, 1999, 2000, Mann 2001). In addition, since 1970, grant funded projects, student theses, and papers given at professional meetings have provided valuable information on this area. These sources will be summarized below.

Our knowledge of the Paleoindian era has been advanced by a paper given by Weinstein, Burden and Gagliano, who have proposed a Jones Creek phase on the basis of Plainview, Dalton and San Patrice projectile points at the Jones Creek (16EBR13) and Blackwater Bayou (16EBR33) sites. The same authors have proposed an Early Archaic St. Helena phase for the Florida parishes, based on finds of Kirk and Palmer points (Weinstein et al. 1977). Other data on the Archaic period derives from a coring project at the Louisiana State University mounds (16EBR6) (Homburg 1988; Neuman 1988), although Jones (1993)

has questioned the validity of their radiocarbon dates. Other Archaic radiocarbon dates, however, have come from the Monte Sano mounds (16EBR17), in the northern portion of the parish (Haag 1993). While these investigations were in East Baton Parish, they are applicable to that part of Ascension Parish that is Pleistocene Prairie terrace,

The early ceramic cultures are better attested than the preceramic ones. In his Master's thesis, Richard Weinstein drew together an impressive amount of information about sites along the Amite River and proposed several refinements of the prehistoric sequence in this area (Weinstein 1974). A few years later, Weinstein and Rivet (1978) synthesized and analyzed data from the Beau Mire site (16AN17) and suggested the concept of the Tchula phase, a late Tchefuncte manifestation (Weinstein and Rivet 1978). Further data on the Tchefuncte culture derives from work at the Lee site (16EBR51), located on the edge of the Pleistocene terrace overlooking Bayou Fountain (Weinstein et al. 1985). While the site was occupied from Tchefuncte through Coles Creek times, the Tchefuncte or Tchula component was the most marked. Near the Lee site is the Sarah Peralta site (16EBR67), a prehistoric, multicomponent midden that extended from Tchefuncte through late Coles Creek times. This location was excavated by Perrault and her coworkers, who found the Tchefuncte component to be the most significant element and the site has subsequently been placed on the National Register of Historic Places (Perrault et al. 1994). Finally, Jones and his colleagues excavated a Tchefuncte trash pit containing ceramics and a Kent type projectile point at the Kleinpeter site (16EBR5), but found that the Tchefuncte component was apparently less significant at that location than later cultures (Jones et al. 1994). Marksville culture was also represented at the Kleinpeter site, both in the Smithfield and Gunboat Landing phases (Jones et al. 1994:197). These phase names, it should be mentioned, derive from Weinstein's survey along the Amite in the early 1970s (Weinstein 1974).

Several projects have investigated sites of the succeeding Baytown and Coles Creek cultures. Notable was the emergency excavation of the St. Gabriel mound (16IV128), by Woodiel (1993). This location consisted of a single platform mound that had a circular structure in a premound context. The ceramics recovered from this site placed it in a period transitional between Coles Creek and Plaquemine. She called this the St. Gabriel phase. The mound was destroyed by the construction of Hunt Correctional Institute. The Kleinpeter site (16EBR5), mentioned above, provided more information relative to the St. Gabriel phase, notably another circular structure at the base of a low platform mound. From the artifacts recovered, it would appear that the Kleinpeter site thrived during late Coles Creek and Plaquemine times. It is unclear when prehistoric peoples ceased to live there (Jones et al. 1994). The protohistoric period of this area is represented by a study made by Brian Guevin of the 16AN35 site, location of the Grand Houmas Indian village (Guevin 1983).

The historic era in this portion of Ascension Parish is best represented by investigations at Ashland-Belle Helene Plantation (16AN26). Ashland-Belle Helene (16AN26) has been studied by three groups of researchers. R. Christopher Goodwin and Associates, Inc. (RCG), conducted limited investigations in 1985 and 1989 as part of two revetment projects for the U. S. Army Corps of Engineers (Goodwin et al. 1985, 1989). A

more detailed study of the plantation proper was carried out by Babson and Orser (1989) and consisted of testing the foundations of an outbuilding to the main plantation house and a portion of the slave quarters. Thirteen test units were excavated and nearly 23,000 artifacts were recovered, confirming the importance of this plantation to our understanding of ante- and post-bellum plantation life in the South. Five years later, Earth Search, Inc. (ESI), undertook data recovery operations at the site. They gridded an area of 102 ac (41.3 ha) and placed shovel tests at 98.4 ft (30 m) intervals. A portion of the site that was designated an impact area for development was gridded and shovel tested at 49.2 ft (15 m) intervals. In addition, trenches were placed across cabin sites and 89 1 m x 1 m test units were excavated at two cabin sites. As a result of these operations, eighteen slave/worker cabins were identified, at least 15 of which were double cabins. Archaeological evidence suggested that the cabins had been in continuous use from about 1840 until the turn of the century, when they were abandoned. Over 50,000 artifacts were recovered and 5,500 bone fragments were also salvaged (Yakubik et al. 1994).

CEI conducted a survey of a proposed extension of the Liquid Carbonics Plant in Geismar. The survey did not reveal any cultural resources in the project area (Guevin 1990).

Further studies in this area were made by Jones and Shuman in 1987 as part of a grant-funded project. They mapped all known Indian mounds in Ascension, Iberville, Pointe Coupee, and St. James, and West Baton Rouge Parishes. During their project they visited and mapped the Broussard mounds (16AN1) and found that Mound B, which lies directly under high power lines, is the site of an antebellum cemetery related to the Tillotson family. The cemetery had been badly damaged, but inscriptions on tombstones were still legible. Mound A they found to be in good condition albeit with an abandoned ranch-style house on top. The third mound, on property belonging to another landowner, was in good condition but had been slightly eroded by cattle. These mounds were then considered to probably belong to the Coles Creek or a later period (Jones and Shuman 1987).

In 1995, SURA surveyed the proposed route of a liquid hydrogen pipeline (Shuman et al. 1995). This study recorded six cultural resource locations, including the Broussard Mounds Site (16AN1). Testing at this site showed prehistoric midden in an area extending 100 ft (30.5 m) south of Mound B. As a consequence, the pipeline was rerouted further to the southwest from the prehistoric deposits. The midden itself contained prehistoric Marksville artifacts as well as materials dating from the establishment of Mound (later Riverside) Plantation, in the late 18th or early 19th century. An adjacent route was proposed for an Exxon pipeline in 1998. SURA archaeologists again conducted test excavations at 16AN1, this time near the base of Mound B (Jones et al. 1998). Once more they found intact deposits from the Marksville period and upon the recommendation of the State Archaeologist, Exxon elected to avoid the site by directionally drilling beneath it.

In further work at 16AN1, Benjamin Goodwin, as his M.A. thesis at Louisiana State University, attempted to apply remote sensing techniques to further explore the site. His results were equivocal, though in an attempt to ground truth the remote sensing he did carry

out limited excavations that led him to believe that Mound B was associated with the early Marksville Smithfield phase (Goodwin 2003).

In other, more recent projects, Huebscen surveyed and conducted Phase II testing at several locations along a pipeline running from Calcasieu to Ascension Parish (Huebschen 2012), and in 2013 RCG conducted a survey for portions of the Honeywell Plant expansion in Ascension Parish (Eberwine et al. 2013).

Projects near the Current Project Area

Several cultural resources projects have been conducted near the current project area. In 1980, HPG carried out a survey for the proposed IT Ascension Parish hazardous waste management facility and reported seven sites and nine spot finds. None of the cultural resources, however, were considered to be in danger from the proposed development (HPG 1980). A notable research project, which formed the basis of an M.A. thesis, was Guevin's study of historic Houma village sites, including the Grand Houmas Village (Guevin 1983).

In 1986, RCG surveyed the Burnside Revetment area along the Mississippi River. This work, which covered 14,255.1 ft (4,345 m), did not record any cultural properties (Goodwin et al. 1986). The following year the Louisiana Department of Transportation & Development surveyed a 160 ac (64.8 ha) tract for an airport but recorded no cultural resources (Ducote 1987). In the same year, 1987, HPG surveyed a proposed 50-mi (80.8 km) pipeline route and found one site (16AN40), which was considered to lack the integrity necessary for NRHP inclusion (Price 1987). Of some interest was a CEI survey of proposed telephone cable routes in Ascension and Livingston parishes. In the course of their survey, they found that 26 previously recorded archaeological sites and one historic town were in the vicinity of the project right-of-way. One new site (16AN38) was found outside the project right-of-way. Three of the sites investigated (16AN39, 16AN41 and 16LV41) were sufficiently close to the right-of-way to justify a recommendation of monitoring. Three other sites (16AN2, 16AN3 and 16AN13) were also investigated during the CEI project. The first, the Geismar mounds, could not be relocated. The second, Mount Houmas, the location of the Petit Houmas village, was destroyed by industrial activity in 1974 (CEI 1987). The last site, 16AN13, was reported by Haag in 1965 to be "on SE edge of Bluff Swamp where Jim Bayou enters swamp" and to consist of a midden 3,000 ft (91.4 m) long (DOA n.d.). CEI, however, was unable to relocate it (CEI 1987). The year 1995 saw AR Consultants survey a pipeline that ran from Cameron Parish to Accension Parish. No cultural properties were found in the current APE (Skinner et al. 1995). In 1997, RCG surveyed a proposed effluent force main line for the City of Gonzales and recommended 16AN60 (The Houmas Central Sugar Factory) for National Register testing (Robblee et al. 1997). Later that year, RCG conducted National Register testing of a portion of 16AN60. Backhoe trenching and unit excavation brought to light 80 features and three structures. Additional work was recommended (Robblee and Davis 1997). Also in that year, SURA, Inc. surveyed the route of a proposed railroad line but reported no cultural properties (Shuman et al. 1997). In 2005 CH2M Hill surveyed a proposed pipeline route running from Garyville to Port Hudson, but found no

cultural properties in or near the current APE (Durio and Calvit 2005). In 2012. SURA surveyed 120 ac (46.8 ha) to be used as a rainwater retention facility for the Ormet Corporation, just north of the current APE (Shuman and Taylor 2012a). Relevant to the present investigation, SURA, in the same year, carried out a survey of 30.8 ac (12.5 ha) to be used for a pond area as part of the Impala industrial development. The survey yielded no cultural properties (Shuman et al 2012a).

CHAPTER SIX:
METHODOLOGY

The methodology employed in the project consisted of two phases. Initially, historic maps and aerial photographs at the Louisiana State University Cartographic Information Center were consulted in order to determine what structures and roads might have existed on the property in the 20th century. In addition, the site files and report library of the Louisiana Division of Archaeology were examined to determine what archaeological sites had been reported for this area by previous investigators. This investigation established that the general survey area is surrounded by recorded archaeological sites, the most notable of which are 16AN28 (Burnside Cemetery), 16AN29 (Conways Sugar Mill), 16AN31 (Monroe Plantation), 16AN32 (Bruslie Plantation), 16AN35 (Grand Houmas Village), and 16AN60 (Houmas Central Sugar Factory). Due to the proximity of these sites, the field methodology decided upon was a high probability (HP) protocol.

The second phase, fieldwork, consisted of shovel tests excavated each 98.4 ft (30 m) along transects 98.4 ft (30 m) apart. Survey procedure was to have the crew form a skirmish line at one boundary and move along straight transects to the opposite boundary. All shovel tests were excavated to what appeared to be sterile soil and material recovered from the shovel tests was screened using .25 inch hardware cloth. When shovel tests were positive, site definition was carried out, with shovel tests being excavated at 32.8 ft (10 m) intervals in a grid oriented to the cardinal directions. In the case of extensive surface scatters in fallow, plowed fields, the boundaries of the scatters were shovel tested.

As a practical matter, the investigation of Impala property proceeded in several phases, with an initial survey of 30.8 ac (12.5 ha) on the SE side of La. Hwy 44 taking place in March, 2012. This survey was recorded fully as a separate report (Shuman et al. 2012a). Thereafter, the surveys detailed in the current report were surveyed. From March until April, 2012, SURA examined 437.7 ac (177.1 ha). From May 11 until May 22, 2012, SURA surveyed an additional 178.2 ac (72.1 ha) of contiguous land. The latter two survey phases (Survey Phases 1 and 2) were reported as management summaries (Shuman et al. 2012b; Shuman and Taylor 2012b). In December, 2013, another 58 ac (23.5 ha) contiguous to the other tracts were surveyed by SURA in two separate survey phases (Survey Phases 3 and 4). In the chapter on results, each tract will be detailed separately.

Curation Statement

All artifacts collected are returned to the SURA laboratory, washed, analyzed and catalogued. They, as well as documents pertaining to the survey, are then deposited with the Louisiana Division of Archaeology for curation at:

LDOA Curation/CRT
Central Plant North Building 2nd Floor
1835 North Third St.
Baton Rouge, LA 70802

CHAPTER SEVEN:
RESULTS OF THE SURVEY

Topographic Research

The entire general survey area of 673.9 ac (272.67 ha) was researched. A review of the relevant Mississippi River Commission (MRC) charts from the U.S. Army Corps of Engineers (USACE) and the historic topographic maps for this area at the Louisiana State University Department of Geography & Anthropology Cartographic Information Center (LSUCIC) showed several properties in the APE (Figures 6-9), including Orange Grove cemetery. There are also some buildings probably associated with Orange Grove Plantation in the northeastern part of the general APE.

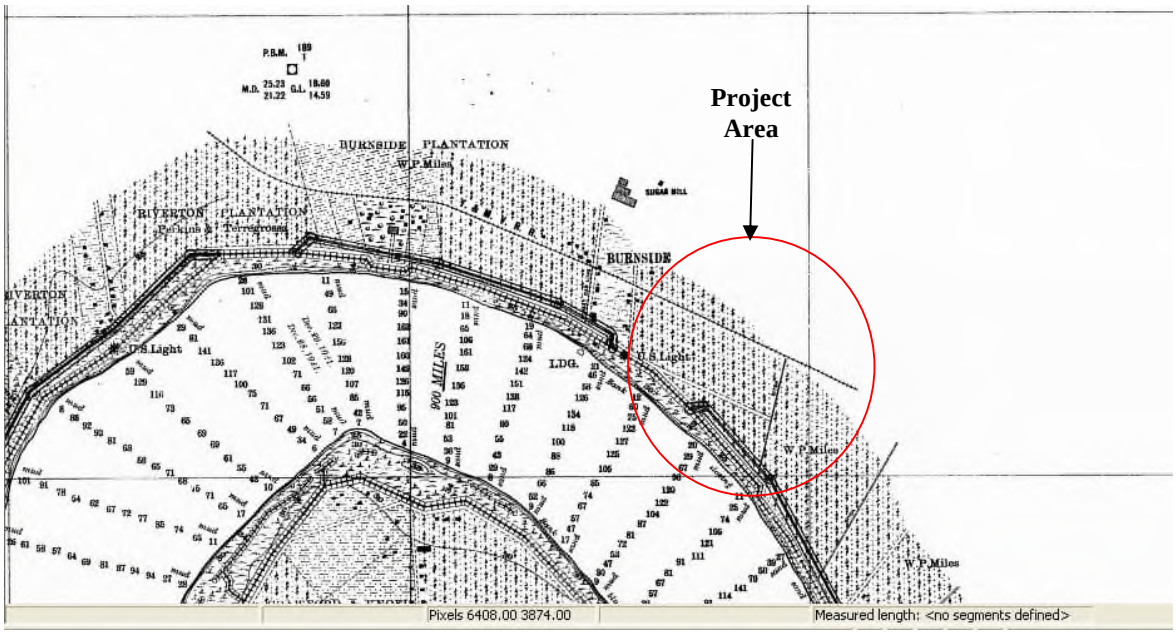

Figure 6. MRC 1883 chart showing general project location (Source: USACE, Sheet 70)

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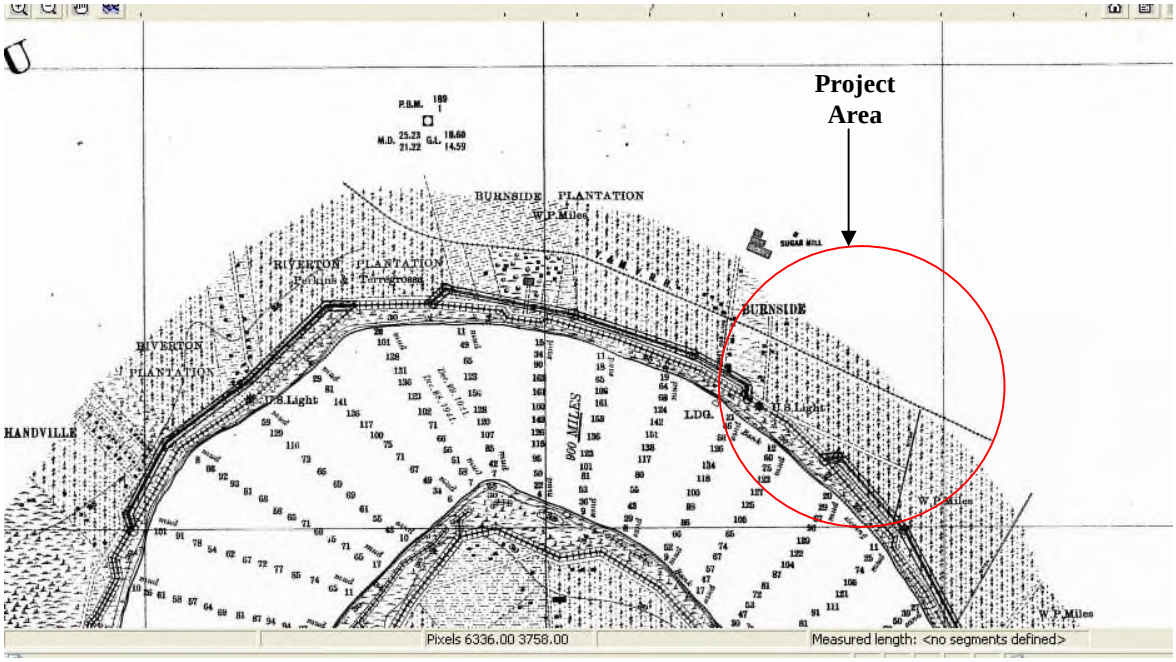

Figure 7. MRC 1913 chart showing general project location (Source: USACE, Sheet 70)

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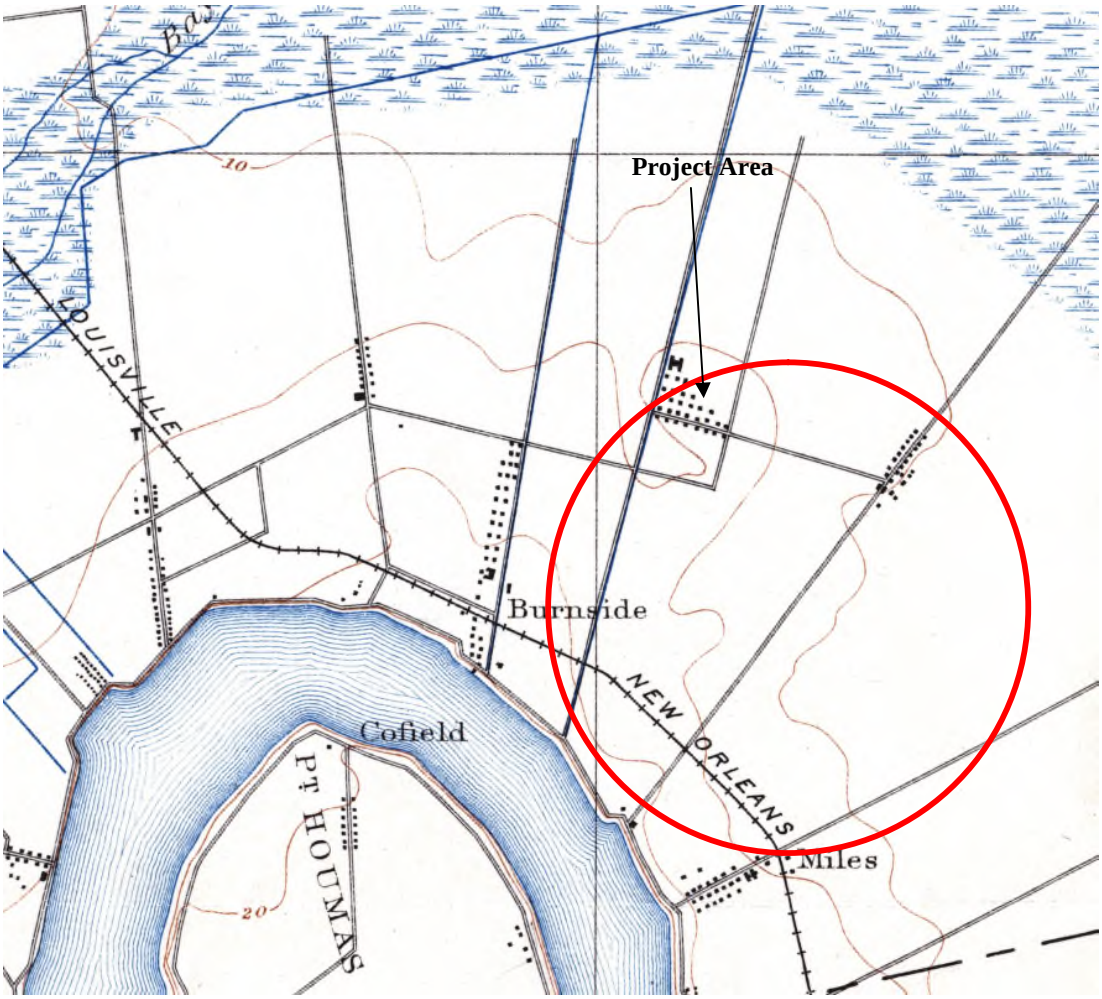

Figure 8. Portion of Donaldsonville, La. (1892) 15-minute topographic quadrangle, showing general project location (Source: LSUCIC).

Figure 9. Portion of Donaldsonville, La. (1939) 15-minute topographic quadrangle, showing project location (red circle)(Source: LSUCIC).

Fieldwork

As mentioned in Chapter Six**,** fieldwork was divided into four separate phases, the first two phases (Survey Phases 1 and 2) lasting from March-May, 2012. The last two phases (Survey Phases 3 and 4) took place in December, 2013. Each of these phases will now be described.

Survey Phase No. 1 (437.7 ac/177.1 ha), March-April, 2012

The area surveyed in this phase is indicated in Figure 10.

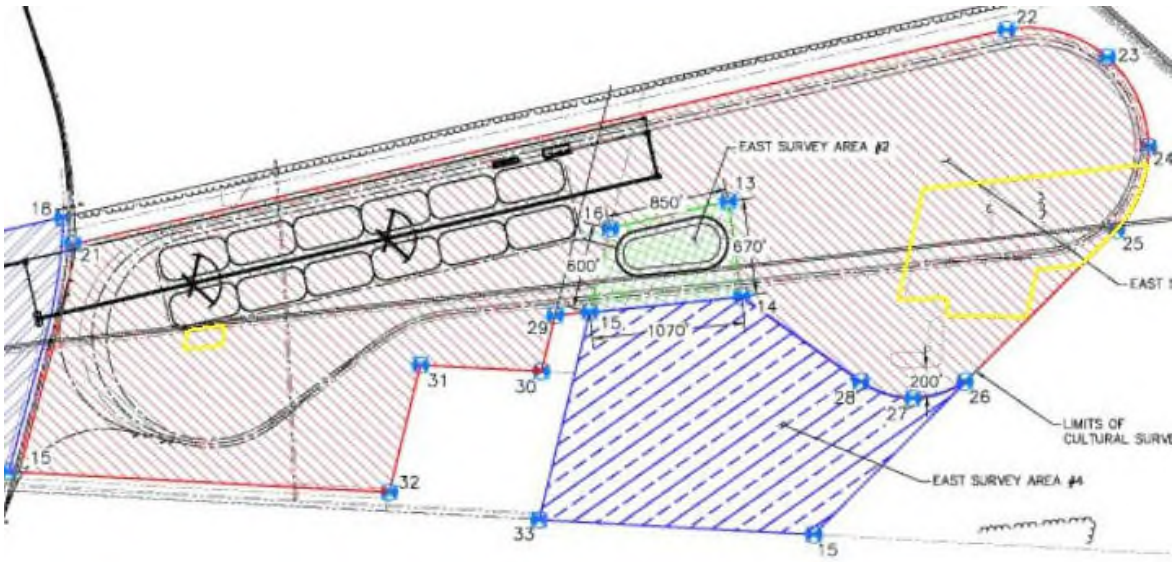

Figure 10. Survey Phase No. 1, surveyed from March until April, 2012 (437.7 ac [177.1 ha]).

The areas shown in Figure 10, with the exception of the yellow-outlined areas, were found to have no significant cultural resources. These areas without cultural remains consisted of ca. 420.7 ac (170 ha) of fallow cane fields. Photographs of these areas are presented in Figures 11 and 12.

Figure 11. Photograph of portion of Survey Phase No. 1 area from Survey Point 14 on Old La. Highway 22, looking SE.

Figure 12. Photograph of portion of Survey Phase No. 1 area from Old La. Highway 22, looking NNW.

Figure 13 shows the transects covered during Survey Phase No. 1. A total of 1,950 shovel tests were excavated.

Figure 13. Transects covered during Survey Phase No. 1 (Area covered in green)

Representative soil profiles for this phase are presented in Figure 14.

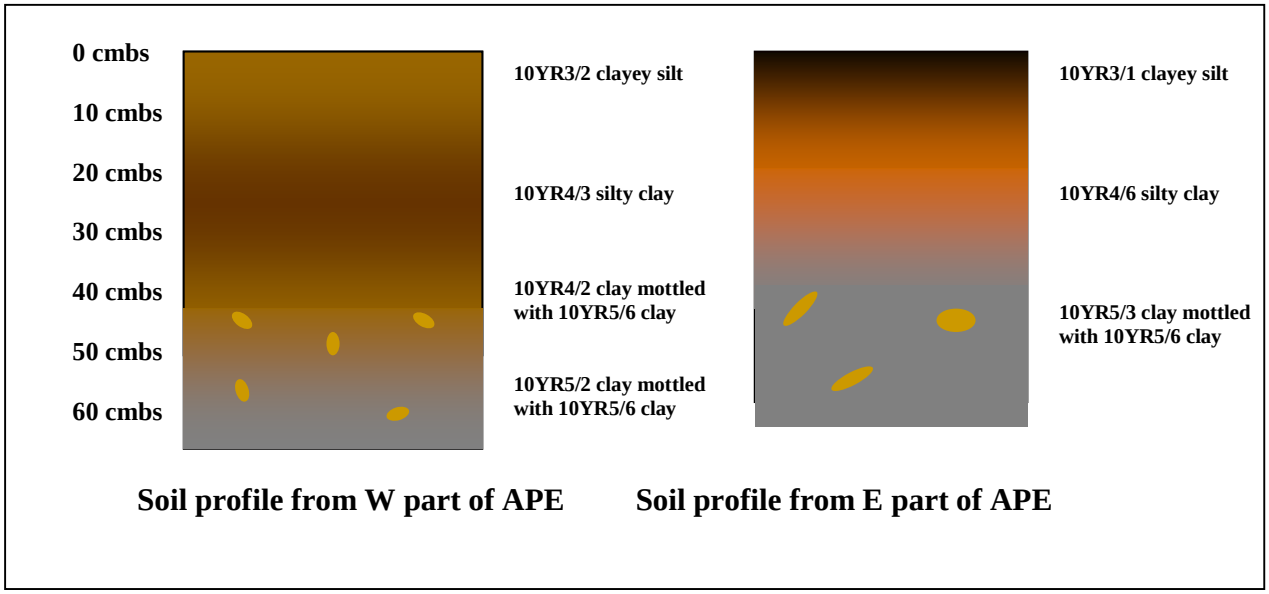

Figure 14. Representative soil profiles, Survey Phase No. 1.

Survey Phase No. 2 (178.2 ac/72.1 ha), May 11-May 22, 2012

The second survey phase took place from May 11 to May 22, 2012, and covered the area shown in Figure 15. Of the 178.2 ac (72.1 ha), about 10 ac (4.05 ha) contained cultural remains.

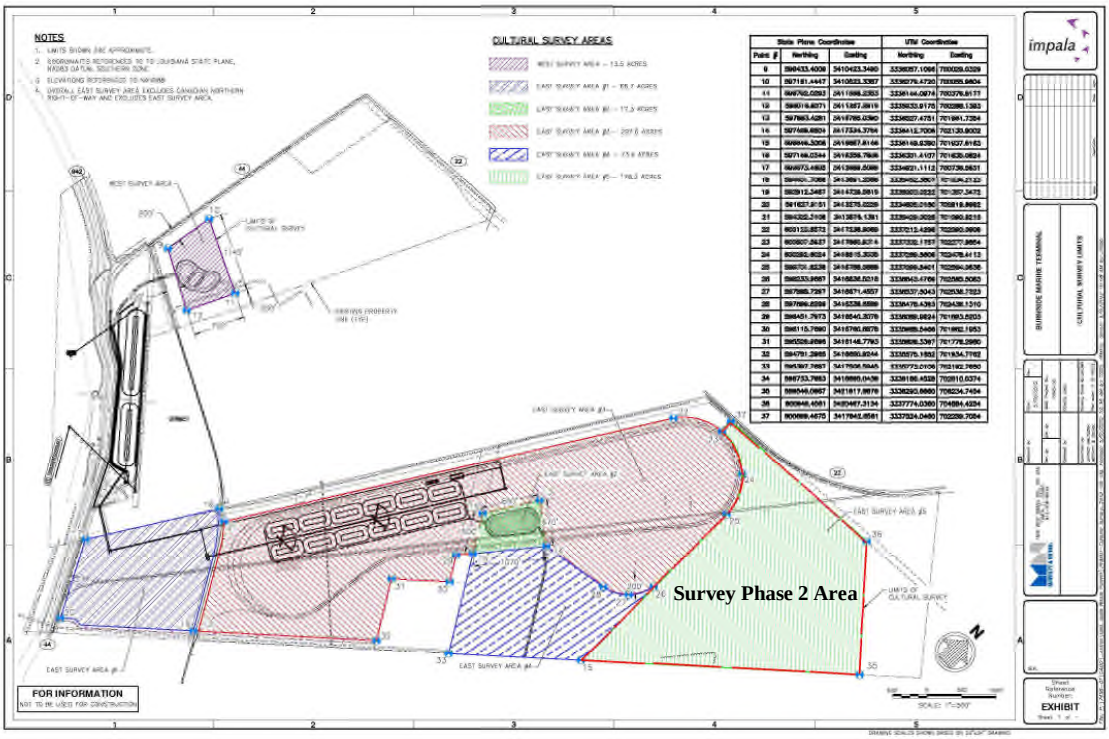

Figure 15. Survey Phase No. 2 areas, surveyed from May 11-22, 2012 (177.1 ac/72.1 ha).

The fieldwork methodology has already been described. The area surveyed consisted of 178.2 ac (72.1 ha). A total of 168.2 ac (68 ha) of this tract are devoid of cultural materials. Views of this area at time of survey are presented in Figures 16 and 17.

Figure 16. Photograph of portion of area for Survey Phase 2, west of Old La. Hwy 22, facing SSW.

Figure 17. Photograph of portion of area for Survey Phase 2, west of Old La. Hwy 22, facing SSW.

Figure 18 shows the transects for this phase. A total of 975 shovel tests were excavated.

Figure 18. Survey Phase No. 2 transects (green area).

A representative shovel test for this area is presented in Figure 19.

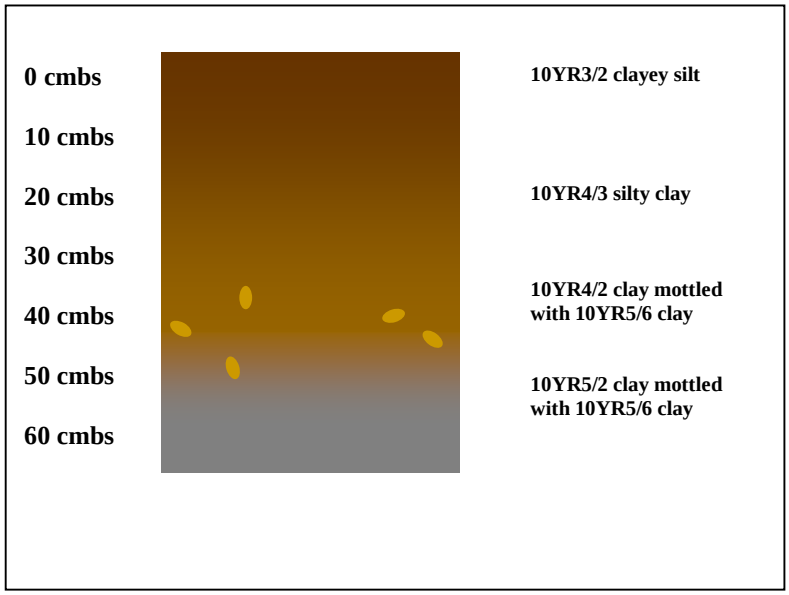

Figure 19. Representative soil profile, culturally sterile portion of APE, Survey Phase No. 2.

Survey Phase No. 3 (28 Ac/11.33 ha), December 13, 2013

On December 13, 2013, a Phase I survey of 28 ac (11.33 ha) was conducted of the area shown in Figure 20.

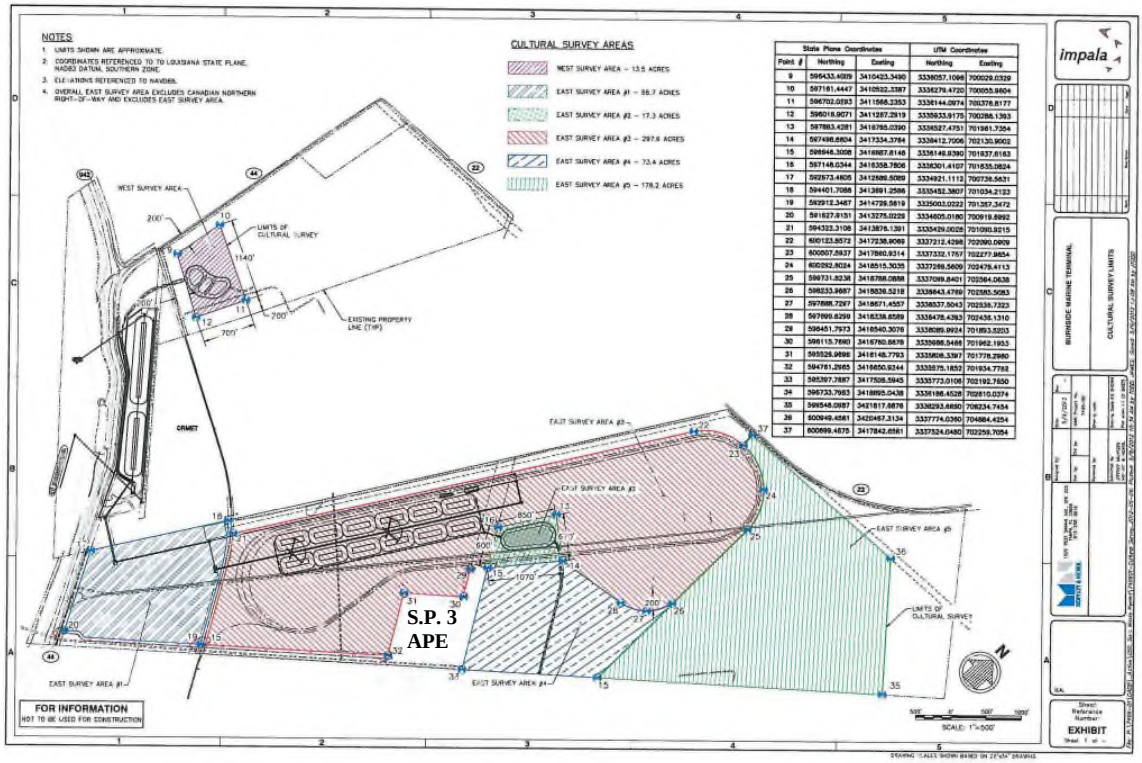

Figure 20. Survey Phase No. 3, 28 ac (11.33 ha).

The survey area consisted primarily of burned-over cane fields with some standing water in the furrows (Figure 21), although a small part in the southwest of the survey area was covered with dead grass; this area was slightly higher than the remainder of the APE and shovel tests here encountered sand in the upper levels (Figure 22).

Figure 21. Northern portion of Survey Phase No. 3 APE, facing NNE.

Figure 22. Southern portion of Survey Phase No. 3 APE, facing SW.

The transects for this survey phase are shown in Figure 23.

All 125 shovel tests were negative and no cultural materials were recovered. Examples of shovel test profiles are provided in Figure 24.

Figure 23. Google aerial photo showing transects for Survey Phase No. 3 (green area).

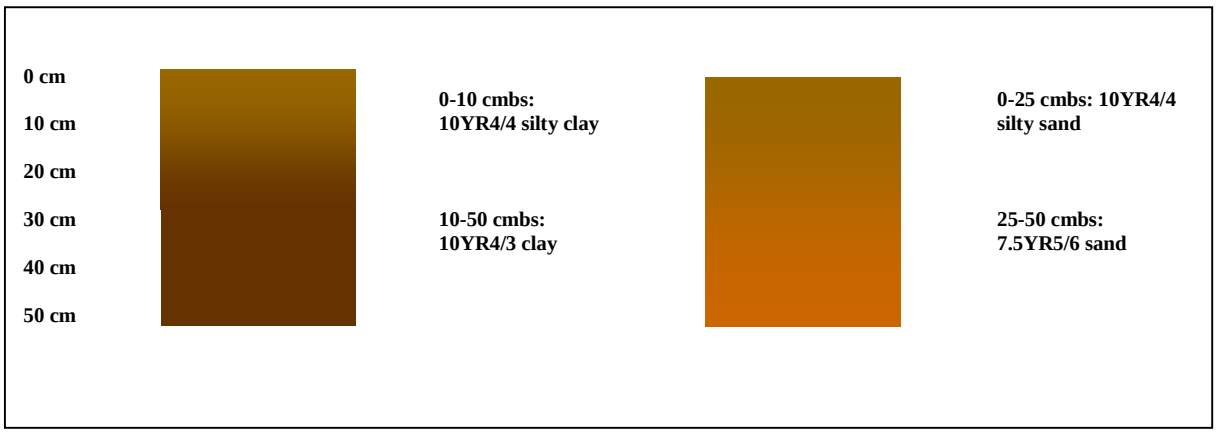

Figure 24. Representative soil profiles, Survey Phase No. 3.

Survey Phase No. 4 (30 ac/12.14 ha), December 19, 2013

A strip along the NW boundary of the tract, measuring about 150 ft (ca. 45.7 m) wide was surveyed on December 19, 2013. The survey involved two parallel transects, 98.4 ft (30 m) apart, with shovel tests at the same intervals. In practical terms, the survey area extended along the SE side of a canal, beginning at the railroad tracks and ending at (new) La Hwy 22, as illustrated by Figure 25.

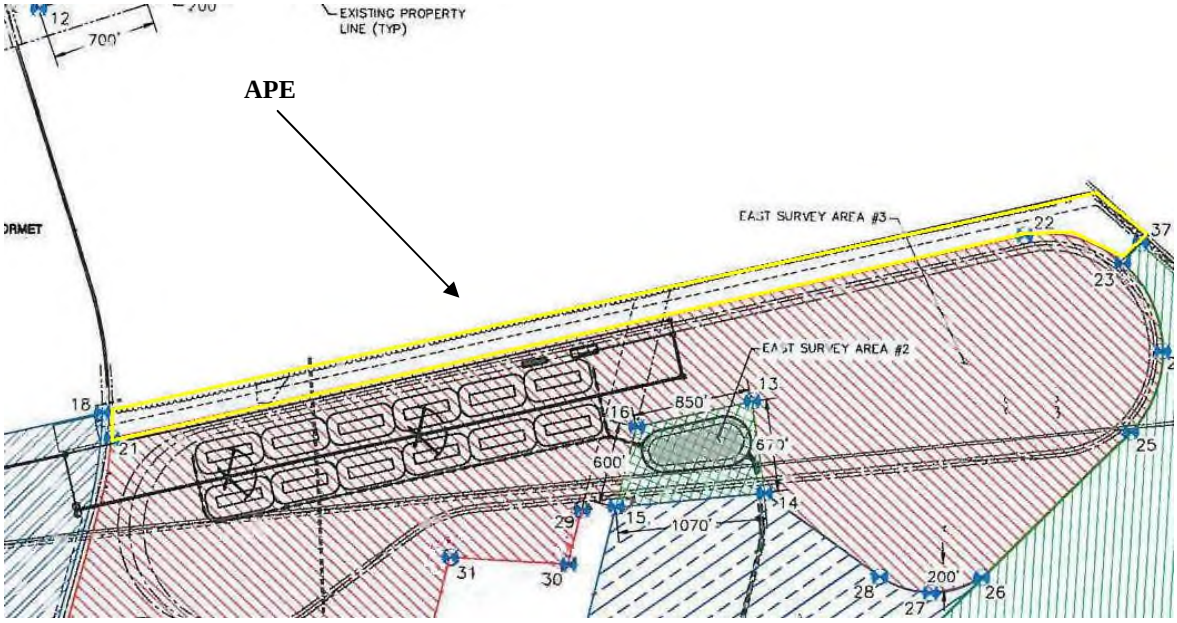

Figure 25. Survey plat, showing area covered by Survey Phase No. 4, in yellow.

The APE ran alongside a canal that had evidently been dredged (Figure 26) and was crossed by several pipe lines (Figure 27). Figure 28 shows the transects walked.

Figure 26. View, looking SW, of canal along NW side of APE for Survey Phase No. 4, from (new) La Hwy 22. Red line is border of APE.

Figure 27. Pipe line crossing canal on NW border of APE for Survey Phase No. 4 (red line).

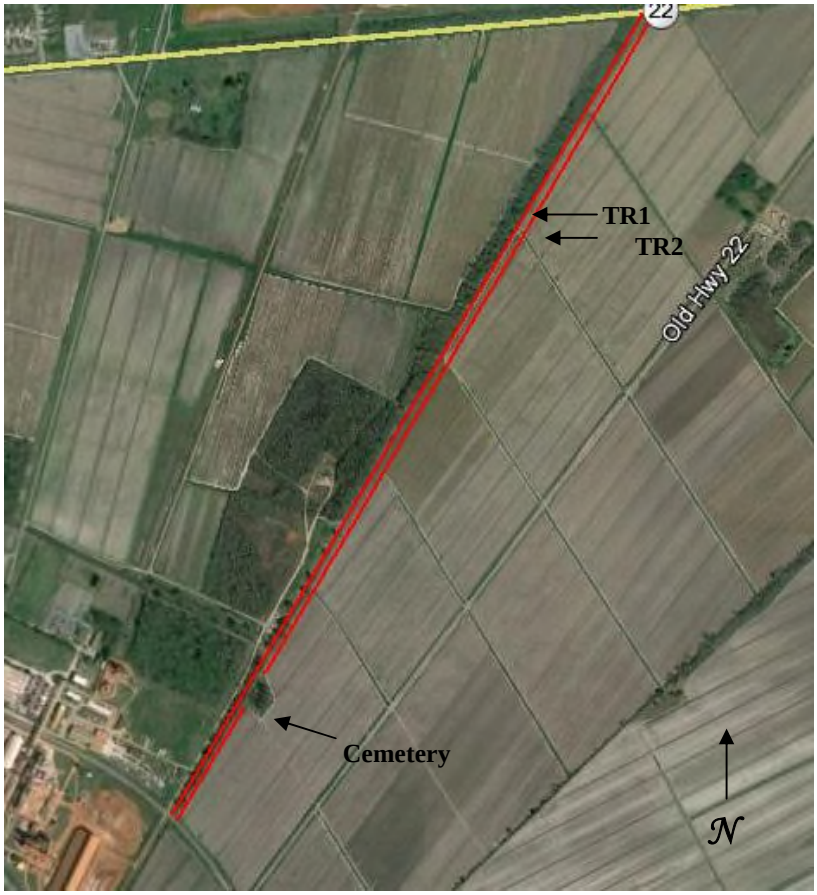

Figure 28. Google aerial map showing transects for Survey Phase No. 4 (red lines) and Orange Grove Cemetery.

All 114 shovel tests were negative. Figure 29 presents representative shovel test profiles.

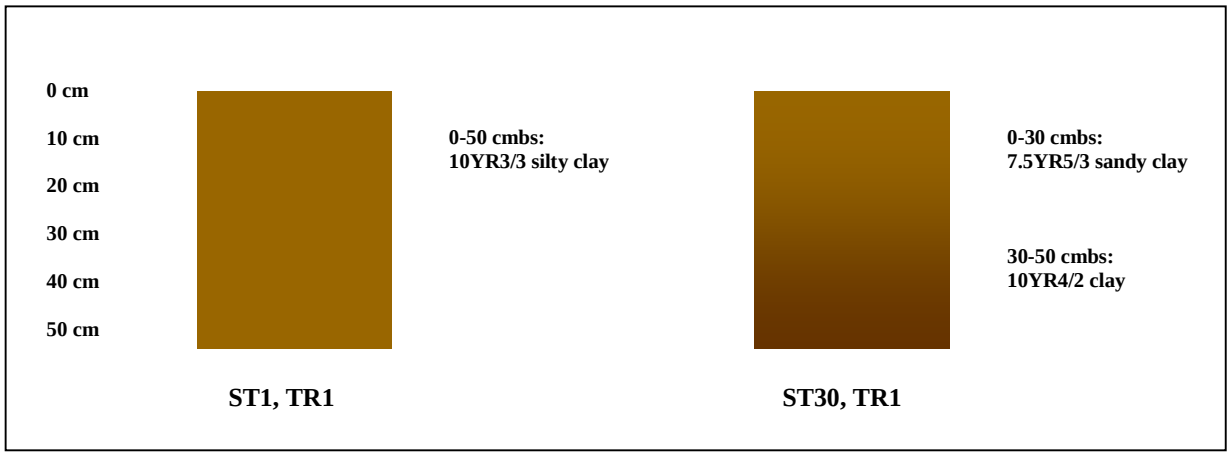

Figure 29. Representative soil profiles, Survey Phase No. 4.

Cultural Resources Locations for Survey Phases 1-4.

Four cultural resources locations, each of potential NRHP eligibility, were discovered during the general survey, during survey Phases 1-4. They were recorded as locations pertaining to Orange Grove Plantation, which was given the site designation 16AN89. These locations will now be described in numerical order.

Location 1 (Old "Spice" Store), 16AN89

This location was discovered during Survey Phase No. 1. Its location is shown in Figure 30. It is to be found at the approximate UTM coordinates shown in Table 1.

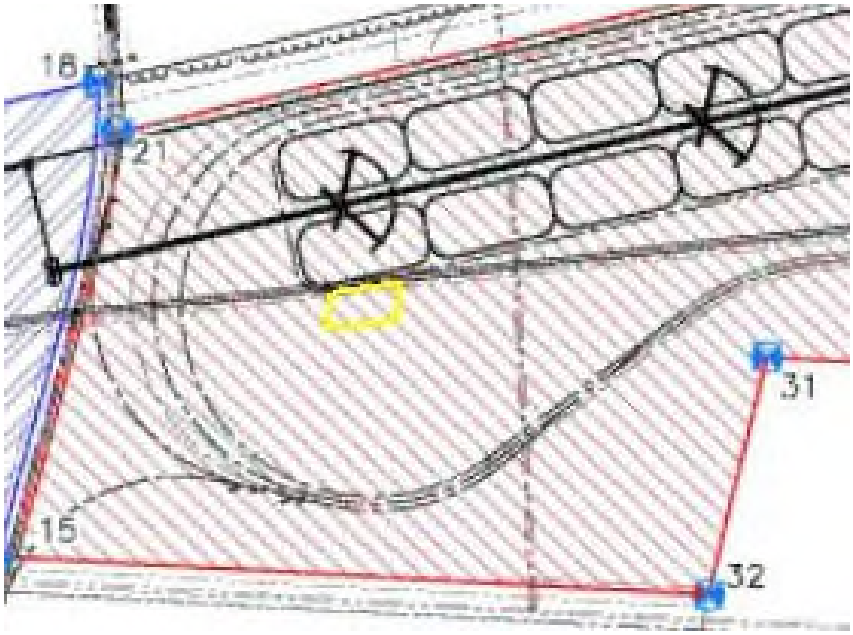

Figure 30. Location 1, 16AN89.

Location 1 consists of 1 ac (.4 ha) of brick rubble in a plowed field, intermixed with ceramics, slate and nails. Some of the nails are of the cut variety, dating to the 19th century, and 10 of the ceramics were pearlware, as well as whiteware. Clearing away of the bricks showed the existence of brick foundations and heavy brick rubble deposits (Figures 31 and 32). Shovel tests around the positive shovel tests and surface scatter defined the lateral extent of the feature, as shown in Figures 33 and 34. Not all brick rubble from positive shovel tests was collected. It is important to note that the plowed field allowed visual inspection of the surface such that Sharkey clays were consistently exposed in the furrows, as they were in the shovel tests. It seemed unnecessary to conduct extensive shovel testing in fallow, plowed fields when clays were visible at the surface. Transect shovel tests did not reveal any further brick foundations in the area than those already mentioned. The end of the surface scatter was considered the boundary of the site.

Figure 31. Brick foundations in Shovel Test No. 1, Location 1, 16AN89, facing NE.

Figure 32. Brick foundations in Shovel Test No. 1, Location 1, 16AN89, facing NE.

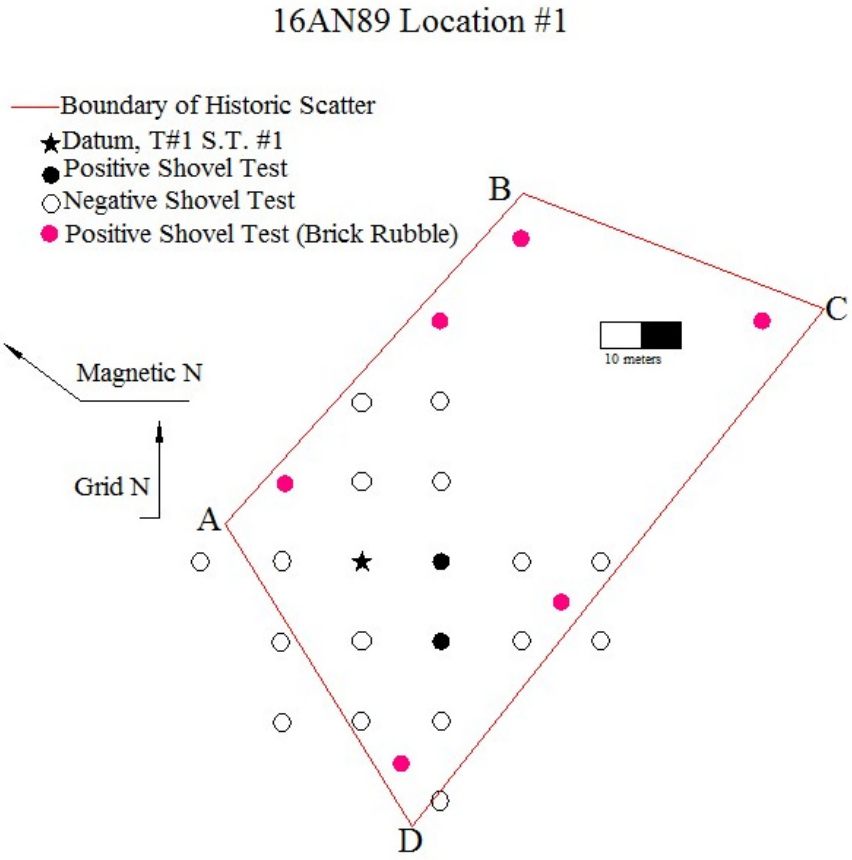

Figure 33. Map of Location 1, 16AN89, showing transect shovel tests and site definition tests.

Figure 34. Aerial photograph of Location 1, 16AN89, showing site definition shovel tests (Source: Google Earth).

Table 1. UTM coordinates of Location 1, 16AN89.

Point	Easting	Northing
A	701388.00 m E	3335490.00 m N
B	701423.00 m E	3335536.00 m N
C	701463.00 m E	3335521.00 m N
D	701413.00 m E	3335455.00 m N

Representative artifacts from this location are presented in Figures 35-40.

Figure 35. Plain whiteware from surface, Loc. 1, 16AN89.

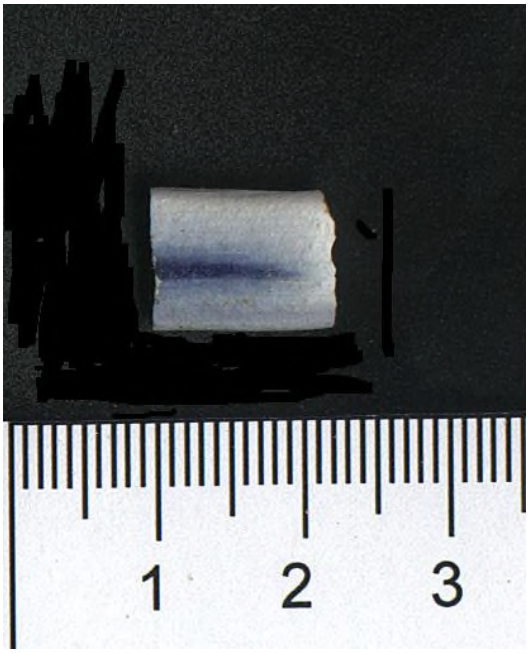

Figure 36. Flow Blue whiteware from Site Def ST No. 4, Loc. 1, 16AN89.

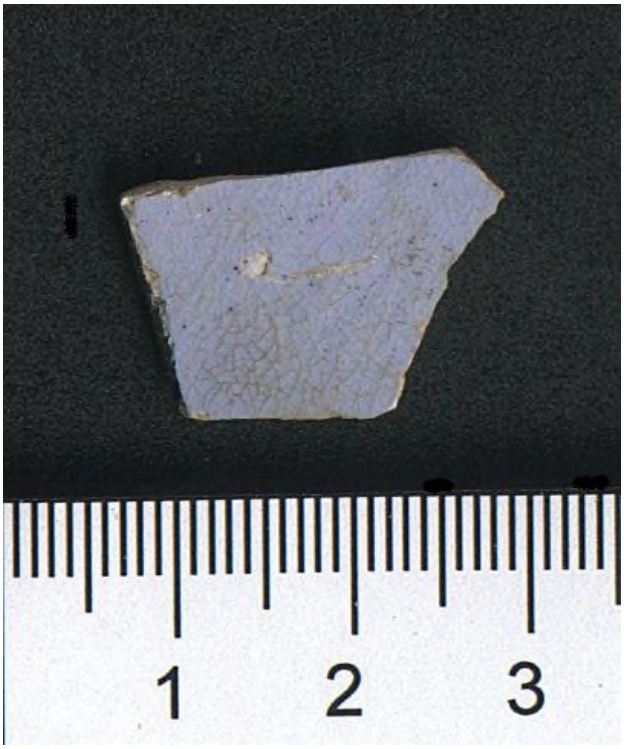

Figure 37. Mocha whiteware from surface, Loc. 1, 16AN89.

Figure 38. Plain pearlware from surface, Loc. 1, 16AN89.

Figure 39. Blue glass jar bottom from surface, Loc. 1, 16AN89.

Figure 40. Cut nail from T1, ST1, Loc. 1, 16AN89.

A tabulation of the material from Location 1 is presented below in Table 2.

Table 2. Material recovered from Location 1 (Old "Spice" Store).

	LOCATION 1				
	#3	#4	T1ST1	Surface	TOTAL
Ceramics					
Whiteware					
Plain	2	5		29	36
Decorated					
Transfer				1	1
Hand-painted				1	1
Flow Blue		2			2
Mocha				1	1
Pearlware					
Plain				10	10
Porcelain					
Plain				3	3
Decorated				1	1
Glass					
Bottle (curved)			2	8	10
Window (Flat)			1		1
Milk				5	5
Metal					
Iron					
Fasteners					
Nails					
Cut			4		4
Misc.			1		1
Construction Material					
Brick			2		2
Slate			2		2
Rock	1				1
Asbestos				9	9
TOTAL	3	7	12	68	90

The positive and negative shovel tests are represented by Figure 41.

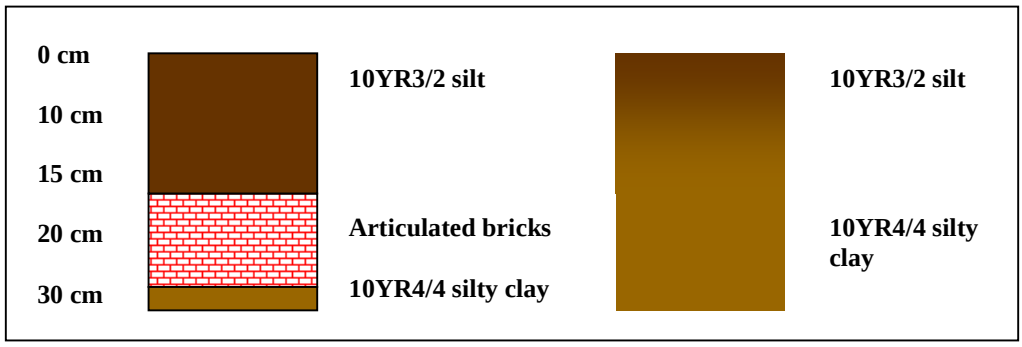

Figure 41. Profile, Shovel Test No. 1 (left) and negative shovel test (right), Location 1, 16AN89

This feature (Location 1) is shown on the 1939 Donaldsonville, La. 15-minute topographic map (Figure 42). It does not appear on the 1892 Donaldsonville, La. 15-minute map or the 1953 Gonzales, La. 7.5-minute map and subsequent maps.

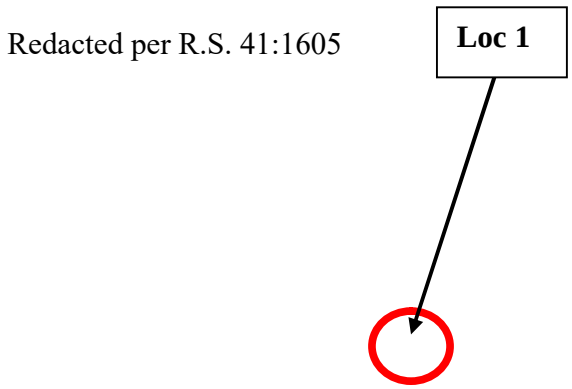

Figure 42. Portion of Donaldsonville, La. 1939 15-minute topographic map, showing Location 1, 16AN89.

EXHIBIT F

There is no pond near the feature, as would be expected with a sugar mill using steam equipment. Interviews of local persons by Ms. Taylor Gabour identified this location as the remains of the "Old Spice Store," though it was unclear whether "Spice" is the name of the material purveyed or, rather, is a surname. A search of likely spellings (Speiss, Spies) did not turn up any families of that name now in the area.

The six cut nails from the location certainly suggest a 19th century time period (Edwards and Wells 1993), while the ceramic artifacts, which included 12 pearlware sherds, suggest an antebellum occupation for this location. The feature is enigmatic, however, inasmuch as it appears on the 1939 Donaldsonville, La. 15-minute topographic map but not on the earlier 1892 Donaldsonville, La. 15-minute map or on the much later 1953 Gonzales, La. 7.5-minute map and subsequent maps. The large area covered and the articulated brick foundations do not make a commissary or store unlikely, but one wonders if the foundations postdate some earlier structure, since nothing is portrayed on the maps before 1939.

According to the *National Register of Historic Places Bulletin* 16 (NPS 1991:1, 36):

> The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association are potentially eligible for the *National Register of Historic Places.* In order to evaluate this significance, four criteria have been developed:
>
> A. That are associated with events that have made a significant contribution to the broad patterns of our history; or
> B. That are associated with the lives of persons significant in our past; or
> C. That embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
> D. That have yielded, or may be likely to yield, information important in history or prehistory.

Archaeological sites are usually assessed under Criterion D.

It is our belief that the location maintains integrity of location, and that this portion of 16AN89 could qualify under Criterion D, for Management Unit V, under the themes of (in order of relevance): Plantation Archaeology, the Influence of the Mississippi River on Historic Settlement, and Euro-American Influence on the Landscape. Should the "store" be related to the nearby railroad, the theme the Development of the Railroads might apply, although this theme is usually related to Management Unit IV (Smith et al. 1983).

Location 2 (Big House and Tenant Houses), 16AN89

This property, discovered and defined during Survey Phases 1 and 2, consists of a concentration of rubble alongside the western edge of Old La. Highway 22 on both north and south sides of the grove of trees that contain remnants of the "Big House." The location is shown in Figures 43 and 44. It is separated from Location No. 3 by Old La. Highway 22. The plowed areas on either side of the "Big House" area cover about 15.75 ac (6.34 ha). The "Big House" area, which is unplowed, covers about 1 ac (.41 ha), thus giving Location 2 a total area of about 16.75 ac (6.75 ha).

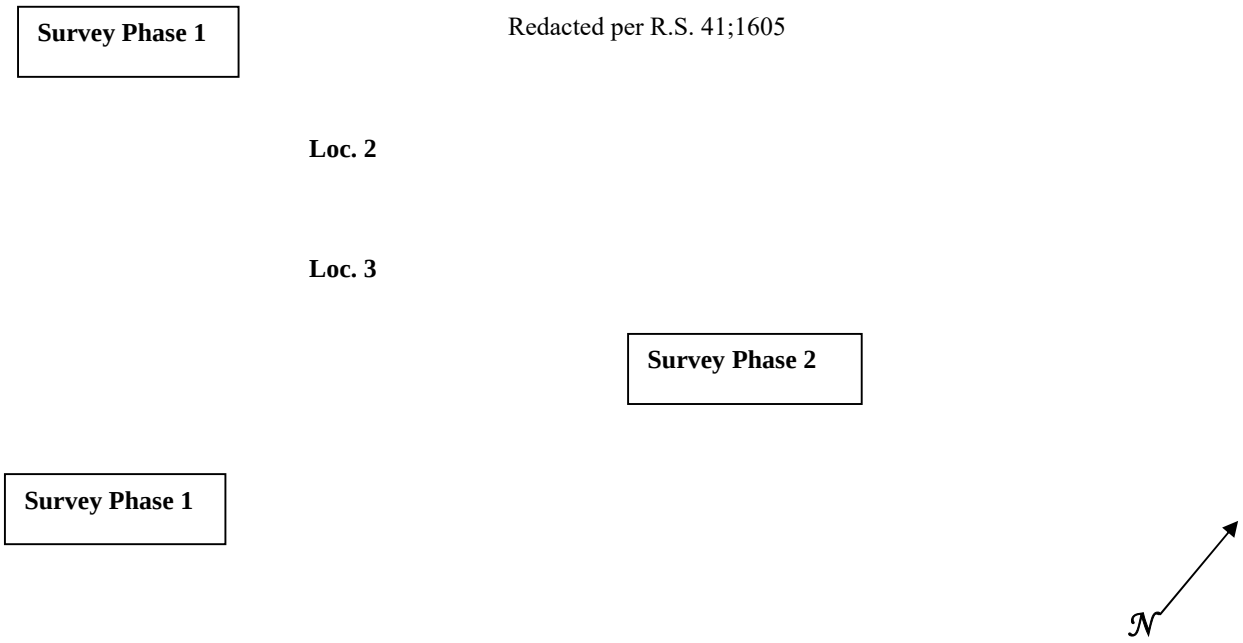

Figure 43. Locations 2 and 3, 16AN89.

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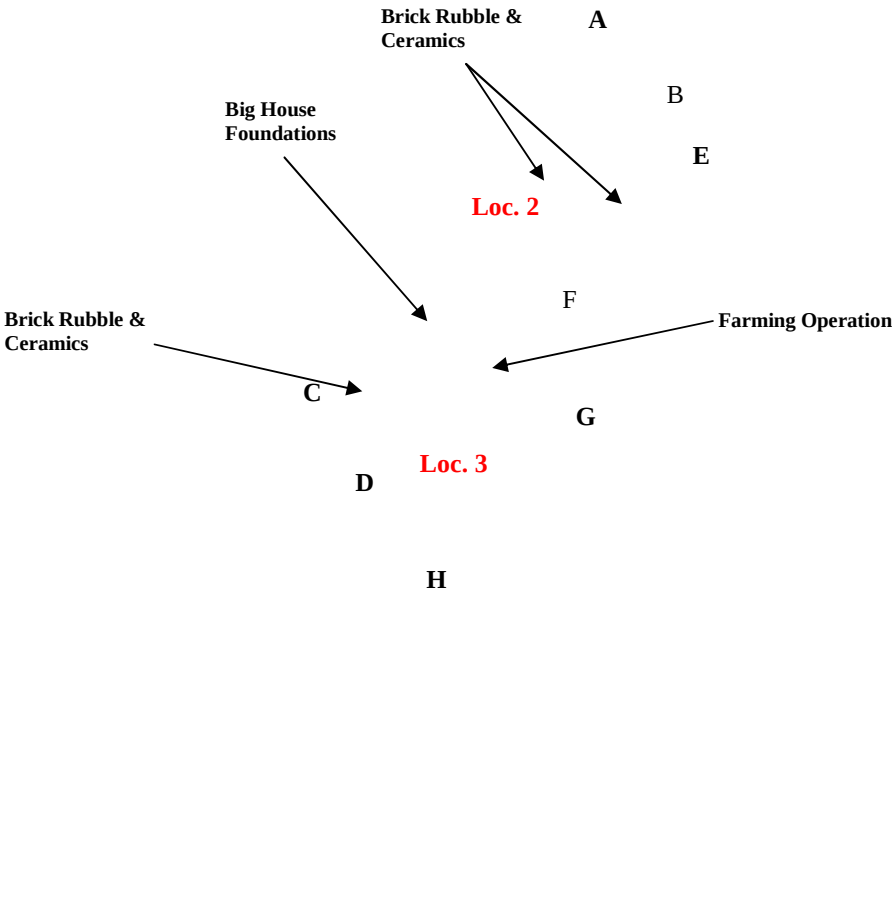

Figure 44. Locations 2 and 3, 16AN89, from Google Earth.

Figure 45 is a color-coded map of areas surveyed in Locations 2 and 3. because there were several delivery orders, and they involved survey of adjacent parcels, transect and shovel test numbers reflect the delivery order involved, rather than the overall survey. That is, each delivery order involved beginning shovel test numbers with "1", rather than starting where the last ended. While this is far from ideal, the color-coding allows placement of the various site definition maps that follow for both locations 2 and 3. Accordingly, this map will be referred to in the following pages.

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Figure 45. Locations 2 and 3, 16AN89, showing transects (Source: Google Earth).

Figure 46 is an aerial photograph of the transects and shovel tests for Location 2, and figures 47-54 are maps of the site definition shovel tests for Location 2.

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Figure 46. Aerial photo of Location 2, 16AN89, showing transect shovel tests (Source: Google Earth).

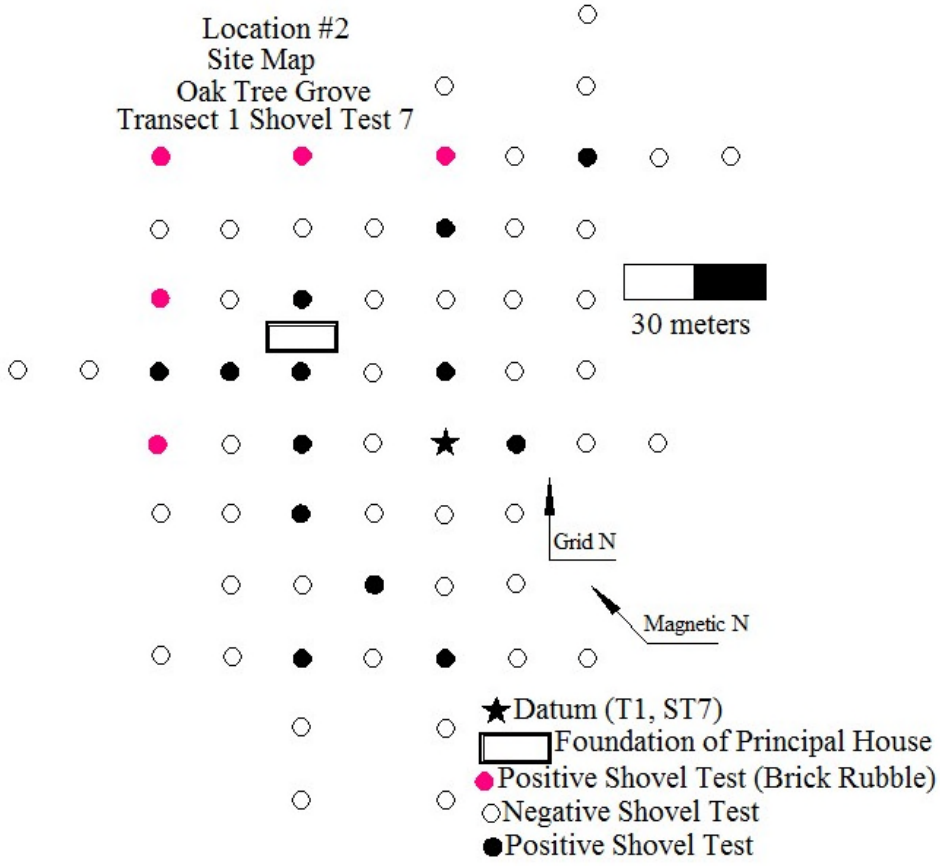

Figure 47. Shovel test site definition, area of Big House, Location 2, 16AN89 (Code: Location 2 yellow area, Figure 45).

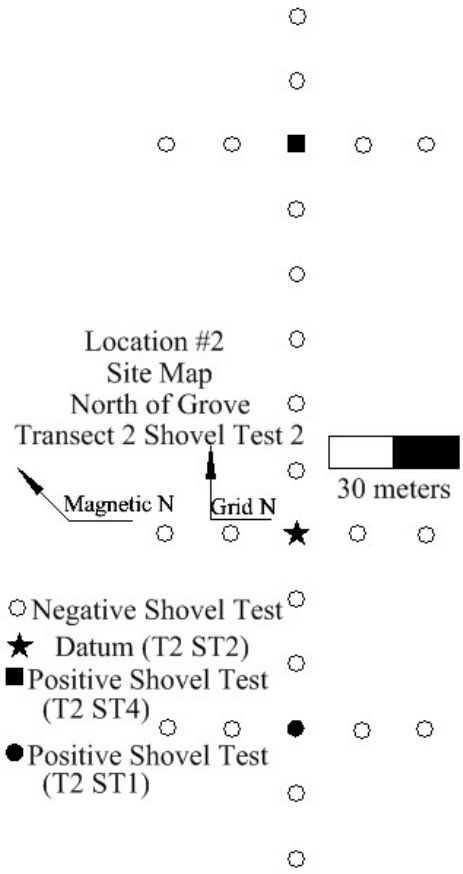

Figure 48. Shovel test site definition, (Transect 2, Shovel Test 2), fields north of Big House, Location 2, 16AN89 (Code: Location 2 green area, Figure 45).

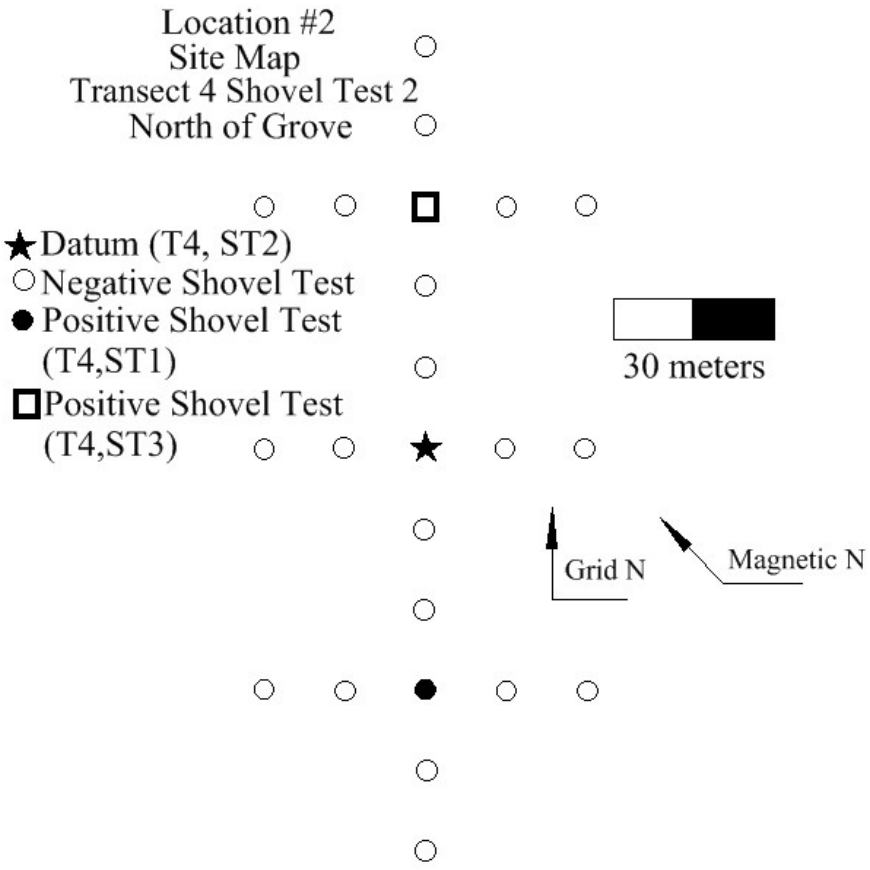

Figure 49. Shovel test site definition, (Transect 4, Shovel Test 2), fields north of Big House, Location 2, 16AN89 (Code: Location 2 green area, Figure 45).

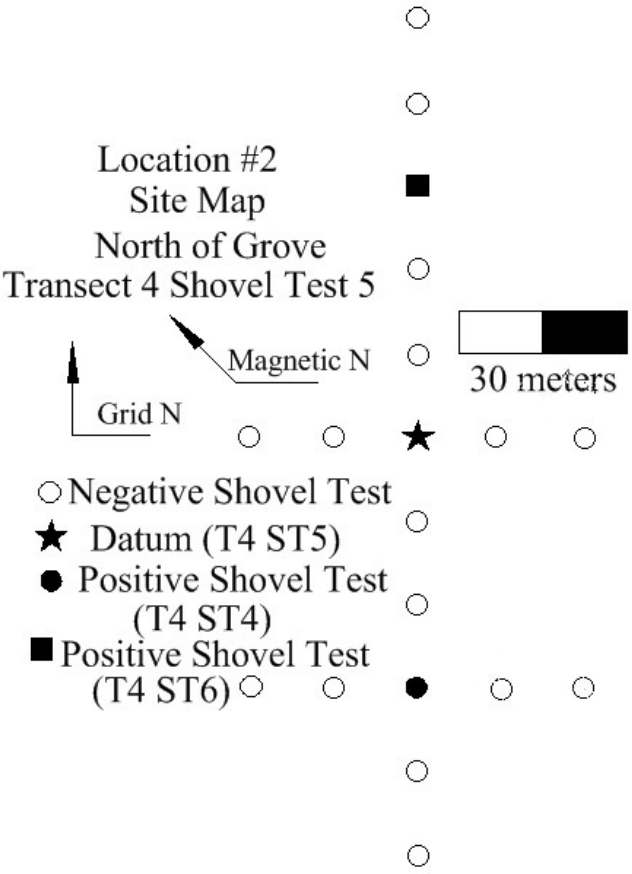

Figure 50. Shovel test site definition, (Transect 4, Shovel Test 5), fields north of Big House, Location 2, 16AN89 (Code: Location 2 green area, Figure 45).

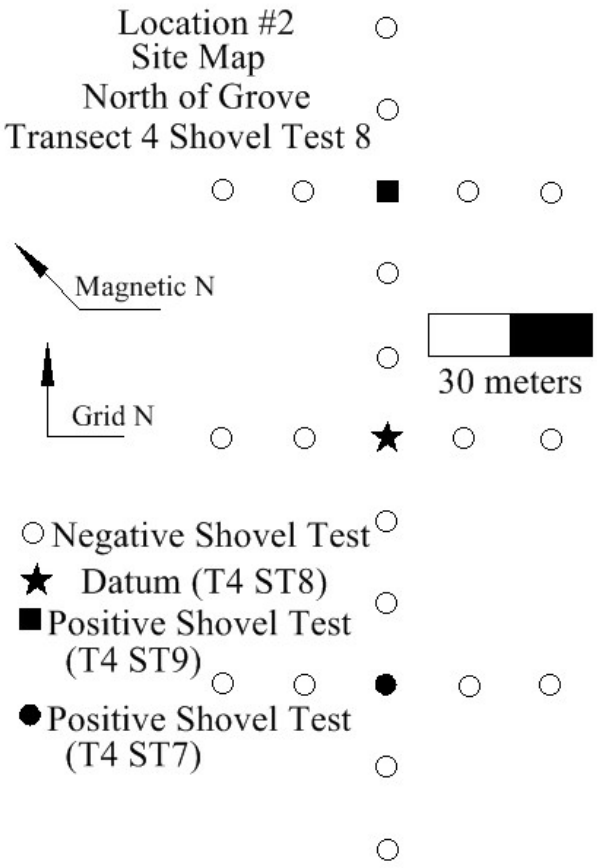

Figure 51. Shovel test site definition, (Transect 4, Shovel Test 8), fields north of Big House, Location 2, 16AN89 (Code: Location 2 green area, Figure 45).

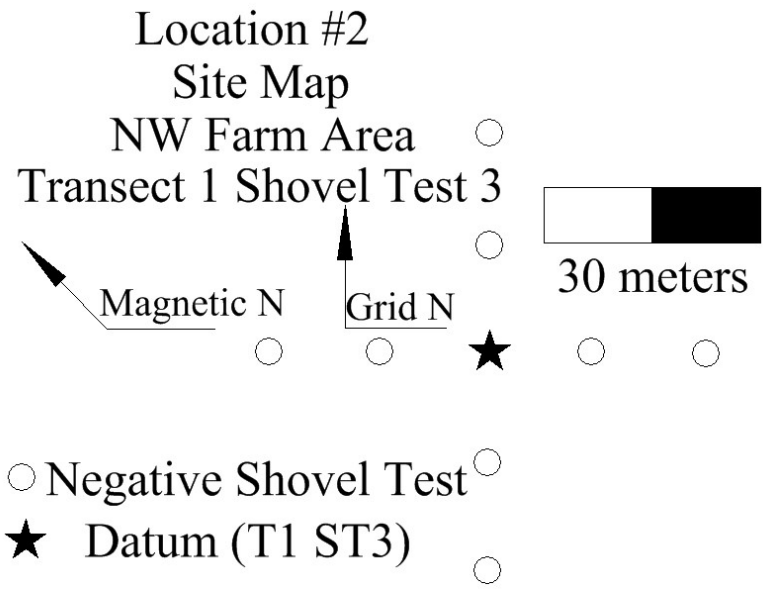

Figure 52. Shovel test site definition (Transect 1, Shovel Test 3), field extreme north of Big House area, Location 2, 16AN89 (Code: Location 2 purple area, Figure 45).

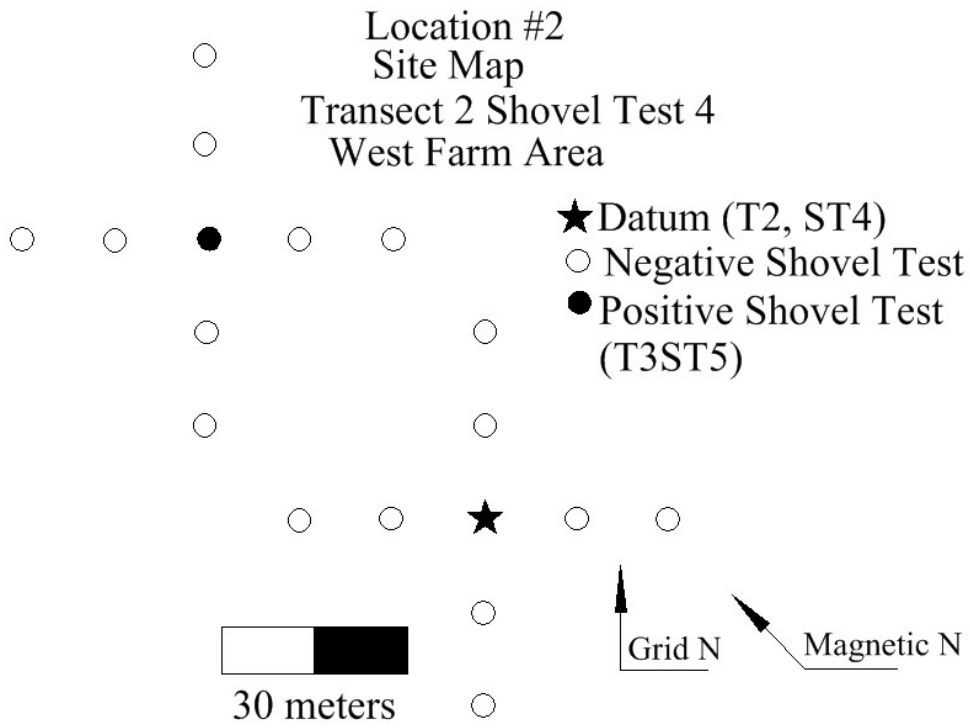

Figure 53. Shovel test site definition (Transect 2, Shovel Test 4), field extreme north of Big House area, Location 2, 16AN89 (Code: Location 2 purple area, Figure 45).

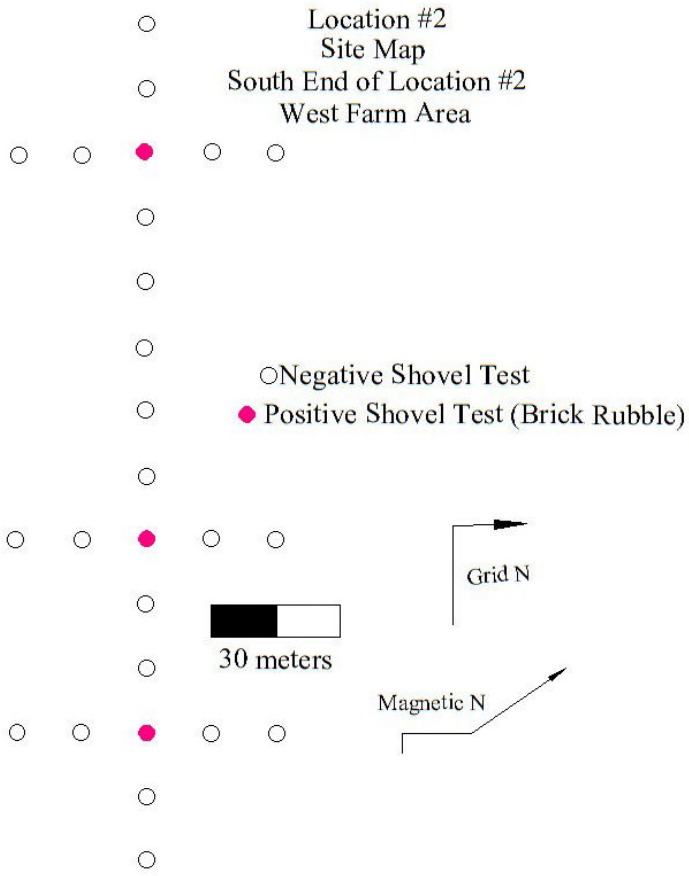

Figure 54. Shovel test site definition, south end of Location 2, 16AN89 (Code: Location 2 yellow area, southwest end, Figure 45).

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Coordinates of the location are presented in Table 3.

Table 3. UTM Coordinates of Location 2, 16AN89

Point	Easting	Northing
Point A	702596	3337337
Point B	702655	3337252
Point C	702222	3336857
Point D	702293	3336761

Figure 55 shows the plowed field containing brick rubble and, in the background, the grove of trees (unplowed area) with the big house remains that comprise part of Location 2. Figure 56 is a view of the clearing containing the remains of the big house.

Figure 55. Foreground shows crew in field containing brick rubble and ceramics, with grove of trees containing big house remains in background, facing NE, from Old La. Highway 22.

Figure 56. Clearing in which big house was located, taken from Old La. Highway 22, facing ENE, Location 2, 16AN89.

During the shovel testing of the clearing where the big house was situated the apparent foundations of that structure were located (Figures 57 and 58)

Figure 57. View of NW corner of big house foundations, Location 2, 16AN89.

Figure 58. SW corner, big house foundations, Location 2, 16AN89.

The foundations measure 38.3 ft (11.7 m) N-S and 28.0 ft (8.53 m) E-W. In the area directly behind the foundations (i.e., directly west) several shovel tests recovered ceramics and animal bones, suggesting a possible separated kitchen area. Several cut nails were also recovered during the foundation delineation. Figures 59-101 present representative artifacts from all of Location 2, including the kitchen/big house area and Table 4 is a list of those items. The artifacts on the whole indicate domestic activities; a more systematic surface collection might show differences in function between the fields where tenant houses were presumably located and the area around the principal house. At present, there is no evidence to support a distinction in quality (i.e., utilitarian vs. non-utilitarian ceramics) between the two activity areas.

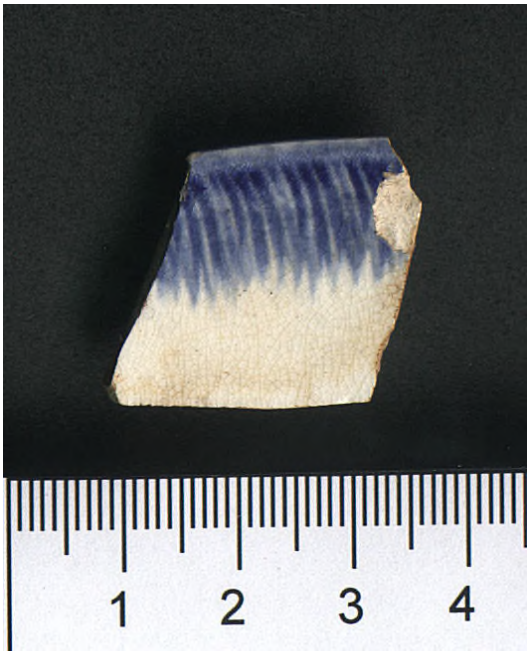

Figure 59. Blue shell-edged whiteware, surface, Loc. 2, 16AN89.

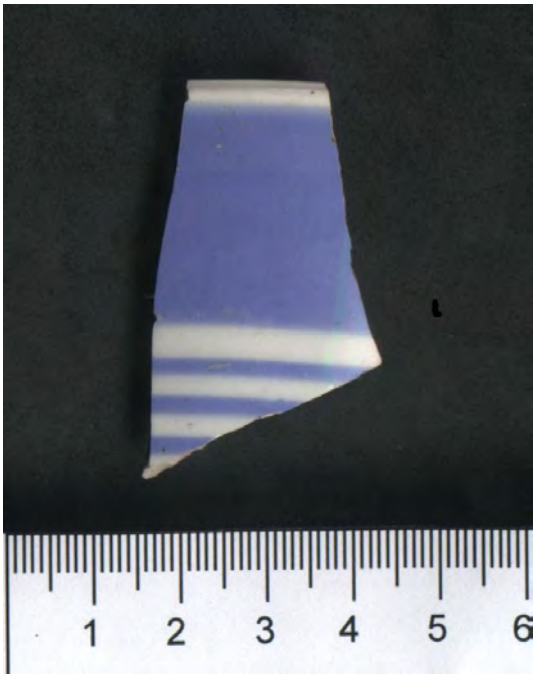

Figure 60. Blue annular (Mocha?) whiteware, surface, Loc. 2, 16AN89.

Figure 61. Black annular whiteware, surface, Loc. 2, 16AN89.

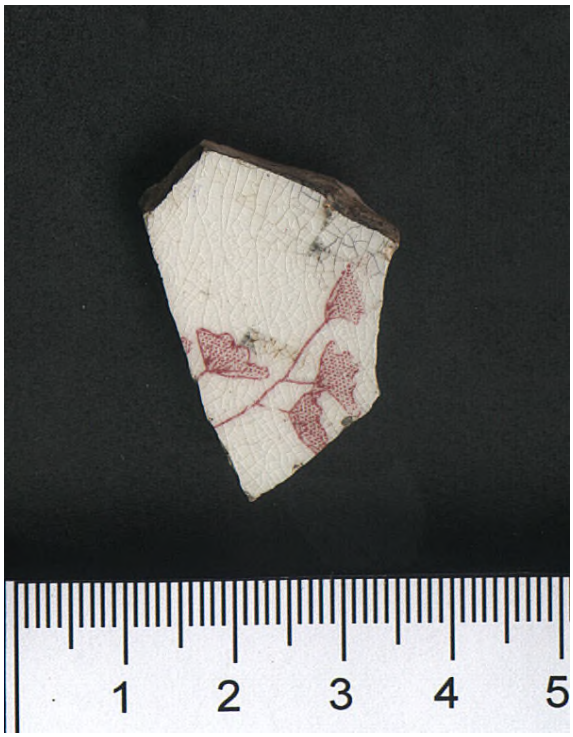

Figure 62. Red transfer, leaf-design whiteware, surface, Loc. 2, 16AN89.

Figure 63. Red transfer, leaf-design whiteware, surface, Loc. 2, 16AN89.

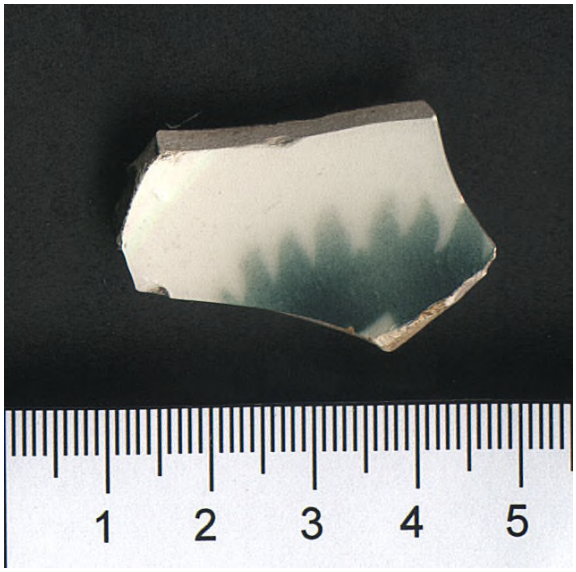

Figure 64. Green transfer whiteware, surface, Loc. 2, 16AN89.

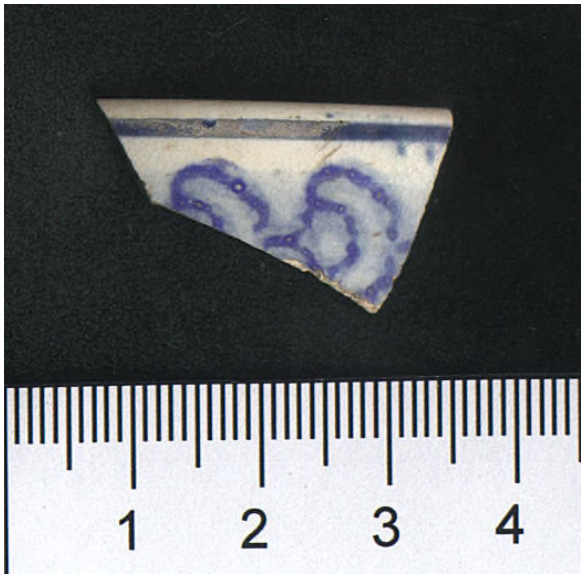

Figure 65. Flow blue whiteware with annular component, surface, Loc. 2, 16AN89.

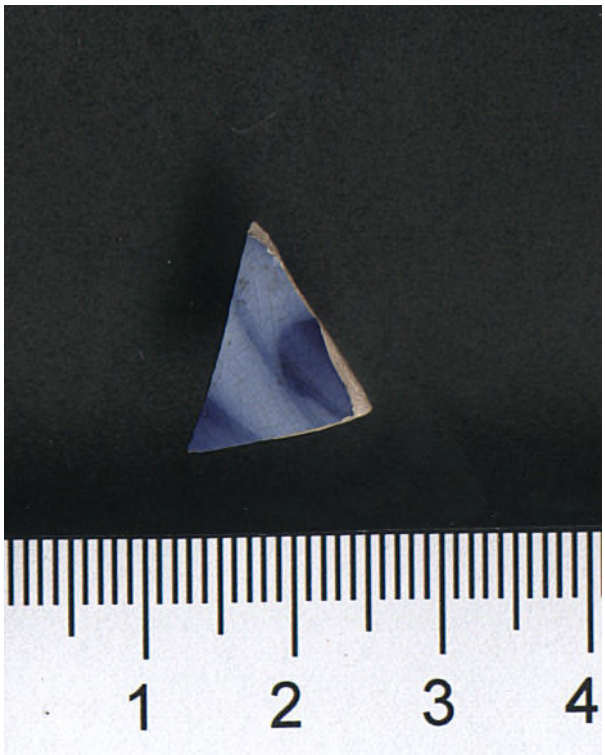

Figure 66. Flow blue whiteware, surface, Loc. 2, 16AN89.

Figure 67. Hand-painted whiteware, surface, Loc. 2, 16AN89.

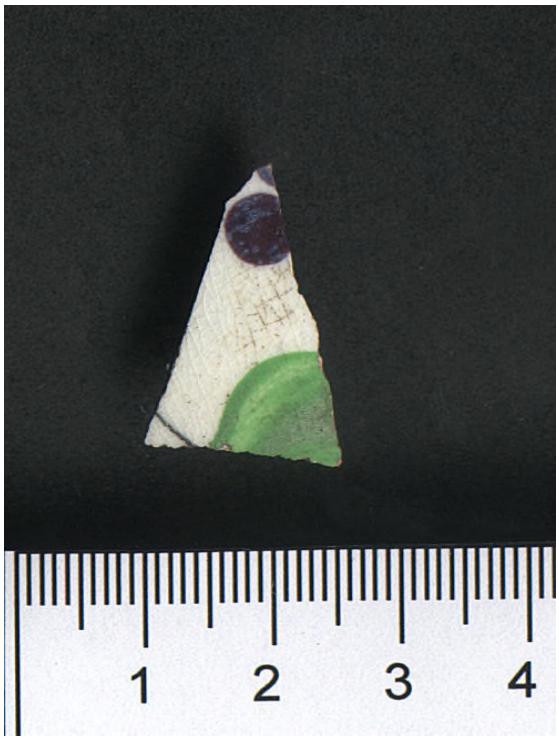

Figure 68. Hand-painted whiteware, surface, Loc. 2, 16AN89.

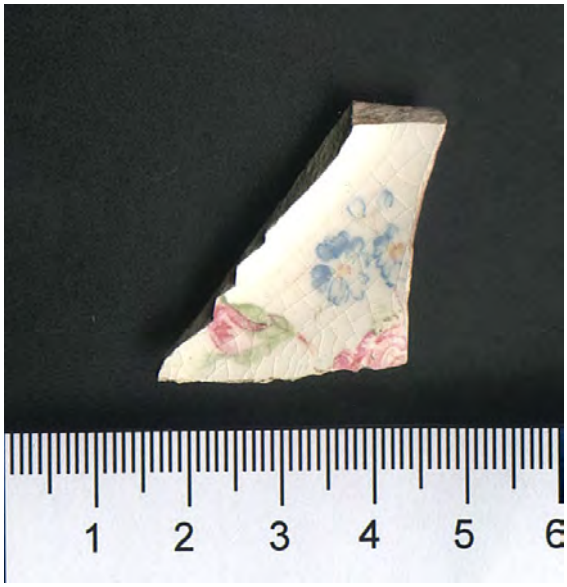

Figure 69. Hand-painted whiteware, surface, Loc. 2, 16AN89.

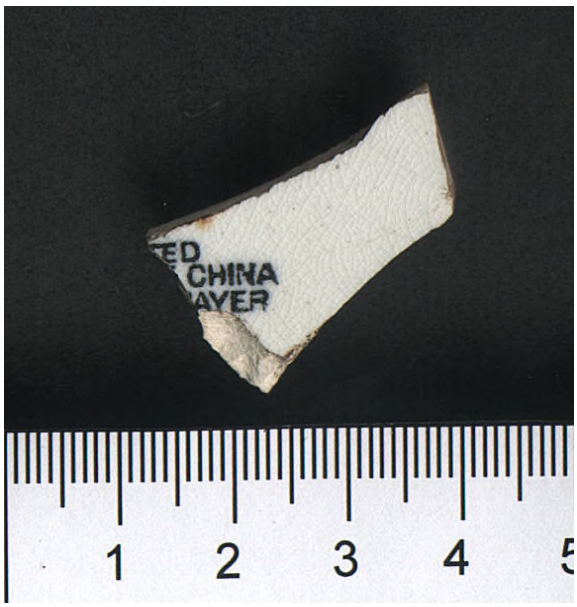

Figure 70. English ironstone with partial maker's mark, surface, Loc. 2, 16AN89.

Figure 71. Ironstone from Hanley, Staffordshire, England, surface, Loc. 2, 16AN89.

Figure 72. Ironstone with partial maker's mark, surface, Loc. 2, 16AN89.

Figure 73. Plain ironstone ware, surface, Loc. 2, 16AN89.

Figure 74. Plain pearlware, T2 ST4, Loc. 2, 16AN89.

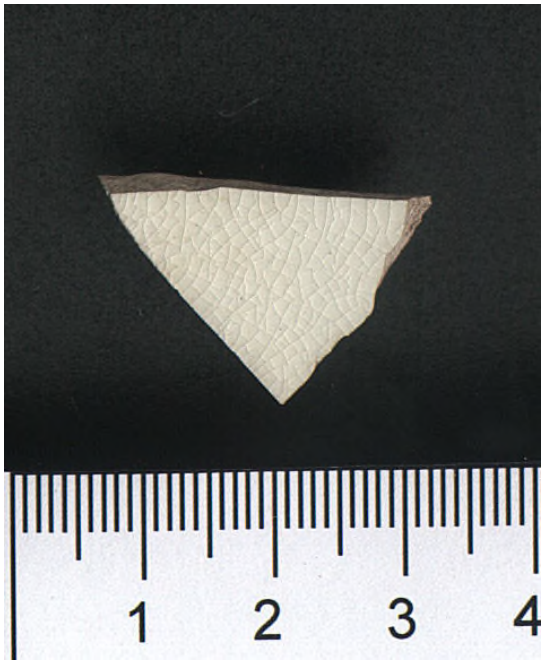

Figure 75. Plain pearlware, surface, Loc. 2, 16AN89.

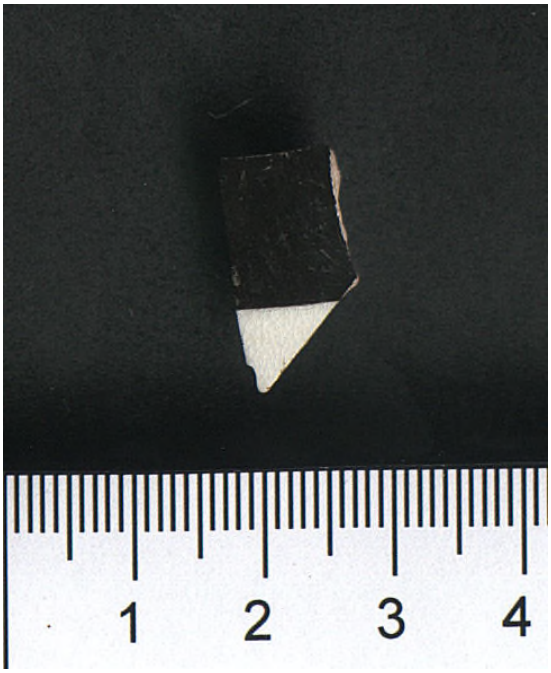

Figure 76. Pearlware with annular design, surface, Loc. 2, 16AN89.

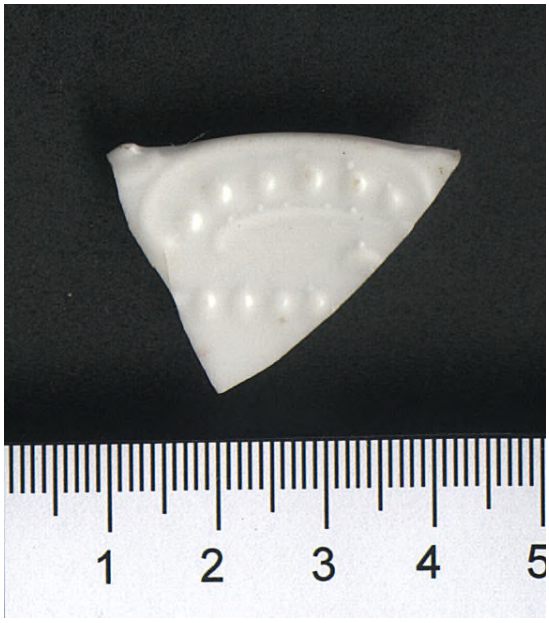

Figure 77. Embossed porcelain, surface, Loc. 2, 16AN89.

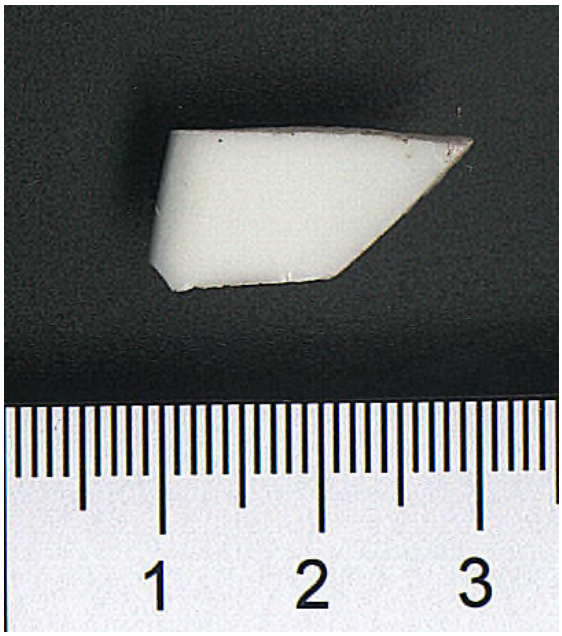

Figure 78. Plain porcelain, surface, Loc. 2, 16AN89.

Figure 79. Porcelain figurine, surface, Loc. 2, 16AN89.

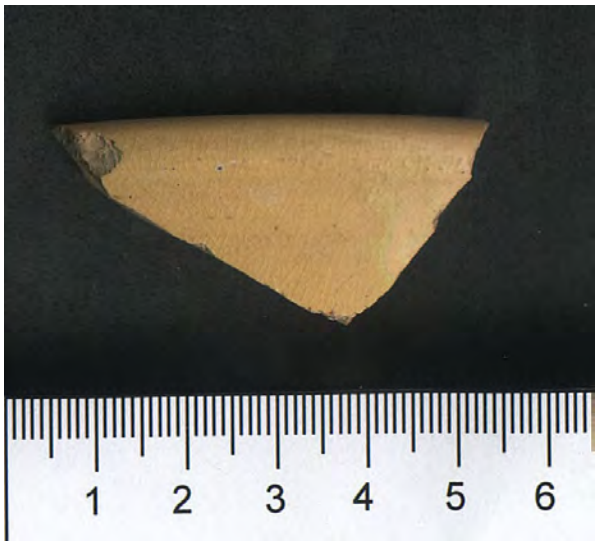

Figure 80. Plain yellowware, surface, Loc. 2, 16AN89.

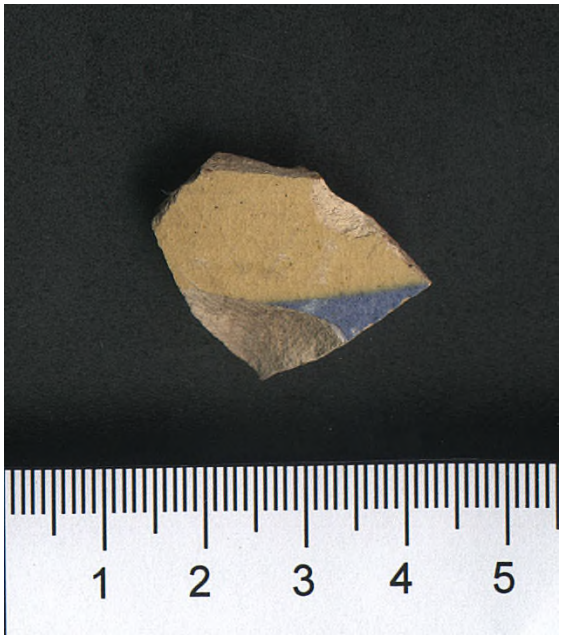

Figure 81. Yellowware with blue annular design, surface, Loc. 2, 16AN89.

Figure 82. Plain creamware, surface, Loc. 2, 16AN89.

Figure 83. Green salt-glazed stoneware, surface, Loc. 2, 16AN89.

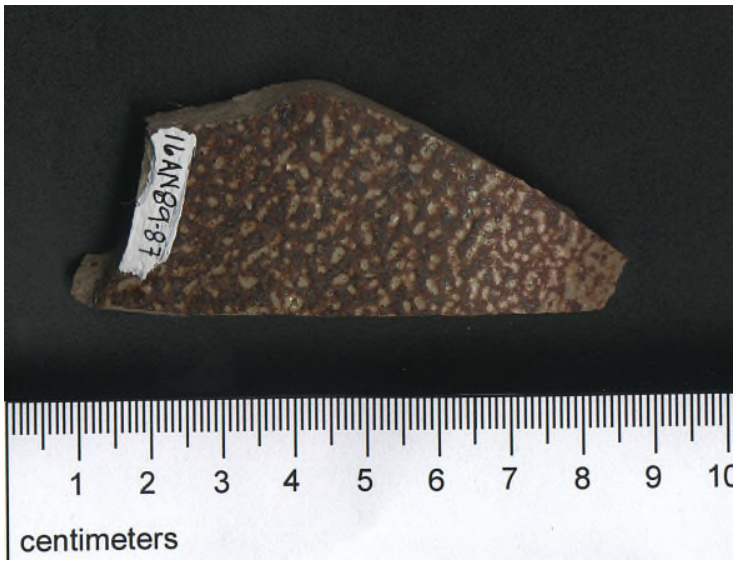

Figure 84. Brown salt-glazed stoneware, surface, Loc. 2, 16AN89.

Figure 85. Bristol-glazed stoneware, surface, Loc. 2, 16AN89.

Figure 86. Green mocha stoneware, surface, Loc. 2, 16AN89.

Figure 87. Terra-cotta, surface, Loc. 2, 16AN89.

Figure 88. Glass bottle neck with applied lip, surface, Loc. 2, 16AN89.

Figure 89. Glass bottle stopper, surface, Loc. 2, 16AN89.

Figure 90. Glass bottle neck with non-applied lip, surface, Loc. 2, 16AN89.

Figure 91. Glass screw-neck type medicine bottle, surface, Loc. 2, 16AN89.

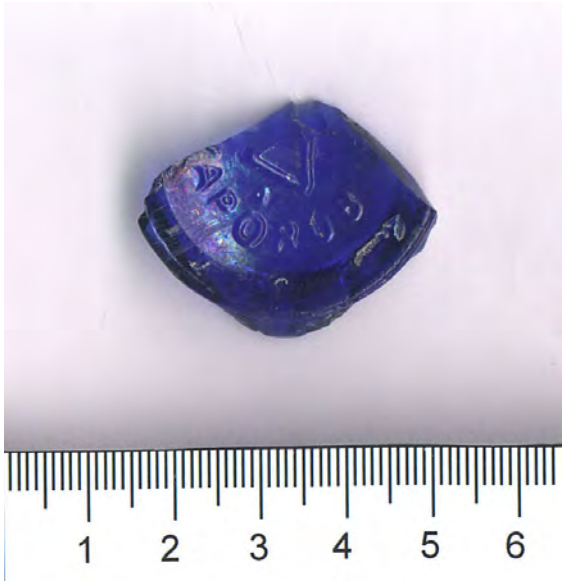

Figure 92. Glass jar base, VICK'S VAPORUB, surface, Loc. 2, 16AN89.

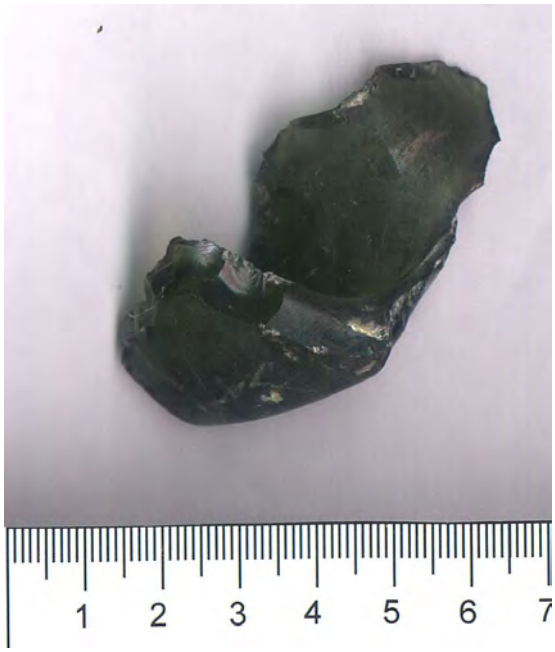

Figure 93. Fragment of glass wine bottle, surface, Loc. 2, 16AN89.

Figure 94. Fragment of glass bottle with painted label, surface, Loc. 2, 16AN89.

Figure 95. Glass marble, surface, Loc. 2, 16AN89.

Figure 96. Glass four-hole (20th century) button, Loc. 2, surface, 16AN89.

Figure 97. Milk glass, surface, Loc. 2, 16AN89.

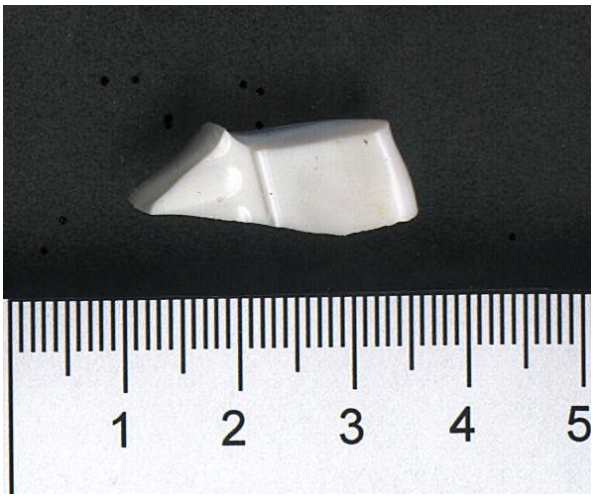

Figure 98. Milk glass, T4, ST10, Loc. 2, 16AN89

Figure 99. Oxidized cut (?)-nail fragment, T4ST4, Loc. 2, 16AN89.

Figure 100. Oxidized iron chain, surface, Loc. 2, 16AN89.

Figure 101. Unidentified animal bone fragment, ST10N20W, Loc. 2, 16AN89.

Table 4. Material recovered from Location 2 (Big house and tenant houses), 16AN89.

	LOCATION 2(1)												
	Surface	WFA T1ST6	WFA T1ST8	WFA T2ST4	WFA T3ST5	NW FA T1ST3	WFA Datum 0,0 T1ST7	0N 20W	10N0E	10N 20W	20N 20W	10N 30W	10N 40W
Ceramics													
Whiteware													
Plain	291	3		1	5					9	1	9	
Decorated													
Transfer	7											13	
Annular	21												
Hand-Painted	11												
Flow Blue	4												
Shell- Edge	5												
Maker's Mark	1												
Sponge	2												
Dipped	1												
Other	1												
Pearlware													
Plain	12											1	
Decorated	1												
Porcelain													
Plain	25				2			1				2	
Stoneware													
Plain	2												
Bristol Glaze	2												
Salt Glaze	6												
Rockingham	1												
Decorated	3												
Yellowware													
Plain	6												
Decorated	4												

Ironstone													
Plain	21												
Decorated													
Maker's Mark	2												
Other	1												
Creamware													
Plain	9												
Faience	1												
Glass													
Bottle (curved)	135			1			4	7		2		17	10
Window (Flat)	1												
Milk	50												
Marble	4				1					1			
Bottle	1												
Metal													
Iron													
Fasteners													
Nails													
Cut													
Unknown	10					1	1			1			
Unknown	3	4		2								1	
Misc.	9						3	5					
Chain	2												
Plastic													
Misc.	2						1			2		1	
Button	1												
Stone Button	2												
Construction Material													
Brick	1		1										
Slate	2												
Cement													
Rock	3							1		2		1	
Asbestos	20						8			2			
Metal	8								1		1	3	

Bone													
Unknown								3		1		1	
Tooth											1		
Graphite	1												
TerraCotta	3												
Wood													
Coal	1												
Charcoal							1						
TOTAL	699	7	1	4	8	1	18	17	1	20	3	49	10

	LOCATION 2(2)													
	40 N 20 E	20S 10W	20 S 20 W	30S 20W	0S10E	10S 20W	NOG T2ST1	NOG T2ST2	NOG T2ST4	NOG T4ST3	NOG T4ST4	NOG T4ST1	NOG T4ST2	NOG T4ST5
Ceramics														
Whiteware														
Plain	1	1				2	1				2	1		1
Decorated														
Transfer														
Annular														
Hand-painted														
Flow Blue														
Shell- Edge														
Maker's Mark														
Sponge														
Dipped														
Other														
Pearlware														
Plain									1					
Decorated														
Porcelain														
Plain								1						
Stoneware														
Plain														
Bristol Glaze														
Salt Glaze														
Rockingham														
Decorated														
Yellowware														
Plain														
Decorated														
Ironstone														
Plain									1					
Decorated														
Maker's Mark														
Other														

EXHIBIT F

Creamware														
Plain														
Faience														
Glass														
Bottle (curved)		9	18	5	3	2			1	3	3	2		1
Window (Flat)			1											
Milk														
Marble														
Bottle														
Metal														
Iron														
Fasteners														
Nails														
Cut												4		
Unknown		7		1						2	1			
Unknown									1					
Misc.														
Chain														
Plastic														
Misc.				2										
Button														
Stone Button														
Construction Material														
Brick														
Slate										1				
Cement					3									
Rock														
Asbestos														
Metal													1	
Bone														
Unknown														
Tooth														
Graphite														
TerraCotta														

EXHIBIT F

Wood														
Coal														
Charcoal														
TOTAL	1	17	19	8	6	4	1	1	4	6	6	7	1	2

EXHIBIT F

	LOCATION 2(3)						
	NOG T4ST7	NOG T4ST8	NOG T4ST9	NOG T4ST10	NOG T4ST11	NOG T4ST6	TOTAL
Ceramics							
Whiteware							
Plain		1		1		2	332
Decorated							
Transfer				1			21
Annular							21
Hand-painted							11
Flow Blue							4
Shell- Edge				1			6
Maker's Mark							1
Sponge							2
Dipped							1
Other							1
Pearlware							
Plain							14
Decorated							1
Porcelain							
Plain							31
Stoneware							
Plain							2
Bristol Glaze							2
Salt Glaze			1				7
Rockingham							1
Decorated							3
Yellowware							
Plain							6
Decorated							4
Ironstone							
Plain							22
Decorated							
Maker's Mark							2
Other							1
Creamware							
Plain							9
Faience							1
Glass							
Bottle (curved)	1	2			3		229
Window (Flat)							2
Milk				1			51
Marble							6
Bottle							1
Metal							
Iron							
Fasteners							
Nails							
Cut							4
Unknown				1			25

EXHIBIT F

Unknown							11
Misc.							17
Chain							2
Plastic							
Misc.							8
Button							1
Stone Button							2
Construction Material							
Brick							2
Slate							3
Cement							3
Rock							7
Asbestos							30
Metal					1		15
Bone							
Unknown							5
Tooth							1
Graphite							1
TerraCotta							3
Wood							
Coal							1
Charcoal							1
TOTAL	1	3	1	5	4	2	937

The 1892 Donaldsonville, La. 15-minute topographic map suggests that there were a number of structures in this location at that time (Figure 102). Several still appear in 1953 (Figure 103).

Redacted per
R.S. 41:1605

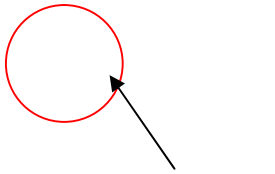

Figure 102. Portion of Donaldsonville, La. 1892 15-minute topographic map, showing structures in Locations 2 and 3.

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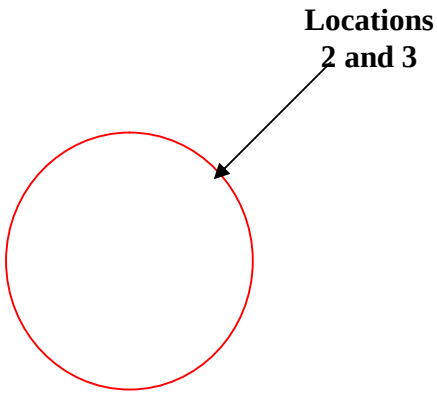

Figure 103. Portion of 1953 Gonzales, La. 7.5-minute topographic map showing remaining features in Locations 2 and 3.

By the time of the 1991 topographic map, only the big house and two abandoned structures across the road appear (Figure 104).

EXHIBIT F

Redacted per R.S. 41;1605

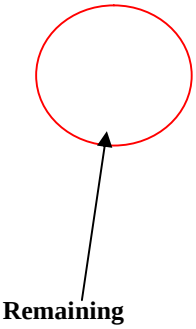

Figure 104. Portion of 1991 Gonzales, La. 7.5-minute topographic map showing remaining features in Locations 2 and 3.

The big house and one of the structures appear on the 1998 7.5-minute map (not shown), but by the time of the current survey the big house was gone, though a small farming operation was present across old La Hwy 22, on the east side of the road.

Informants told us that the big house had belonged to the Schexnaydres, who still lived in the area; that they had lived in it until "about 15 or 20 years ago," and had then sold it to someone who used it to house workers until "10 to 15 years ago," when it was torn down. This informant suggested that the house dated to the 1800s, which is borne out by the ceramics and map data.

Fortunately, thanks to the courtesy of Mr. Thurston H. H. Hahn III, of Coastal Environments, Inc., a set of 1987 photographs of this house is extant (Figures 105 and 106).

Figure 105. Orange Grove Plantation big house, ca. 1987, facing NNW (Courtesy T.H.G. Hahn III).

Figure 106. Orange Grove Plantation big house, 1987, facing NW (Courtesy T.H.G. Hahn III).

Piezo No. 3 Well

On February 4, 2014, SURA examined the proposed placement, within Location 2, of a well to be bored in connection with proposed industrial development. The well will affect a 5.5 inch (14 centimeter) lateral area at UTM coordinates 702420E, 3337091N (Figure 107).

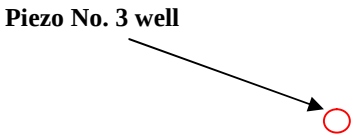

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Figure 107. Proposed location of Piezo No. 3 well.

One shovel test was excavated at the well site (Figure 108). The shovel test reached a depth of 20 cmbs, at which depth water was encountered. A hand-auger test at the bottom of the shovel test excavation encountered water as well. The soil profile may be described as 10YR3/2 silty clay to 10 cmbs, and 7.5YR4/3 sandy clay from 10 to 20 cmbs, below which was water. The excavated material was dry screened using .25 inch mesh. No cultural materials were encountered.

Figure 108. Shovel testing at proposed location of Piezo No. 3 well, Location 2, 16AN89 (facing east).

In summary, Location 2 consists of a rectangular area on the northwest side of Old La. Hwy 22, comprising ca. 22 ac (8.7 ha). It consists of a plot about 1 ac (.4 ha) in extent fronting Old La. Hwy 22, where the principal plantation house was located, and the fields fronting Old La. Hwy 22 on both sides of (i.e., NE and SW of) the principal house. These fields contained tenant houses. This complex of principal structure and tenant buildings appears on the 1892 topographic map and so ante-date that year. The principal house was leveled in the late 1980s or the 1990s but its foundations remain. The fields and area around the principal house contain brick, ceramic, glass and metallic artifacts.

While most of the ceramics from this location consist of plain whiteware, a significant percentage of the decorated whiteware was early- and mid-19th century varieties such as transfer printed, hand-painted, mocha, sponge and shell-edged. Also noteworthy were 15 sherds of pearlware (1780-1830) and nine sherds of creamware (1762-1820). Fragmentary 19th-century wine bottles as well as bottle glass of more recent origin were recovered. Unfortunately, the nails from this location were badly oxidized and defied classification.

The principal house foundations maintain integrity of location and it is entirely possible that more intensive investigation of the tenant house area would show brick foundations, such as piers, for those structures, as well. The artifacts, while collected opportunistically, indicate an ante-bellum occupation.

Shovel testing and surface collection in the plowed fields on either side of the Big House plot failed to reveal any foundations. This fact notwithstanding, previous experience (e.g., Jones et al. 2000a,b) has shown that where there are concentrations of brick and domestic items in plowed fields, especially on plantations, there are frequently structure foundations present. Nevertheless, inasmuch as such foundations were not verified, the status of this location must be considered unknown, insofar as NRHP eligibility is concerned.

If later work does reveal foundations, we suggest this location or parts of it would likely qualify for the NRHP under Criterion D, under the themes Plantation Archaeology, the Influence of the Mississippi River on Historic Settlement, and Euro-American Influence on the Landscape (Smith et al. 1983).

Location 3 (Farming Operation), 16AN89

Location 3, occupying the southeast side of old La. Hwy 22, is shown in Figures 41 and 42, above. It is now a farming operation, with an open, tin-roofed structure that houses farm equipment. It may be seen from the south, in Figure 109. Its coordinates appear in Table 4. It consists of about 2 ac (.81 ha) of un-plowed ground used for shop structures, and, on either side of this plot, about 15 ac (6.07 ha) of plowed fields with domestic debris. The total area covered by Location 3 is, thus, about 17 ac (6.88 ha). The paths of the transects are shown in Figure 110.

Figure 109. Farming operation (Loc 3), SE side of Old La. Hwy 22, facing NE.

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Figure 110. Aerial photograph of Location 3, 16AN89, showing transects and shovel tests (Source: Google Earth).

Shovel test site definitions are depicted in figures 111-116, and the reader is referred to Figure 45 (above), for color coding of subareas within Location 3.

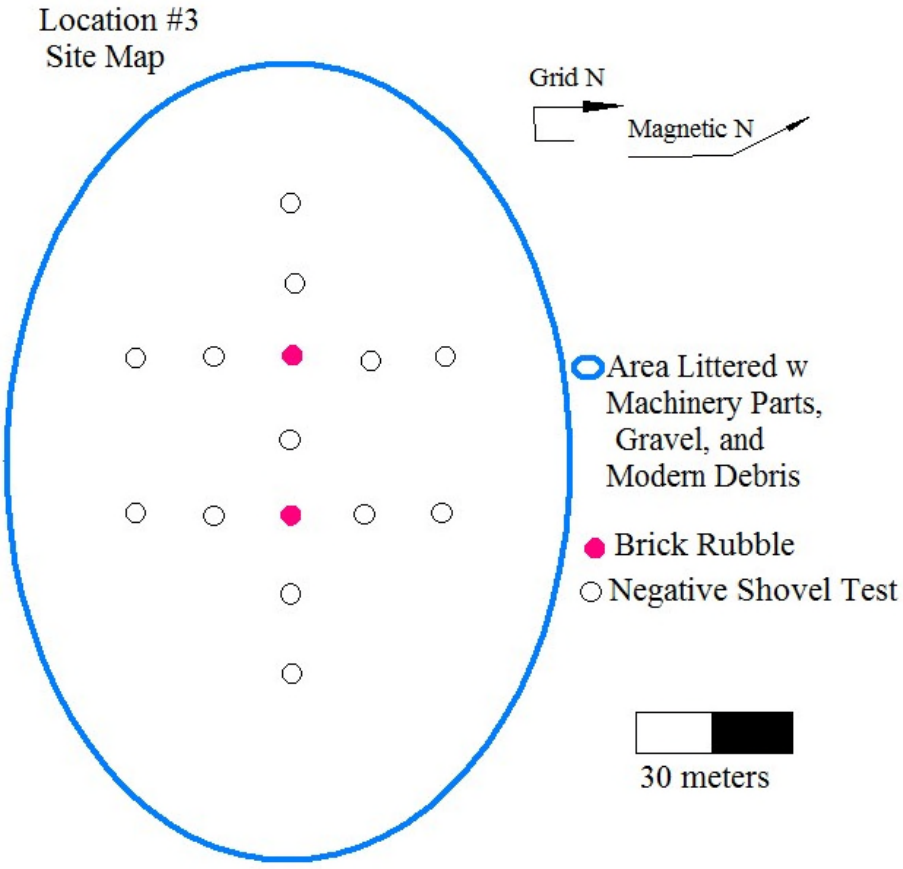


Figure 111. Site definition at machinery area, Location 3, 16AN89 (Code: Dark green, Location 3, Figure 45).

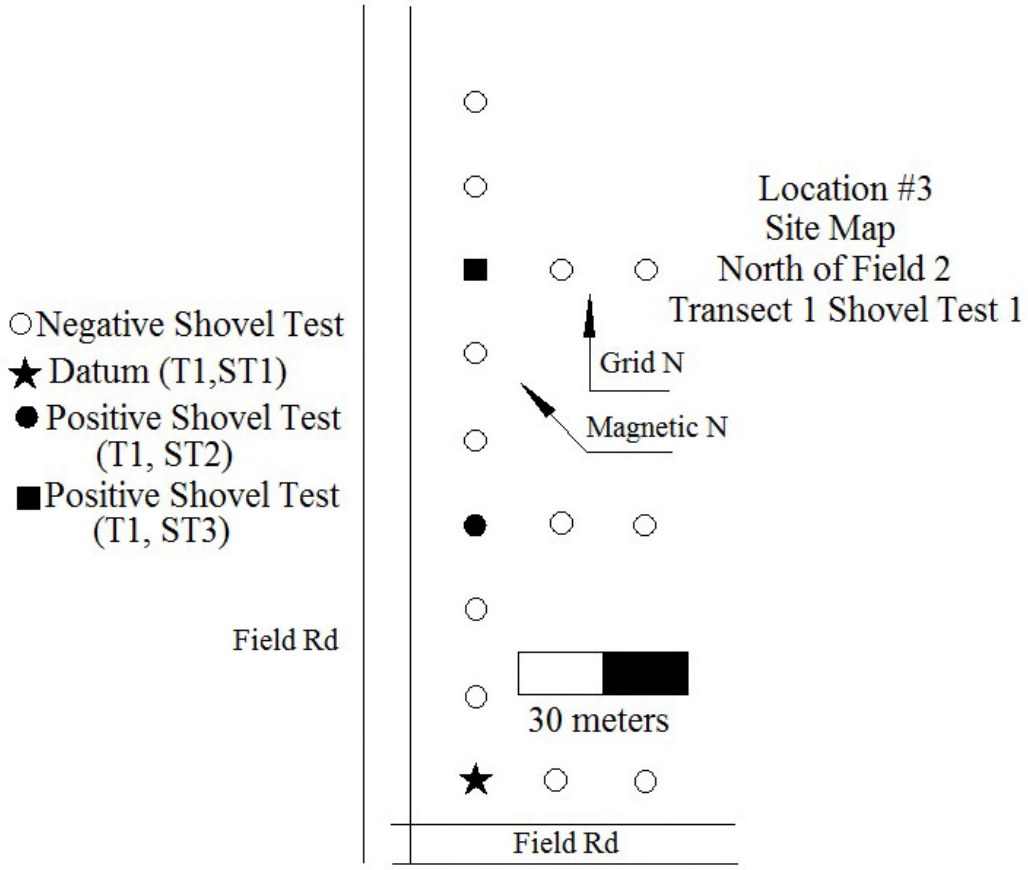


Figure 112. Site definition shovel tests (Transect 1, Shovel Tests 1 and 3), just north of farm equipment area, Location 3, 16AN89 (Code: Light Green, Location 3, Figure 45).

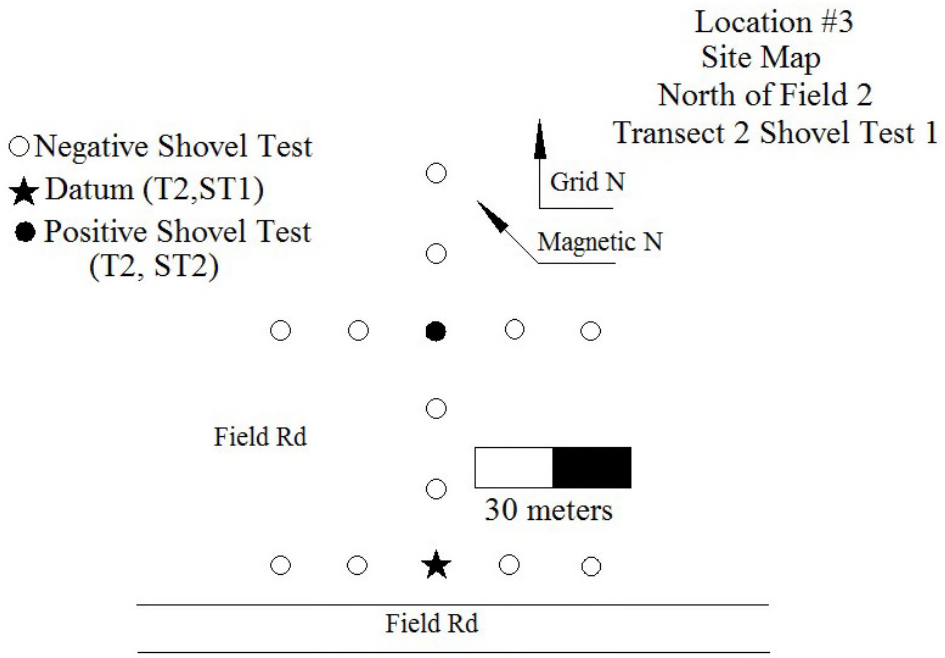


Figure 113. Site definition shovel tests (Transect 2, Shovel Tests 1 and 2), just north of farm equipment area, Location 3, 16AN89 (Code: Light Green, Location 3, Figure 45).

.

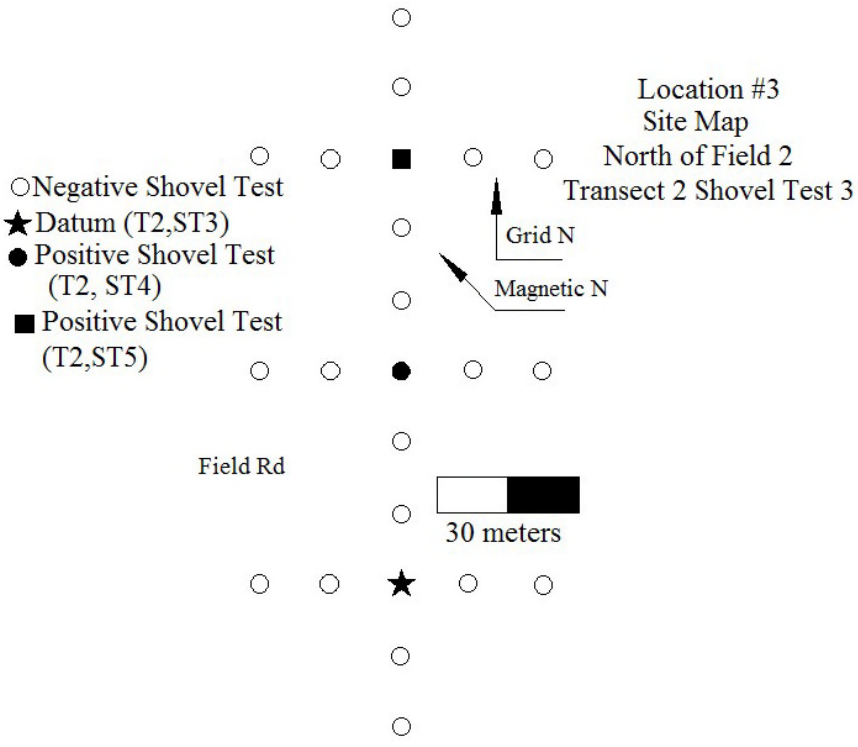


Figure 114. Site definition shovel tests (Transect 2, Shovel Test 3), just north of farm equipment area, Location 3, 16AN89 (Code: Light Green, Location 3, Figure 45).

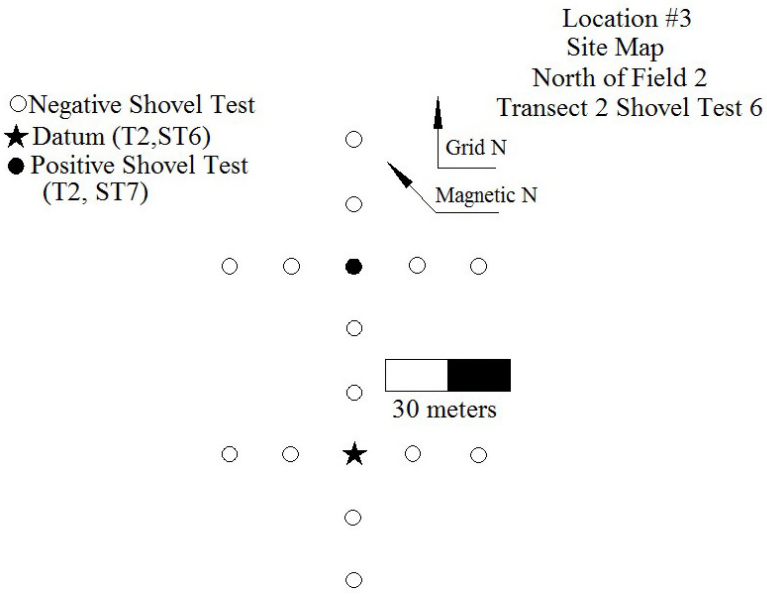


Figure 115. Site definition shovel tests (Transect 2, Shovel Tests 6 and 7), north of farm equipment area, Location 3, 16AN89 (Code: Light Green, Location 3, Figure 45).

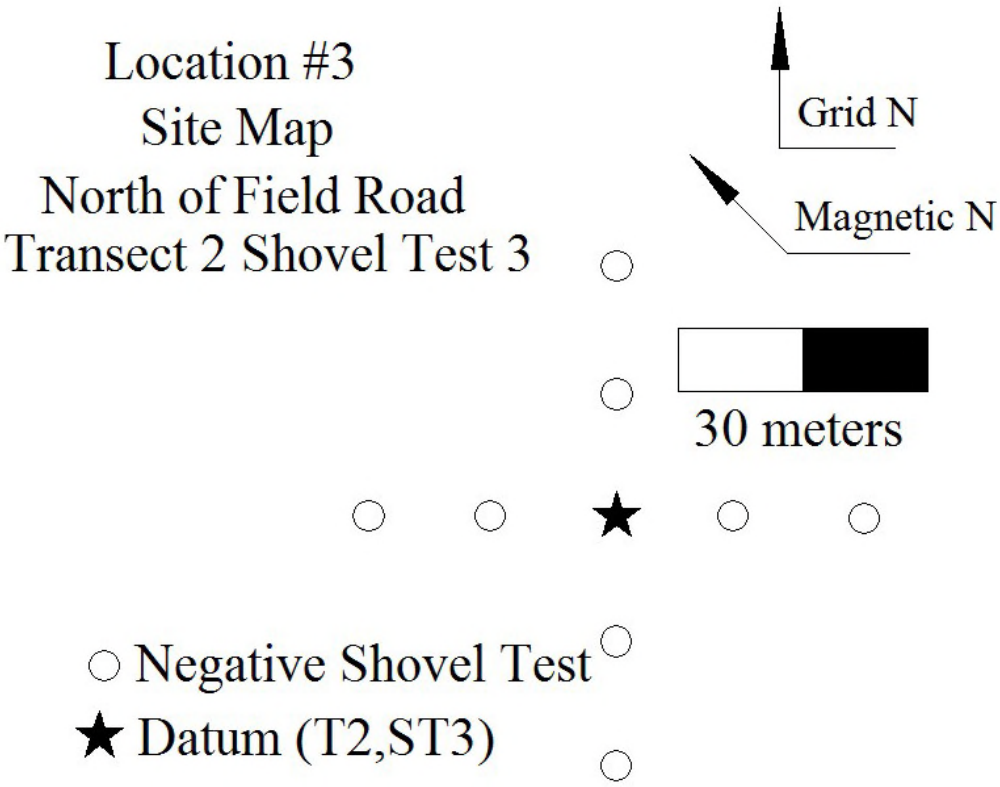


Figure 116. Site definition shovel tests (Transect 2, Shovel Test 3), north of farm equipment area, Location 3, 16AN89 (Code: Blue, Location 3, Figure 45).

The approximate coordinates of Location 3 are given in Table 5.

Table 5. UTM Coordinates of Location 3.

Point	Easting	Northing
Point B	702075	3336638
Point C	702307	3336742
Point E	702708	3337176
Point F	702534	3336899
Point G	702582	3336831
Point H	702371	3336654

About 2 ac (.81 ha) of Location 3 is strewn with modern machinery and gravel has apparently been dumped in the area, but there are evidences that this may have contained a working sugar mill. A brick platform, similar to the machinery mounts of known sugarhouses, was found just east of Old La. Hwy 22 and on the south side of the farming operation (Figure 117). Two shovel tests at 10 m intervals, in a direct line east of this feature, reached brick foundations. A pond behind the farming area suggests that a steam-driven sugar apparatus was once utilized in this location (Figure 118).

Figure 117. Brick machinery platform, Location 3, farming operations area, 16AN39, looking NW.

Figure 118. Pond on east side of Location 3, 16AN89, facing NNW.

Several 1987 photographs provided by Mr. Thurston H. G. Hahn III of Coastal Environments, Inc., shows a brick structure referred to as the “Blacksmith Shop” as having occupied this location a quarter century ago (Figures 119-121). Beyond this, it is impossible to specify the relationship, if any, to a previous sugar mill. This is especially the case since the structure is no longer standing and cannot be examined.

Figure 119. “Blacksmith Shop”, Location 2, facing south, 1987 (Courtesy Thurston H. G. Hahn III).

Figure 120. “Blacksmith Shop”, Location 2, facing southeast, 1987 (Courtesy Thurston H. G. Hahn III).

Figure 121. Corner of "Blacksmith Shop", Location 2, facing south, 1987 (Courtesy Thurston H. G. Hahn III).

Artifacts from Location 3 were similar to those found in Location 2. Representative examples are illustrated in Figures 122-142.

Figure 122. Blue annular whiteware, T2 ST7, Loc. 3, 16AN89.

Figure 123. Black transfer whiteware, T2 ST6, Loc. 3, 16AN89.

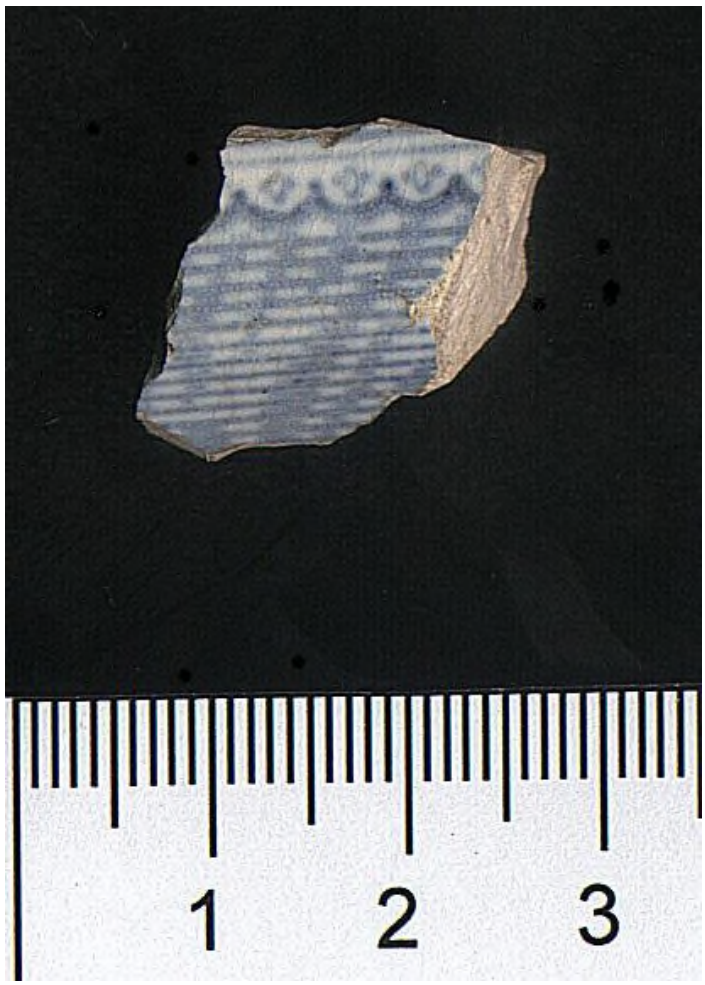


Figure 124. Blue transfer whiteware (with flow blue elements), T2, ST7, Loc. 3, 16AN89.

Figure 125. Hand-painted pearlware, T2 ST7, Loc. 3, 16AN89.

Figure 126. Ironstone with partial maker's mark, surface, Loc. 3, 16AN89.

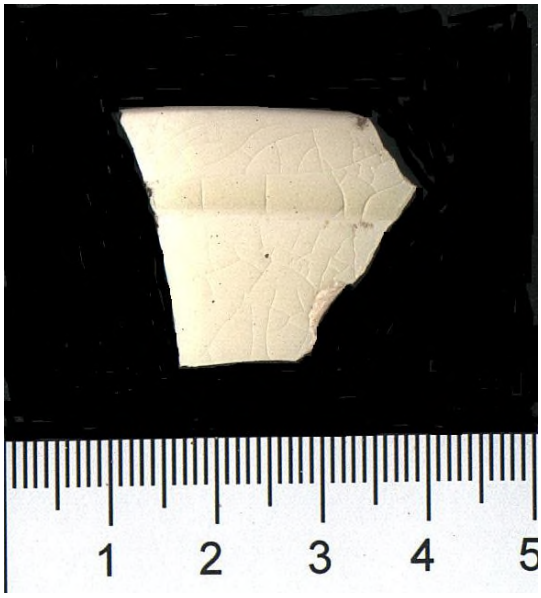


Figure 127. Creamware, surface, Loc. 3, 16AN89.

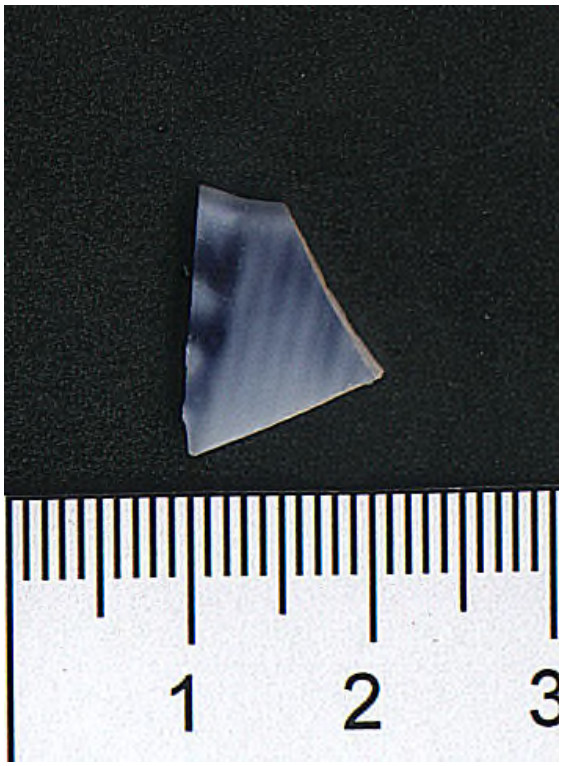


Figure 128. Flow-blue porcelain, T2 ST6, Loc. 3, 16AN89.

Figure 129. Porcelain figurine boot/shoe, T2 ST7, Loc. 3, 16AN89.

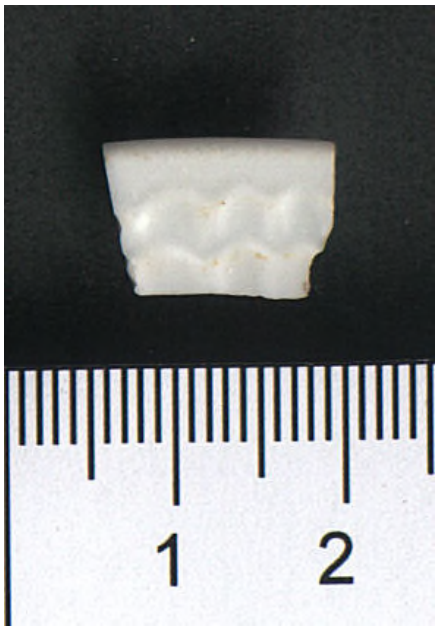


Figure 130. Embossed porcelain, surface, Loc. 3, 16AN89.

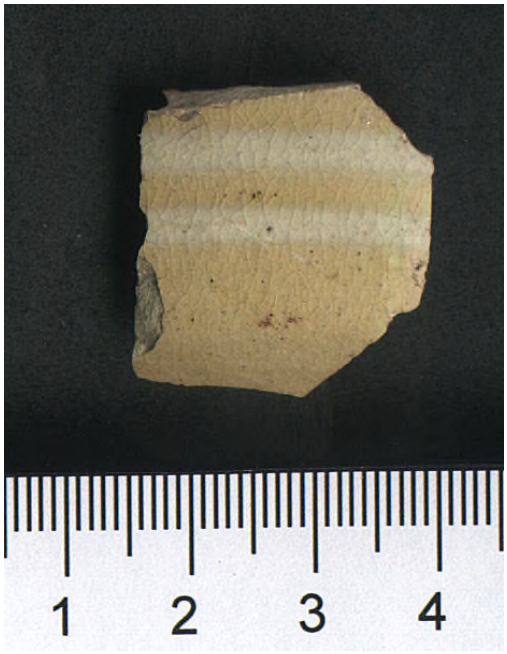


Figure 131. Annular stoneware, surface, Loc. 3, 16AN89.

Figure 132. Bristol-glazed stoneware, T1 ST1, Loc. 3, 16AN89.

Figure 133. Rockingham-glazed stoneware, T2 ST6, Loc. 3, 16AN89.

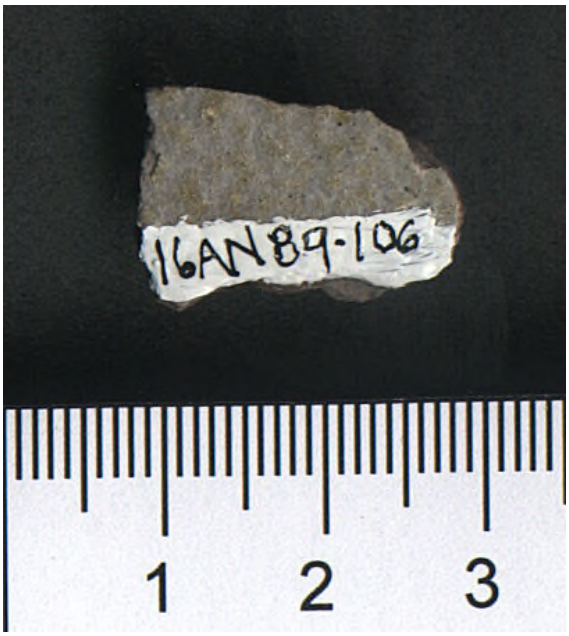


Figure 134. Salt-glazed stoneware, surface, Loc. 3, 16AN89.

Figure 135. Yellow-glazed stoneware, surface, Loc. 3, 16AN89.

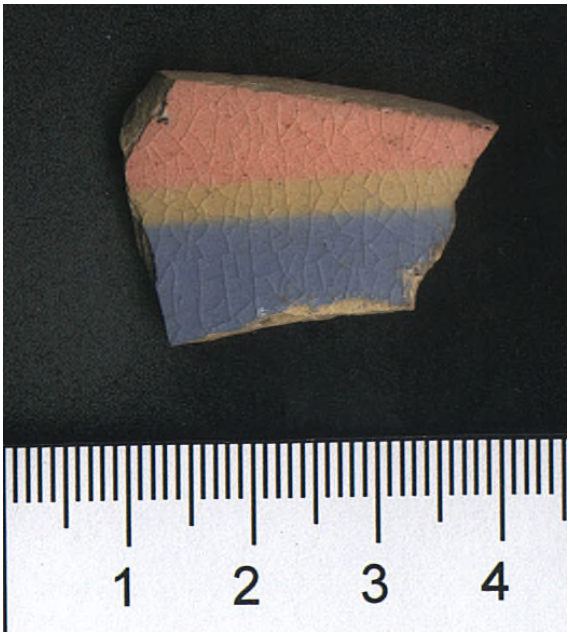


Figure 136. Unusual rainbow-glazed stoneware, T2ST7, Loc. 3, 16AN89.

Figure 137. Amber-colored glass wine bottle base, T2ST6, Loc. 3, 16AN89.

Figure 138. Olive-colored glass wine bottle base, surface, Loc. 3, 16AN89.

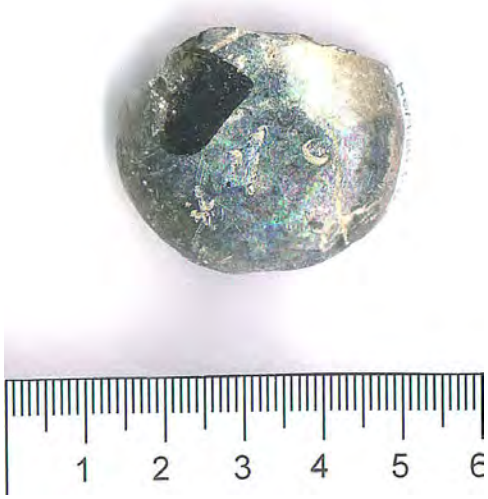


Figure 139. Glass bottle stopper, T2ST7, Loc. 3, 16AN89.

Figure 140. Partial glass button, T2ST7, Loc. 3, 16AN89.

Figure 141. Milk glass jar base, surface, Loc. 3, 16AN89.

Figure 142. Cut-nail, T2 ST4, Loc. 3, 16AN89.

A tabulation of the artifacts from Location 3 appears in Table **6.**

Table 6. Material from Location 3, 16AN89

	LOCATION 3															
	Surface	NOF2 T2ST1	NOF2 T2ST2	NOF2 T2ST3	NOF2 T2ST4	NOF2 T2ST5	NOF2 T2ST6	NOF2 T2ST7	NOF2 T1ST1	NOF2 T1ST2	NOF2 T1ST3	NOF2 T1ST4	NOF2 T1ST5	NOF Road T2ST1	NOF Road	TOTAL
Ceramics																
Whiteware																
Plain	138	4	3	8	13	8	13	18	2	2	2	1	2	1	3	218
Decorated																
Transfer	1			1	1		2	1								6
Annular	3					1		6								10
Hand-Painted	1															1
Shell- Edge	3															3
Sponge	1					1										2
Other	1					1	2									4
Mochaware																
Molded				1												1
Pearlware																
Plain	43				6	7	5									61
Decorated	3							1								4
Molded				1												1
Porcelain																
Plain	18			1	2		2	6	1		1		1			32
Other	1						1	1								3
Stoneware																
Plain															2	2

EXHIBIT F

Bristol Glaze	1				1		1	1	1							5
Salt Glaze	3					1		1								5
Rockingham	1			1		1										3
Nottingham	1			1			1									3
Ginger Beer	2															2
Mocha	1															1
Maker's Mark							1									1
Decorated	4						1	3								8
Yellowware																
Plain	1															1
Decorated	1															1
Ironstone																
Plain	13				1		3	12								29
Decorated																
Other	1															1
Creamware																
Plain	15															15
Decorated	3															3
Faience	1															1
Glass																
Bottle (curved)	45			1	8	8	8	7	1	3	2	1	1	1		86
Window (Flat)	1															1
Milk	15		1	2			3	2					1			24
Marble	1															1
Button								2								2
Metal																
Iron																
Fasteners																
Nails																
Cut		1			5	1		2								9
Unknown												2				2
Unknown	1			2		2	1									6
Misc.	1															1
Plastic																
Misc.	1															1
Button	1															1
Clay Marble	1															1

EXHIBIT F

Construction Material																
Brick										1		1				2
Slate	1															1
Rock	4															4
Asbestos	2															2
Metal															1	1
Bone																
Unknown																
Tooth					1											1
Graphite																
TerraCotta				1			1									2
TOTAL	335	5	4	20	38	31	45	63	5	6	5	5	5	2	6	575

A representative soil profile for Location 3 appears in Figure 143.

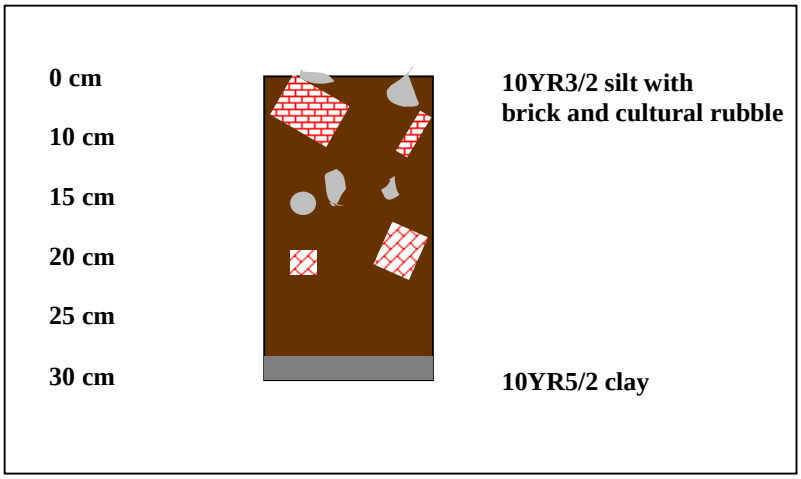


Figure 143. Representative soil profile, Loc. 3, 16AN89.

The third cultural location (Location 3) consists of an irregularly shaped polygonal area on the southeast side of Old La. Hwy 22, comprising ca. 21.5 ac (8.7 ha), directly across Old La. Hwy 22 from Location 2. At the time of the 2012 survey it was occupied by a farming operation, consisting of a machinery shed and associated small buildings, with considerable brick rubble and other historic materials stretching NE from the machinery shed along Old La. Hwy 22.

The 1892 Donaldsonville, La. 15-minute topographic quadrangle shows structures of an undetermined nature in this area. The 1987 photographs indicate that as late as 1987 there was a brick building in the farming operation area; this building was called "the Blacksmith Shop." Today a few foundations remain, but it cannot be determined at this stage whether they relate to the Blacksmith Shop or to another building. Directly behind (i.e., SE of) the farming operation is a pond. This pond suggests the possibility that there was once a steam-driven sugar mill in Location 3.

As with Location 2, most of the ceramics from this location consist of plain whiteware, but, as also was the case with Location 2, there is a relatively large percentage of early- and mid-19th century varieties of decorated whiteware such as transfer printed, hand-painted, mocha, sponge and shell-edged types. Of considerable interest are the 44 sherds of pearlware (1780-1830) and 43 sherds of creamware (1762-1820). Nine cut-nails, dating probably to some time in the 19th-century (Edwards and Wells 1993) were also recovered but only two identifiable (later) wire nails.

The existence of some stone/brick foundations and the photographs of the now-demolished blacksmith shop, as well as the extensive nature of the domestic scatter NE along Old La. Hwy 22, suggest that parts at least of this area conserve integrity of location and it is entirely possible that more intensive investigation of the tenant house area would show brick foundations, such as piers, for those structures, as well. Likewise, the pond indicates that sugar mill remains might underlie the current surface of the farming operation. The artifacts, while collected opportunistically, indicate an ante-bellum occupation.

Nevertheless, in view of the failure to actually verify the existence of tenant house foundations, sugar mill remains, or the foundations of the now-demolished blacksmith shop, this location must be regarded as of unknown NRHP eligibility.

If further investigation should reveal the structural remains mentioned above, we suggest this location or parts of it would likely qualify for the NRHP under Criterion D, under the themes Plantation Archaeology, the Influence of the Mississippi River on Historic Settlement, and Euro-American Influence on the Landscape (Smith et al. 1983).

Location 4 (Orange Grove Cemetery)

One cultural property, Orange Grove Cemetery, was recorded along the NW boundary of the general APE. This property is a protected plot of about 1 ac (.41 ha) surrounded by a cyclone fence (Figure 144). The approximate center of the cemetery lies at UTM coordinates 701275E, 3335763N.

Figure 144. SW facing view of APE, cyclone fence cemetery enclosure in background.

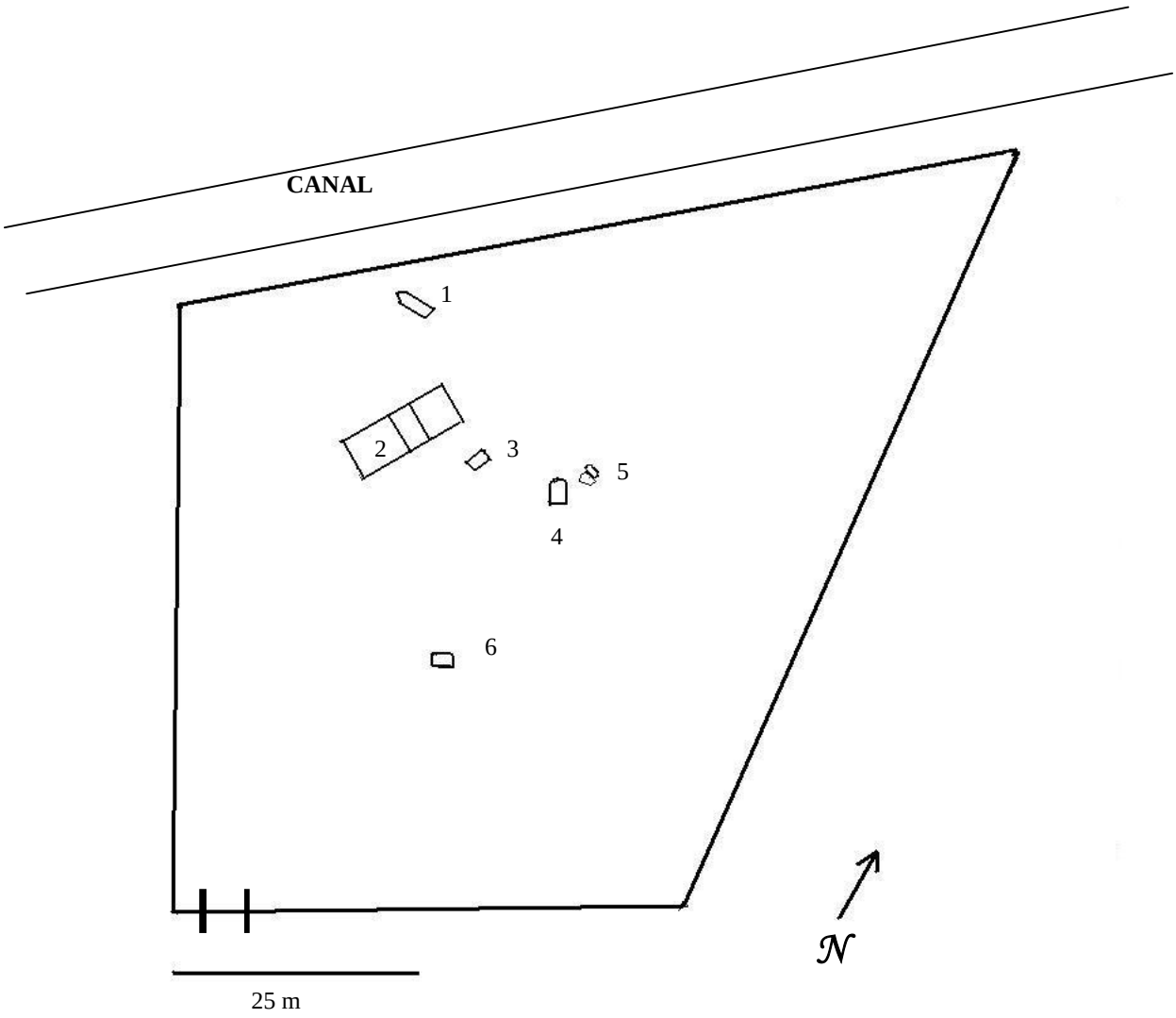
The cemetery ground is cleared (Figures 145-148) but only six of the markers are extant, as shown in Figure 149.

Figure 145. View facing SE from center of cemetery enclosure (701275E, 3335763N).

Figure 146. View facing SW from center of cemetery enclosure (701275E, 3335763N).

Figure 147. View facing NW from center of cemetery enclosure (701275E, 3335763N).

Figure 148. View facing NE from center of cemetery enclosure (701275E, 3335763N).



1 Cherry Alfred stone
2 Brick crypts (demolished)
3 Remains of brick crypt(?) with metal card holder
4 Sidney Vicknair gravestone
5 Chas. Vicknair gravestone (fragmented)
6 Plain flat gravestone with two drilled holes

Figure 149. Sketch map of Orange Grove Cemetery (16AN89)

EXHIBIT F

Figures 150-155 are photographs of the extant graves/markers.

Figure 150. Cherry Alfred grave stone (No. 1), Orange Grove Cemetery (16AN89).

Figure 151. Demolished brick crypts (No. 2), Orange Grove Cemetery (16AN89).

Figure 152. Grave marker with metal card holder (No. 3), Orange Grove Cemetery (16AN89).

Figure 153. Sidney Vicknair grave stone (No. 4), Orange Grove Cemetery (16AN89).

Figure 154. Chas. Vicknair grave stone (No. 5), Orange Grove Cemetery (16AN89).

Figure 155. Plain slab with drilled holes (No. 6), Orange Grove Cemetery (16AN89).

The six gravestones/markers occupy a relatively small part of the entire fenced area. It is almost certain, therefore, that the remainder of the cemetery area contains graves that are no longer marked. The latest death date on any of the stones is 1948. It is likely that burials in the cemetery ceased about this time, or within the next decade. Considering the antiquity of the plantation, it is probable that much earlier graves occur in and possibly near the cemetery.

It would take additional research to determine the names of the unknown persons buried in the Orange Grove Cemetery, and even then the effort might not be entirely productive. It is almost certain the persons interred in the cemetery were the owners of Orange Grove Plantation and their managerial employees and relatives.

In terms of the NRHP criteria considerations, Criterion A, which pertains to important historical events, probably does not apply unless information were brought forward showing that the cemetery contained graves related to some significant happening, such as a battle, famous steamboat wreck, etc.

Criterion B applies to famous persons. Until the identities of all those buried in the Orange Grove Cemetery are known, it will be impossible to completely rule out eligibility based on this criterion, but at this point there is no evidence that the cemetery relates to any important personage.

Criterion C pertains to design/construction. There is nothing about Orange Grove Cemetery to distinguish it or its surviving gravestones from other cemeteries in the area, of the same nature. It seems improbable that this criterion could support NRHP eligibility.

The final criterion, Criterion D, relates to the information potential of a property. As an archaeological location, the criteria considerations detailed above (Criteria A-C) come into play in terms of the property's ability to provide important data. Thus, whether the cemetery contains a person or persons who were important in the history of the area; is related to an important event or general events that illustrate broad patterns; and contains aesthetically important design elements, are relevant questions (NRHP 1995:34-35). All that may be said at present is that the first two of these questions cannot be answered without additional investigation. The cemetery, therefore, may be eligible for the NRHP, though the likelihood is not great.

Discussion

The survey of 673.9 ac (272.67 ha) covered much of what had once been Orange Grove Plantation. It appears on the 1858 Persac map as belonging to J. D. Igana. In this map Orange Grove has a narrow frontage on the river and is sandwiched between three properties belonging to J. S. Preston and Wm. Hampton, on the north, and an outlier of Houmas Plantation, belonging to Mrs. M. D. Bringier, on the south (Figure 156).

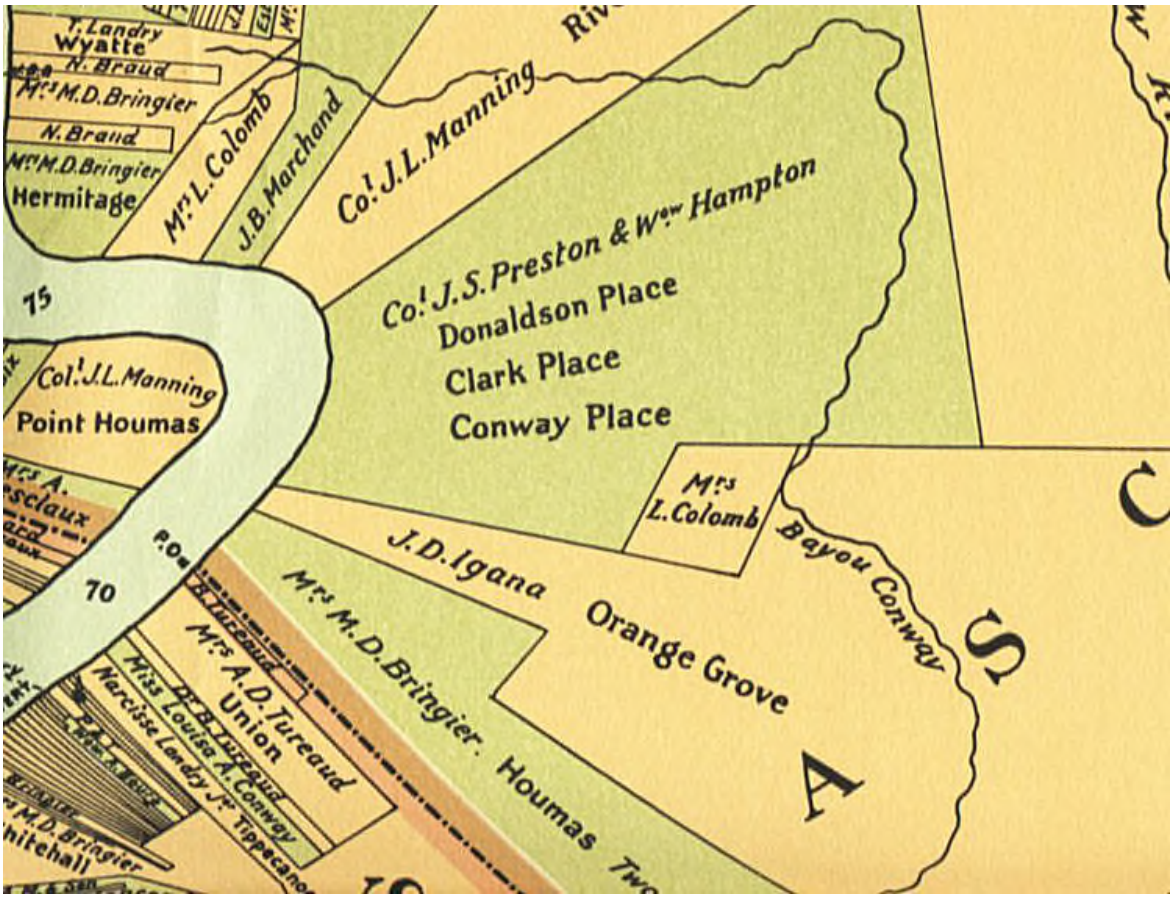


Figure 156. Portion of 1858 Persac map showing Orange Grove Plantation.

Thus, it is clear that Orange Grove Plantation (16AN89) existed from ante-bellum times until the 20th century, when it was subdivided. Most of the land belonging to the plantation was devoted to cane growing, in which human activity was limited to agricultural operations, but there were several locations, as confirmed by this survey, where more substantial human occupation took place. For ease of reference a combined table of material recovered from Locations 1, 2 and 3 is presented in Table 7. Table 8 provides date ranges for the kinds of ceramics found at 16AN89.

Table 7. Tabulation of artifacts from Locations 1, 2 and 3 (16AN89)

	Loc.1	Loc.2	Loc.3	TOTAL
Ceramics				
Whiteware				
Plain	36	332	218	586
Decorated				
Transfer	1	21	6	28
Annular/Mocha/Dipped	1	22	10	33
Shell- Edge		6	3	9
Hand-painted	1	11	1	13
Flow Blue	2	4		6
Maker's Mark		1		1
Sponge		2	2	4
Other		1	4	5
Mochaware				
Molded			1	1
Stoneware				
Plain		2	2	4
Bristol Glaze		2	5	7
Rockingham		1	3	4
Salt Glaze		7	5	12
Decorated		3	8	11
Nottingham			3	3
Ginger Beer			2	2
Mocha			1	1
Maker's Mark			1	1
Pearlware				
Plain	10	14	61	85
Decorated		1	4	5
Molded			1	1
Yellowware				
Plain		6	1	7
Decorated		4	1	5
Porcelain				
Plain	3	31	32	66
Decorated	1			1
Other			3	3
Ironstone				
Plain		22	29	51
Decorated				
Maker's Mark		2		2
Other		1	1	2
Creamware				
Plain		9	15	24
Decorated			3	3
Faience		1	1	2

Glass				
Bottle (curved)	10	229	86	325
Window (Flat)	1	2	1	4
Milk	5	51	24	80
Marble		6	1	7
Bottle		1	2	3
Metal				
Iron				
Fasteners				
Nails				
Cut	4	4	9	17
Unknown		25	2	27
Unknown		11	6	17
Misc.	1	17	1	19
Chain		2		2
Plastic				
Misc.		8	1	9
Button		1	1	2
Clay Marble			1	1
Stone Button		2		2
Construction Material				
Brick	2	2	2	6
Slate	2	3	1	6
Cement		3		3
Rock	1	7	4	12
Asbestos	9	30	2	41
Metal		15	1	16
Shell				
Rangia				
Bone				
Unknown		5		5
Tooth		1	1	2
Graphite		1		1
TerraCotta		3	2	5
Wood				
Coal		1		1
Charcoal		1		1
TOTAL	90	937	575	1602

EXHIBIT F

Table 8. Date ranges of Ceramics Recovered at 16AN89.

CERAMIC	DATE RANGE	SOURCE(S)
Tin enamel		
Faience	1675-1790	FMNH n.d.
Creamware		
Plain	1762-1820	Hahn and Castille 1988:C-1
Handpainted	1780-1830	Hahn and Castille 1988:C-1
Annular	1780-1815	Hahn and Castille 1988:C-1
Transfer printed	1765-1815	Hahn and Castille 1988:C-1
Pearlware		
Plain	1780-1830	Hahn and Castille 1988:C-1
Decorated		
Hand-painted	1780-1830	Hahn and Castille 1988:C-1
Transfer-printed		
Blue-Willow	1790-1830	Hahn and Castille 1988:C-1
Other	1810-1830	Hahn and Castille 1988:C-1
Edged	1780-1830	Hahn and Castille 1988:C-1
Whiteware		
Plain	1840-1890	Hahn and Castille 1988:C-1
Decorated		
Hand-painted		
Monochrome	1830-1860	Hahn and Castille 1988:C-1
Polychrome	1840-1860	Hahn and Castille 1988:C-1
Transfer printed		
Blue	1830-1860	Hahn and Castille 1988:C-1
Red	1830-1850	Hahn and Castille 1988:C-1
Purple	1830-1860	Hahn and Castille 1988:C-1
Brown	1830-1850	Hahn and Castille 1988:C-1
Black	1830-1850	Hahn and Castille 1988:C-1
Green	1830-1850	Hahn and Castille 1988:C-1
Shell-Edged		
Blue	1830-1860	Hahn and Castille 1988:C-1
Sponge	1840-1860	Hahn and Castille 1988:C-2
Flow Blue	1844-1860	Hahn and Castille 1988:C-1
Annular/Mocha/dipped	1790-1830*	Hahn and Castille 1988:C-1
		Noel Hime 1970:131; Ricard 2006
Yellowware (All types)	1830-1900	Hahn and Castille 1988:C-2
Stoneware		
Bristol glaze	1835-1900	FMNH n.d.
Rockingham glaze	1830-1900	Hahn and Castille 1988:C-2
Salt glaze	1820-1900	Hahn and Castille 1988:C-2
Porcelain		
American Porcelain	1738-Present	Kovel and Kovel 2004:59-60
Bone China	1830-1900**	FMNH n.d.; Godden 1964:11
Canton Porcelain	1790-1835	FMNH n.d.
Chi Ing Blue-on-white	1790-1835	FMNH n.d.
Polychrome Overglaze	1700-1750	FMNH n.d.
English soft paste porcelain	1745-1800	FMNH n.d.
Japanese porcelain	1616-present	FMNH n.d.
Ironstone China	1813-20th century	Kovel and Kovel 2004; Campbell 2006

CHAPTER EIGHT:
CONCLUSIONS AND RECOMMENDATIONS

Conclusions

At several times between March, 2012, and December 2013, SURA, Inc. conducted surveys of a total of 673.9 ac (272.67 ha) at the Impala Warehousing facility in Burnside, Louisiana. A total of 3,164 shovel tests were excavated. During the survey, four cultural resource locations (Locations 1-4) were recorded.

1) An area on the east side of Old La. Highway 22, containing 1 acre (.4 hectares), about 1,000 ft (.304 m) just north of the railroad tracks, contains the remains of a brick structure, known to locals as the location of the "Old Spice (Sp.?) Store." The existence of articulated foundations and 19th century artifacts suggested that this location could qualify for the NRHP under Criterion D, and hence it is considered of unknown eligibility at present.

2) A rectangular area on the northwest side of Old La. Highway 22, about .5 miles (ca. .8 km) north of the railroad tracks, comprising ca. 22 ac (8.7 ha). It consists of a plot about 1 ac (.4 ha) in extent fronting Old La. Hwy 22, where the principal plantation house was located, and the fields fronting Old La. Hwy 22 on both sides (i.e., NE and SW of) the principal house. These fields contained tenant houses. The existence of the principal house's foundation remnants, and the presence in the fields on either side of the principal house foundations of 19th century artifacts and brick rubble (indicating possible other foundations beneath the surface) suggested that this location could qualify for the NRHP under Criterion D, and hence it is considered of unknown eligibility at present.

3) The third cultural location (Location 3) consists of an irregularly shaped polygonal area on the southeast side of Old La. Hwy 22, comprising ca. 21.5 ac (8.7 ha), directly across Old La. Hwy 22 from Location 2. At least one foundational remnant is present and the existence of a pond behind the current farming operation that occupies the plot suggests that at one time there may have been a sugar mill here. A brick building known as the Blacksmith's Shop occupied part of this area through 1987. The contiguous area fronting Old La. Hwy 22 to the northeast is filled with brick rubble and artifacts, many of which date to the mid-19th century or earlier. It is suggested that this location could qualify for the NRHP under Criterion D, and hence it is considered of unknown eligibility at present.

4) Orange Grove Cemetery is a 1 ac (.4 ha) fenced plot on the northwest boundary of the area surveyed during this project. Only six graves are visible, and the latest dates to 1948. It probably contains the graves of a number of other persons, relating to the Orange Grove Plantation owners and their managers. It is

impossible on the basis of current information to state that it is not eligible for the NRHP under Criterion D, but the likelihood seems remote.

Recommendations

In the case of properties that are possibly eligible for the NRHP, the owner has the option of avoiding the property or of undertaking further investigations to establish NRHP-eligibility.

In a field visit on April 25, 2012, Ms. Rachel Watson, of the Louisiana Division of Archaeology, visited the project area and consulted with SURA archaeologists and management from Impala and their engineering consultant.

As a result of that meeting, Impala officials decided that Locations 1-3 would be avoided by design modifications. Thus, no further archaeological work would be necessary.

Orange Grove Cemetery, which is currently protected by a 6-ft (1.8 m) cyclone fence, will continue to be preserved. SURA, Inc., however, recommends that, in view of the fact that no slave/tenant cemetery has been identified to date at Orange grove Plantation, and slaves/tenants were sometimes buried near the property owners, a buffer of 100 ft (30.8 m) be preserved on all sides of the cemetery, outward from the current fence, with the exception of the side facing the canal.

SURA, Inc., further recommends that all other acreage not specified above be opened to such development as the owners deem advisable.

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Wetland impacts include forested wetlands in the Mississippi River batture and cypress-tupelo wetlands in the Maurepas Swamp WMA. Forested wetlands would be cleared to construct the dock and pipeline components of the project. Potential jurisdictional wetlands and other waters are identified in the following AECOM reports: Wetland Delineation Report (AECOM 2021) and Jurisdictional Delineation Report (AECOM 2023a). Air Products would obtain all required permits for impacts to wetlands and proposes to mitigate any wetland losses with a combination of offsite compensatory mitigation credits and onsite restoration, as determined during the permitting process in consultation with the state and federal regulatory agencies. A preliminary plan for wetland mitigation has been developed for agency review [Joint Permit Application Attachment 2-07]. This includes plans to preserve and enhance high value wetlands (including cypress tupelo forests) within the Lake Maurepas watershed, and to offset permanent impacts through the purchase of mitigation credits from approved mitigation banks.

Threatened and Endangered Species. Air Products conducted habitat surveys for potential occurrences of federally protected species. LDWF and the United States Fish and Wildlife Service (USFWS) were contacted for information regarding any known threatened or endangered species with potential to occur in the project area. Appendix B includes copies of letters from both USFWS and LDWF listing the threatened or endangered species that are potentially present in the project vicinity. Potential impacts to threatened and endangered species are described in the AECOM report titled Threatened and Endangered Species Habitat Assessment (AECOM 2023b), which is included with the Joint Permit Application as Attachment 2-10.

Bald eagles (federally protected) are likely present in the project area/vicinity and have the potential to be affected by project activities. However, based on Wildlife Diversity Project Data provided by LDWF, there are no bald eagle nests that fall within 700 feet of the current construction area for this project. Because these data are from 2017 at the latest, additional surveys will be completed prior to construction to determine whether bald eagles are within the USFWS buffer of 660 feet or have line-of-sight from a nest. Mitigation measures outlined in the Recommendations section of the AECOM report will be followed if thereafter required (660-foot buffer, restriction of activities during nesting period, and/or use of landscape buffers).

The alligator snapping turtle (federal protection recommended) is also likely present in the project area/ vicinity and has the potential to be affected by project activities. Air Products will avoid and/or mitigate adverse effects on this species by minimizing disturbance and alteration of nesting habitat during nesting season, minimizing the removal of log jams in streams to preserve cover and hunting areas used by the species, avoiding stream alteration, and depositing dredged matter away from potential turtle nesting sites and/or prior to egg laying.

The only other “threatened” or “endangered” species likely to be present in the project area and vicinity with the potential to be affected by project activities is the monarch butterfly, which is a federal candidate species for listing under the Endangered Species Act. Even though this butterfly is not currently protected, Air Products intends to mitigate any effects on the species by conducting post-construction activities such as developing milkweed gardens and/or reseeding native prairie species.

As discussed more fully in the AECOM Threatened and Endangered Species Habitat Assessment (AECOM 2023b), with respect to other species with the potential to occur in the project area and be affected by the LCEC, Air Products would implement recommended measures to identify and avoid impacts to these species, including (but not limited to) (1) conducting surveys for migratory bird and active waterbird nests, as well as for gopher tortoises, prior to commencing construction; (2) avoiding construction activities during the “sensitive time periods” for the listed species; (3) reducing unnecessary clearing during construction; (4) watching for, and reporting, the presence of any manatees in the project area before and during construction; and/or (5) consulting with LDWF for appropriate avoidance/ mitigation strategies for certain species.

Cultural Resources. A Phase I Cultural Resources (“Archaeological”) investigation was previously conducted for the proposed Facility site and vicinity (Shuman et al. 2014). In coordination with the Louisiana State Historic Preservation Office (SHPO) and the USACE, Air Products conducted additional cultural resources investigations of two potential archaeological/historical sites: the Orange Grove

Cemetery, located adjacent to the proposed Facility site, and the historical foundation remains of a probable sugar mill site located in the center of the proposed Facility.

The historical Orange Grove Cemetery lies along the original property line of the parcel which Air Products purchased in connection with the proposed Facility. Air Products has taken three steps to protect this area. First, Air Products has subdivided the Facility site parcel to partition the Orange Grove Cemetery and a 100-foot buffer area from the remaining parcel that Air Products proposes to use for the Facility. As a result, the Orange Grove Cemetery is no longer within the property boundaries of the Facility site parcel. Second, in consultation with the SHPO, Air Products has established and will maintain a 100-foot avoidance buffer around the cemetery. Third, Air Products will install a fence and sound protection around the cemetery site. The cemetery will remain available for visitation along an access road within the Entergy right of way outside of the proposed Facility site footprint.

Air Products conducted additional desktop investigations and field surveys to determine the existence of any previously undocumented archaeological and/or historic areas of interest in the vicinity of Orange Grove Cemetery. These field surveys included cartographic regression analysis, ground-penetrating radar, and archeological human remains detection dog surveys (e.g., cadaver dogs), in addition to desktop archival research. The results of these investigations were considered by Air Products in determining the boundaries of the partition. The partition of the parcel will allow additional investigation of the areas of interest and restoration of the Orange Grove Cemetery to be conducted without disruption from the planned Facility construction and operation.

Air Products performed Phase II Cultural Resources excavations at the probable sugar mill to assess the significance of the site and evaluate whether it may be eligible for inclusion in the National Register of Historic Places. Air Products is in the process of coordinating the results of these investigations with the SHPO and USACE to determine the next steps for this site, including any necessary mitigation measures.

Phase I Cultural Resources Surveys were conducted for the CO_2 pipeline area of potential effect (APE) and the carbon sequestration site. The Phase I survey of the pipeline route and the carbon sequestration site has not identified any potential cultural resources. Additional surveys will be conducted for a small segment of the pipeline route that was not accessible due to low water levels at the time of the Phase I survey.

Air Products will supplement this report with copies of the cultural resource reports referenced herein, as well as any subsequent developments with respect to the possible sugar mill site located within the Facility parcel boundaries.

If additional cultural resources are identified during construction, Air Products would consult with USACE and SHPO regarding the treatment of any unanticipated discoveries in accordance with Louisiana Revised Statute 8:680.

Air Quality. Emissions from the Facility are not significant and have been avoided to the maximum extent reasonably possible. Neither the planned CO_2 pipeline nor the carbon sequestration site are material sources of air emissions.

- *Potential Emission Sources.* The general production process is described in the preceding sections. Air emissions related to that process are or may be associated with:
    - the gasification of natural gas to produce hydrogen and CO;
    - a vent from the CO_2 drying process;
    - the treated-hydrogen drying process;