

DRAFT REPORT

OCTOBER 2020

**CULTURAL RESOURCES INVESTIGATION OF THE
LONG POINT MARSH CREATION PROJECT
(CS-0085), CAMERON PARISH, LOUISIANA**

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**CULTURAL RESOURCES INVESTIGATION OF THE
LONG POINT MARSH CREATION PROJECT (CS-0085),
CAMERON PARISH, LOUISIANA**



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Draft Report

By

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October 2020

For

**CE Hydro, LLC
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This document describes the results of the recently completed Phase I cultural resources survey in support of the Coastal Protection and Restoration Authority's Long Point Marsh Creation Project (CS-0085) in Cameron Parish, Louisiana. RCG&A completed the cultural resources survey on behalf of CE Hydro, LLC between June 23 and July 10, 2020. The Long Point Marsh Creation Project area is situated west of Calcasieu Lake and the Calcasieu Ship Channel. Proposed components of the project that were investigated during the current Phase I survey included: a marsh creation cell (i.e., MCA-1) that encompassed an area measuring approximately 160 ha (395 ac) in extent and two proposed dredge pipeline access corridors that measured 30 m (98 ft) in width and which combined for a total length measuring 2.8 km (1.7 mi). Each of the survey areas was accessed via watercraft.

Auger and shovel testing was conducted, where possible, along the perimeter of MCA-1 and within the boundary of the marsh creation cell in areas covered with marsh grasses where it appeared terra firma might be present. A total of 122 shovel and auger tests were excavated within the MCA-1 project area component. Auger testing was conducted using a mud auger in order to determine if any areas of non-inundated and non-saturated soils were located around the perimeter or within MCA-1. No such soils were encountered. No elevated areas or areas that contained vegetation indicative of subsided landforms was present within MCA-1. Two auger tests were placed within the boundary of previously identified Site 16CM147, the Long Point Bayou Pirogue Site. Site 16CM147 was previously determined to be ineligible for listing on the NRHP. The site area was mostly flooded and no evidence of the site was identified. No evidence of cultural resources, cultural material, or cultural features was identified during the examination of the MCA-1 project area component. No additional investigation of MCA-1 is recommended.

Portions of each of the two proposed dredge pipeline access corridors followed the course of Long Point Bayou as well as crossed the bayou. Within these portions of the corridor a total of 15 vibracores were extracted. Each core extracted measured 3 m (10 ft) in length. Several vibracores were placed in the center of the bayou; at some proposed vibracore extraction locations where the depth of the water exceeded 1.5 m (5.0 ft) at center, it was necessary to relocate vibracore locations closer to the bankline where water depths did not exceed 1.2 m (4 ft). Typically, the stratigraphic profiles of each of the cores revealed alternating deposits of silty clay and muck to depths up to 260 cm (102 in) from the bed of the bayou. A small amount of *Rangia* shell was identified in Vibracores 1 and 4, though the small amount and size of the shells present appear to indicate that these are natural inclusions in the profile, rather than evidence of cultural features. No artifacts or evidence of cultural features was identified within the vibracores extracted from Long Point Bayou.

Those portions of the two proposed dredge pipeline access corridors that did not follow the course of, or traverse, Long Point Bayou were examined by airboat and the excavation of 12 shovel or auger tests in locations that were elevated or contained vegetation that indicated subsided landforms were present. No evidence of cultural resources was identified within the footprint of the two dredge pipeline corridors. No additional investigation of the two proposed dredge pipeline access corridors is recommended.

Following the completion and acceptance of the final report, all project materials, 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, 1835 North River Road, Baton Rouge, LA 70802.

TABLE OF CONTENTS

Abstract	ii
List of Figures	v
List of Tables	viii
I. Introduction	1
Project Description.....	1
Research Design.....	1
Area of Potential Effect.....	6
Project Results.....	6
Marsh Creation Area (MCA-1).....	6
Dredge Pipeline Access Corridors (DPACs).....	6
Organization of the Report.....	7
Curation.....	7
II. Natural Settings and Cartographic Review	8
Introduction.....	8
Natural Setting.....	8
Predictions of Archeologically Significant Areas Based on Geology, Geomorphology, and Soils.....	8
Soils.....	10
Summary.....	10
Historical Overview through Cartographic Review.....	16
III. Previous Investigations	21
Introduction.....	21
Previously Completed Cultural Resources Investigations Located within 1.6 km (1.0 mi) of the Marsh Creation Project APE.....	21
Previously Identified Archeological Sites located within 1.6 km (1.0 mi) of the Marsh Creation Project APE.....	21
Previously Recorded Historic Standing Structures located within 1.6 km (1.0 mi) of the Marsh Creation Project APE.....	23
National Register of Historic Places Listed Properties within 1.6 km (1.0 mi) of the Marsh Creation Project APE.....	23
Cemeteries Identified within 1.6 km (1.0 mi) of the Marsh Creation Project APE.....	23
Terrestrial Previous Investigations and Recommendations.....	23
IV. Cultural Resources Investigation Methodology	24
Archeological Survey Methods.....	24
Site Recordation and Delineation.....	24
Extraction of Vibracores.....	25
Processing of Vibracores.....	25
Curation.....	26

V. Results of the Investigation.....	27
Introduction.....	27
Dredge Pipeline Access Corridors - Vibracores	27
Dredge Pipeline Access Corridors - Additional Examination	35
Survey Segment PAC070720C	35
Survey Segment PAC070720B	35
Survey Segment PAC070720A	47
Marsh Creation Area 1 (MCA-1)	47
MCA-1 Perimeter.....	50
MCA-1 Subarea 1.....	52
MCA-1 Subarea 2.....	52
MCA-1 Subarea 3.....	54
MCA-1 Subarea 4.....	56
MCA-1 Subarea 5.....	60
MCA-1 Subarea 6.....	62
Site 16CM147	64
Summary and Recommendations	64
Marsh Creation Area (MCA-1)	67
Dredge Pipeline Access Corridors (DPACs)	67
Investigation of Site 16CM147	67
 References Cited.....	 69
 Aerial Photographs	 Appendix I
 Soil Profiles of Vibracores	 Appendix II
 Permits	 Appendix III

LIST OF FIGURES

Figure 1.1	Map depicting location of the proposed Long Point Marsh Creation (CS-0085) Project Area in Cameron Parish, Louisiana.	2
Figure 1.2	USGS Quadrangle excerpts depicting the proposed Long Point Marsh Creation (CS-0085) Project Area in Cameron Parish, Louisiana.	3-5
Figure 2.1	Soils mapped in the vicinity of the proposed Long Point Marsh Creation (CS-0085) Project Area in Cameron Parish, Louisiana.	11-15
Figure 2.2	[1848] Excerpt from <i>La Tourette's Reference Map of the State of Louisiana</i> , in reference to the current project area. Map excerpt depicts the Kelso property along Black Lake Bayou.	17
Figure 2.3	[1896] Excerpt from Rand, McNally & Co.'s <i>Louisiana</i> , in reference to the current project area. Map excerpt depicts the railroad network through Calcasieu Parish, north of Cameron Parish.	19
Figure 5.1	Photograph of extraction of vibracore along the dredge pipeline corridors at Long Point Bayou.	28
Figure 5.2	Profile of vibracore LP-VB-01.	29
Figure 5.3	Profile of vibracore LP-VB-02.	30
Figure 5.4	Profile of vibracore LP-VB-03.	31
Figure 5.5	Profile of vibracore LP-VB-04.	32
Figure 5.6	Profile of vibracore LP-VB-05.	33
Figure 5.7	Profile of vibracore LP-VB-06.	34
Figure 5.8	Profile of vibracore LP-VB-07.	36
Figure 5.9	Profile of vibracore LP-VB-08.	37
Figure 5.10	Profile of vibracore LP-VB-09.	38
Figure 5.11	Profile of vibracore LP-VB-10.	39
Figure 5.12	Profile of vibracore LP-VB-11.	40
Figure 5.13	Profile of vibracore LP-VB-12.	41

Figure 5.14	Profile of vibracore LP-VB-13.	42
Figure 5.15	Profile of vibracore LP-VB-14.	43
Figure 5.16	Profile of vibracore LP-VB-15.	44
Figure 5.17	Overview photograph of Survey Segment PAC070720C, facing northwest.	45
Figure 5.18	Additional overview photograph of Survey Segment PAC070720C, facing southeast. Note: pipeline riser in left-rear of the photograph.	45
Figure 5.19	Profile of auger test from Survey Segment PAC070720C.	46
Figure 5.20	Overview photograph of Survey Segment PAC070720B, facing east.	46
Figure 5.21	Profile of typical auger test at Survey Segment PAC070720B.	47
Figure 5.22	Overview photograph of Survey Segment PAC070720A, facing east.	48
Figure 5.23	Additional overview photograph of Survey Segment PAC070720A, facing east. Note: Long Point Lake in rear of the photograph.	48
Figure 5.24	Profile of typical shovel test at Survey Segment PAC070720A.	49
Figure 5.25	Overview photograph of MCA-1 Perimeter from the northwest side, facing south.	50
Figure 5.26	Additional overview photograph of MCA-1 Perimeter from the southeast side, facing west.	51
Figure 5.27	Additional overview photograph of MCA-1 Perimeter from the west side, facing west. Note: abandoned access road in center of the photograph. Site 16CM111 (outside of project area) is in the far-rear of the photograph.	51
Figure 5.28	Profile of typical auger test at MCA-1 Perimeter.	52
Figure 5.29	Overview photograph of MCA-1 Subarea 1, facing north-northeast.	53
Figure 5.30	Additional overview photograph of MCA-1 Subarea 1, facing southwest.	53
Figure 5.31	Profile of typical auger test at MCA-1 Subarea 1.	54
Figure 5.32	Overview photograph of MCA-1 Subarea 2, facing west.	55
Figure 5.33	Additional overview photograph of MCA-1 Subarea 2, facing northwest.	55
Figure 5.34	Profile of typical auger test at MCA-1 Subarea 2.	56

Figure 5.35	Overview photograph of MCA-1 Subarea 3, facing north.	57
Figure 5.36	Additional overview photograph of MCA-1 Subarea 3, facing northwest.	57
Figure 5.37	Profile of typical auger test at MCA-1 Subarea 3.	58
Figure 5.38	Overview photograph of MCA-1 Subarea 4, facing east.	59
Figure 5.39	Additional overview photograph of MCA-1 Subarea 4, facing west-northwest.	59
Figure 5.40	Profile of typical auger test at MCA-1 Subarea 4.	60
Figure 5.41	Overview photograph of MCA-1 Subarea 5, facing east.	61
Figure 5.42	Additional overview photograph of MCA-1 Subarea 5, facing west.	61
Figure 5.43	Profile of typical auger test at MCA-1 Subarea 5.	62
Figure 5.44	Overview photograph of MCA-1 Subarea 6, facing northeast.	63
Figure 5.45	Additional overview photograph of MCA-1 Subarea 6, facing west.	63
Figure 5.46	Profile of typical auger test at MCA-1 Subarea 6.	64
Figure 5.47	Overview photograph of Site 16CM147, facing west.	65
Figure 5.48	Aerial planview of Site 16CM147.	66
Figure 5.49	Profile of typical auger test at Site 16CM147.	67

LIST OF TABLES

Table 2.1	Table of soils mapped in the vicinity of the proposed Long Point Marsh Creation (CS-0085) Project Area in Cameron Parish, Louisiana.	10
Table 3.1	Previously identified archeological sites within 1.6 km (1.0 mi) of the proposed Long Point Marsh Creation (CS-0085) Project Area in Cameron Parish, Louisiana.	22

CHAPTER I

INTRODUCTION

This document describes the results of a cultural resources investigation conducted prior to the implementation of the proposed Coastal Protection and Restoration Authority (CPRA) Long Point Marsh Creation Project (CS-0085) (Marsh Creation Project) in Cameron Parish, Louisiana (Figures 1.1 and 1.2). Fieldwork for this project was conducted between June 23 and July 10, 2020 on behalf of CE Hydro, LLC (CE Hydro) by R. Christopher Goodwin & Associates, Inc. (RCG&A). All work completed by RCG&A was performed in accordance with 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 Archeological Resources Protection Act of 1979; and the Secretary of the Interior's Standards and Guidelines (48 FR44738-44739); the Louisiana Unmarked Human Burial Sites Preservation Act of 1992; Title 41 – Public Lands (LA Rev Stat § 41:1605 [2018]); and, with applicable administrative rules and guidelines pertaining to historic preservation published by the Louisiana Division of Archaeology, Louisiana Office of Cultural Development, Louisiana Department of Culture, Recreation and Tourism (SHPO) as well as Louisiana's Comprehensive Archaeological Plan (Girard et al. 2018). Prior to conducting fieldwork, RCG&A obtained an Archeological Resources Protection Act Permit (ARPA Permit No. SABNWR041020) and a Sabine National Wildlife Refuge (Sabine NWR) Special Use Permit (SUP No. G2020-18) from the U.S. Fish and Wildlife Service (USFWS) (Appendix III).

Dr. Wayne Boyko, R.P.A. served as Principal Investigator for this project. Mr. Peter A. Cropley, M.A., R.P.A., served as Project Manager and directed the archeological fieldwork. Mr. Cropley was assisted in the field by Ms. Kathleen Child, M.A., R.P.A. This report was authored by Mr.

Cropley, Dr. Boyko, Mr. Nathanael Heller, M.A., R.P.A., and Susan Barrett Smith, B.A. The graphics contained within this report were created by Mr. Tyler Leben, B.A., while Ms. Heidi R. Post, B.A. produced this document.

Project Description

The Marsh Creation Project is located in Cameron Parish, Louisiana and consists of two proposed components: a marsh creation cell (i.e., MCA-1) that encompassed an area measuring approximately 160 hectares (ha) (395 acres [ac]) in extent and two proposed dredge pipeline access corridors (DPACs) that measured 30 m (98 ft) in width and which combined for a total length measuring 2.8 km (1.7 mi). Dikes that will be emplaced for the proposed marsh creation cell will be constructed from *in situ* material; fill material will be transported to MCA-1 by pipeline from a borrow site in the Calcasieu Ship Channel. It is anticipated that the two CPRA-identified proposed DPACs will traverse land then be placed in local waterways that connect the Calcasieu Ship Channel to the Marsh Creation Project Area of Potential Effects (APE) (see below).

Research Design

The primary research objective for this terrestrial cultural resources investigation was to obtain data pertaining to the nature and distribution of all cultural resources (i.e., archeological sites, isolated finds, historic standing structures, and cemeteries) located within or immediately adjacent to the proposed project APE that may be impacted adversely as a result of this undertaking. This research included completion of background research and archeological field survey. The latter consisted of pedestrian survey and systematic shovel and auger testing, where possible, throughout the onshore portions of the currently proposed project APE. In addition, an ef-

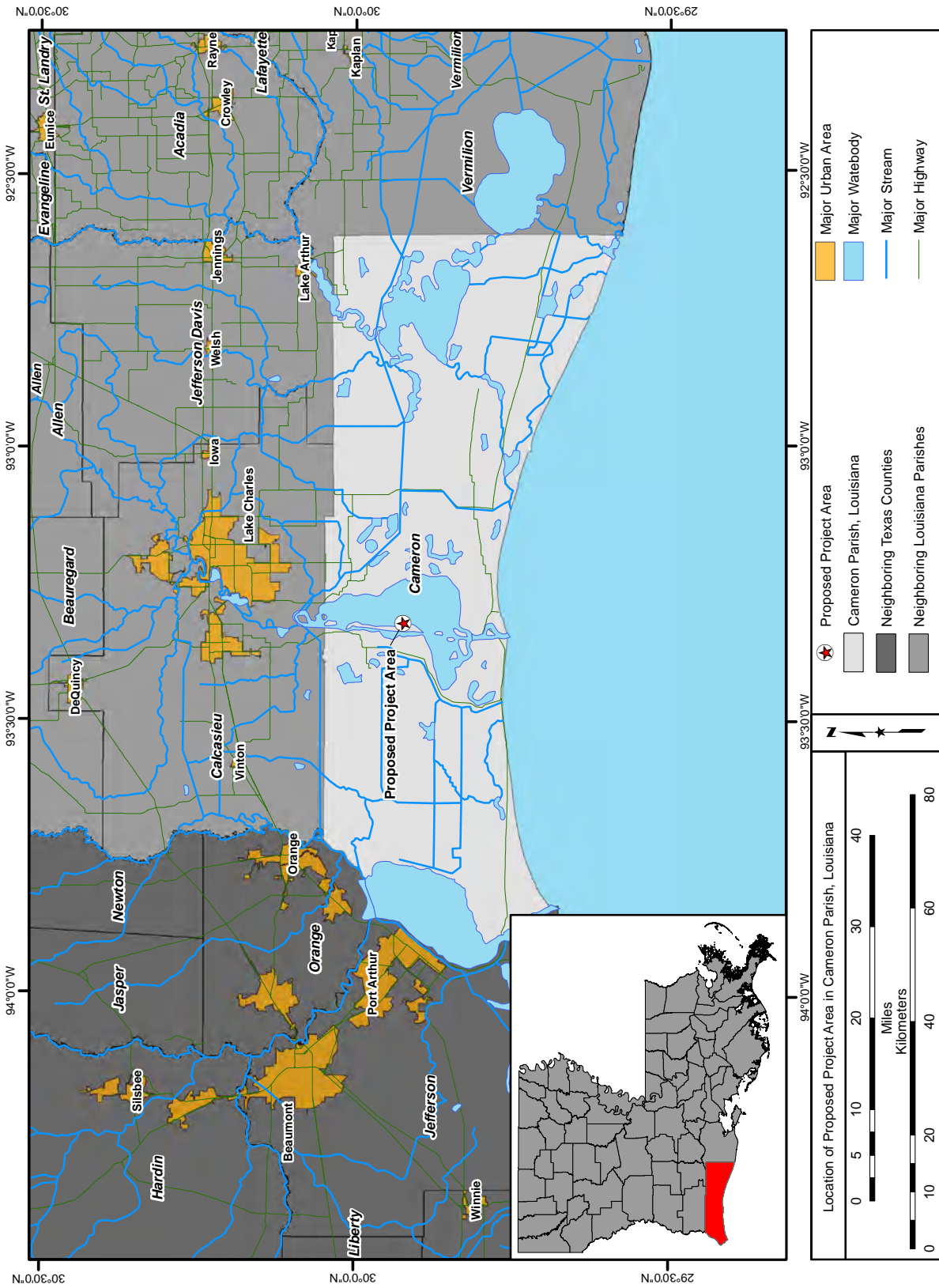


Figure 1.1 Map depicting location of the proposed Long Point Marsh Creation (CS-0085) Project Area in Cameron Parish, Louisiana.

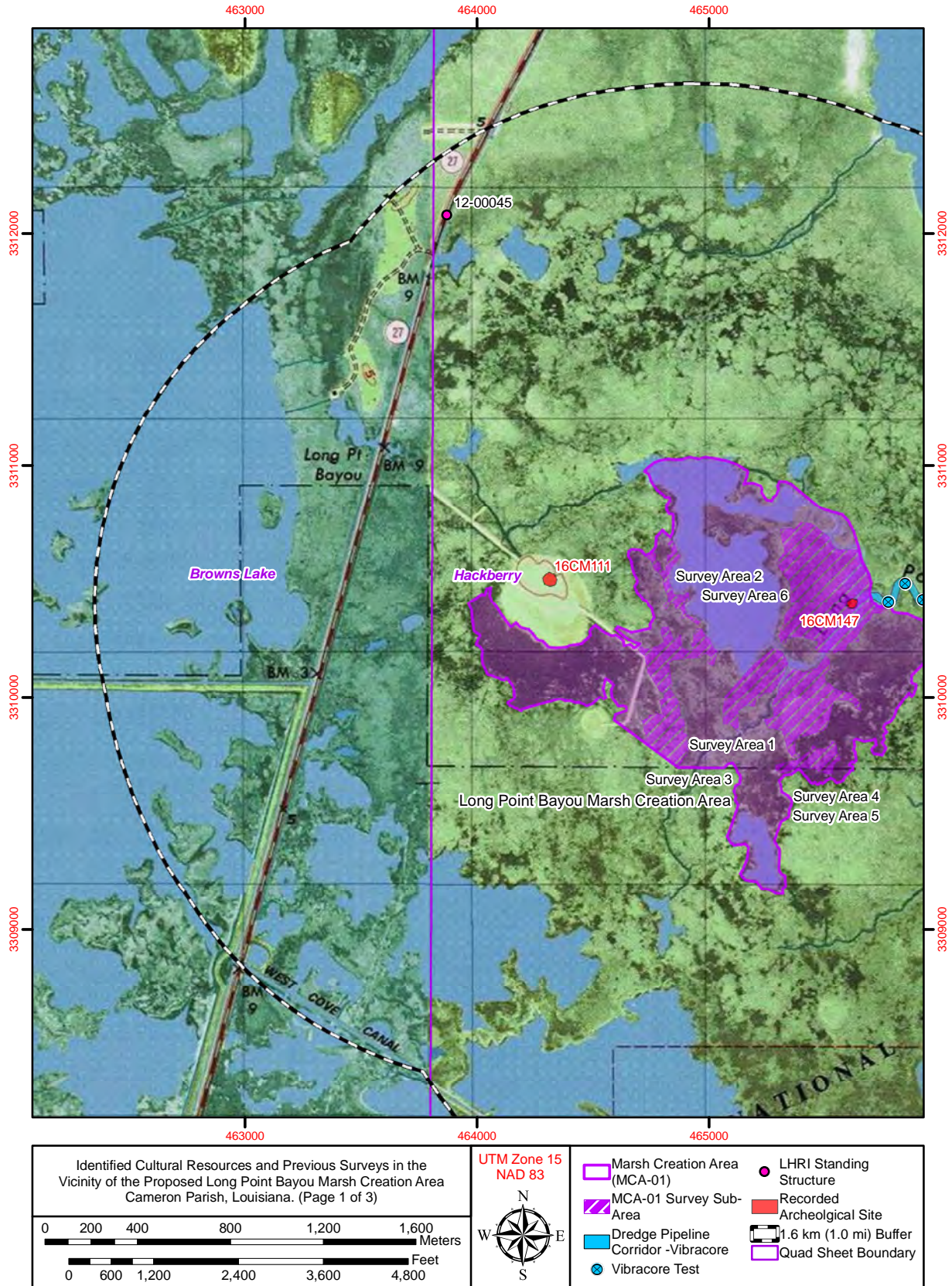


Figure 1.2 USGS Quadrangle excerpts depicting the proposed Long Point Marsh Creation (CS-0085) Project Area in Cameron Parish, Louisiana.

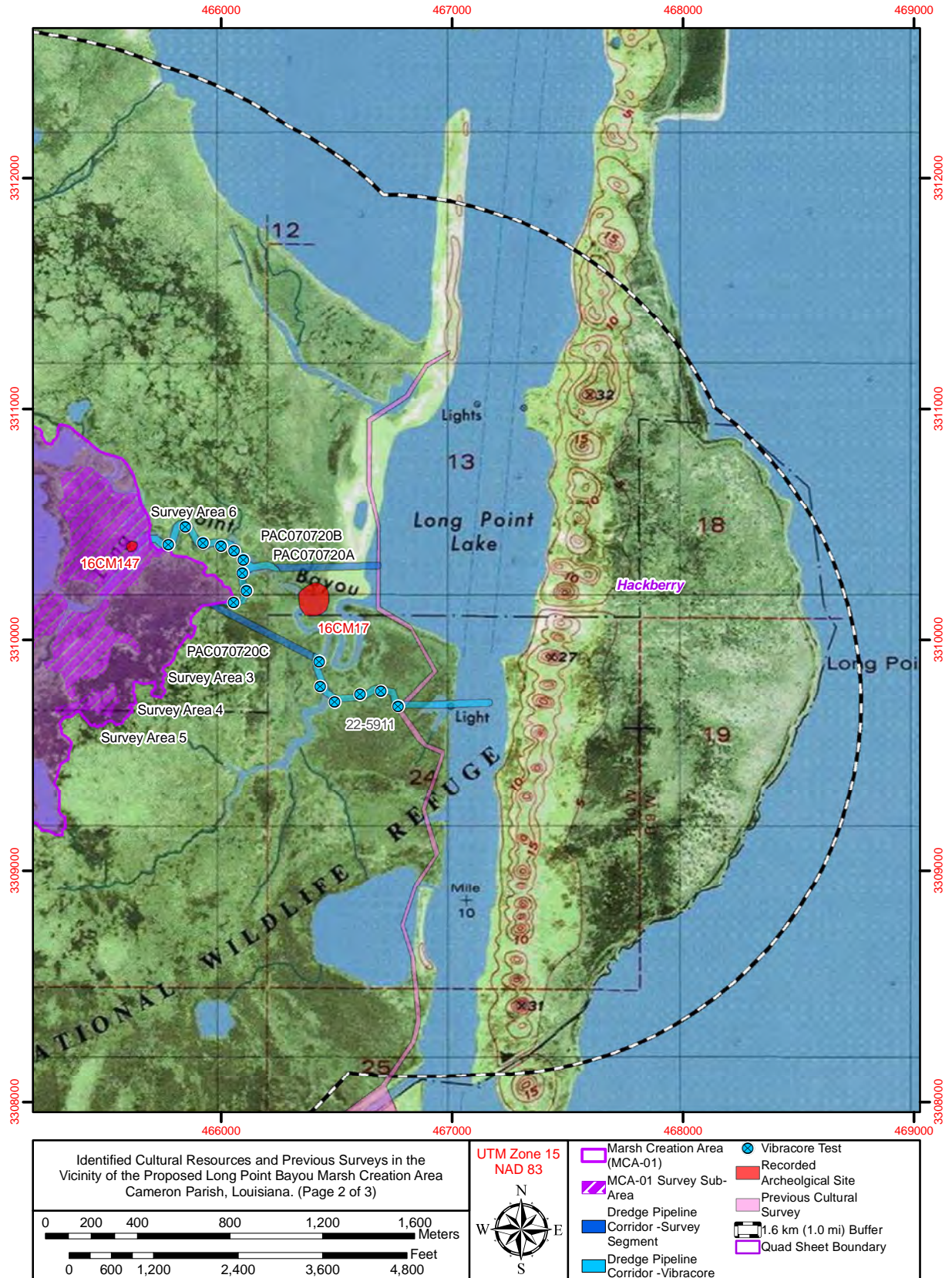


Figure 1.2 USGS Quadrangle excerpts depicting the proposed Long Point Marsh Creation (CS-0085) Project Area in Cameron Parish, Louisiana.
Sheet 2

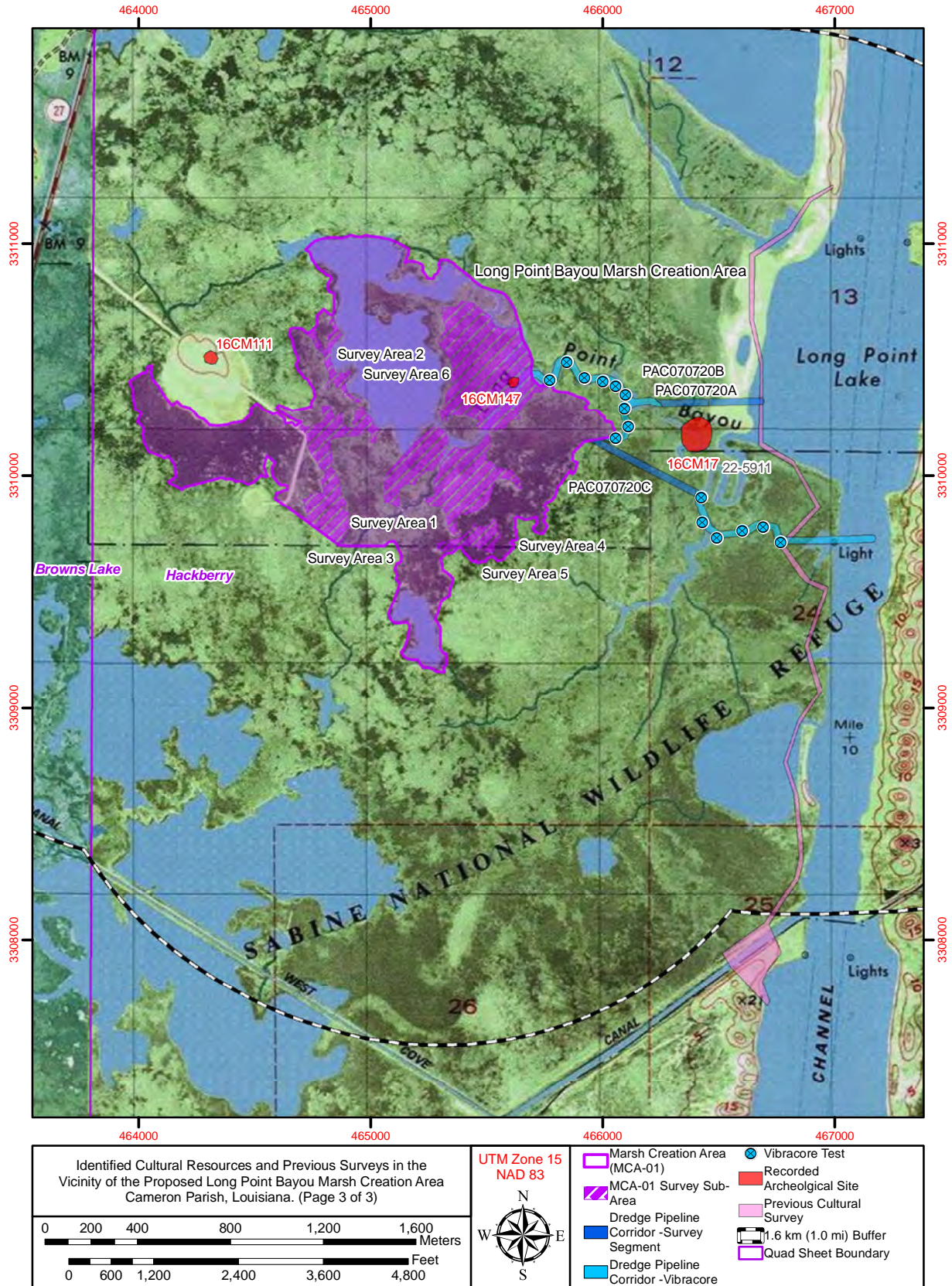


Figure 1.2 USGS Quadrangle excerpts depicting the proposed Long Point Marsh Creation (CS-0085) Project Area in Cameron Parish, Louisiana. **Sheet 3**

fort was made to identify all cultural resources that might possess those qualities of integrity and significance as defined by the NRHP Criteria for Evaluation (36 CFR 60.4 [a-d]).

A multistage survey methodology was developed for the project. The first stage involved archival research to determine the location of all previously identified/recorded archeological sites and previously completed cultural resource investigations located within 1.6 km (1.0 mi) of the project APE. Following the completion of all background research, a probability model was developed that stratified the project APE into areas characterized as having a high or low probability for containing archeological sites. For the purposes of this survey effort, high-probability areas included non-inundated landforms located within 50 m (164 ft) of an identified water source (i.e., water crossings, wetlands, and ephemeral streams); all non-inundated natural levees; and, non-inundated areas situated within 50 m (164 ft) of any previously identified cultural resource.

Area of Potential Effect

The APE [i.e., the “geographic area or areas within which an 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))] for the Long Point Marsh Creation project included all terrestrial areas of ground disturbance (i.e., MCA-1 and marsh creation cell and the DPACs) (Figure 1.2). The Marsh Creation Project Area of Potential Effects (APE) measured approximately 169 ha (approximately 417 ac) in size (see below) (Figures 1.1 and 1.2).

Project Results

RCG&A completed the cultural resources investigation of the Marsh Creation Project in Cameron Parish, Louisiana during June and July, 2020. A brief summary of the results of the examination is provided below.

Marsh Creation Area (MCA-1)

Auger and shovel testing was conducted, where possible, along the perimeter of MCA-1 and within the boundary of the marsh creation cell in areas covered with marsh grasses where

it appeared terra firma might be present. A total of 122 shovel and auger tests were excavated along the perimeter and within six subareas of the MCA-1 component of the project. Auger testing was conducted using a mud auger in order to determine if any areas of non-inundated and non-saturated soils were located around the perimeter or within MCA-1. No such soils were encountered. No elevated areas or areas that contained vegetation that indicated subsided landforms were present within MCA-1 were encountered. Two auger tests were placed within the boundary of previously identified Site 16CM147, the Long Point Bayou Pirogue Site. Site 16CM147 was previously determined to be ineligible for listing in the NRHP. The site area was mostly flooded and no evidence of cultural deposits was recovered. No evidence of cultural material or features was identified during the examination of MCA-1. No additional investigation of MCA-1 is recommended.

Dredge Pipeline Access Corridors (DPACs)

During the cultural resources investigation of the Long Point Marsh Creation Project, two DPACs that together measured 2.8 km (1.7 mi) in length and 30 m (98 ft) in width were examined. Portions of each of the DPACs followed the course of Long Point Bayou as well as traversed this waterway. Within those portions of the corridor that traversed the bayou, a total of 15 vibracores were extracted. Each core extracted measured 3 m (10 ft) in length. Several vibracores were placed in the center of the bayou; at some proposed vibracore extraction locations where the depth of the water exceeded 1.8 m (6.0 ft) at center, it was necessary to relocate vibracore locations closer to the bankline where water depths did not exceed 1.5 m (5 ft). Typically, the stratigraphic profiles of each of the cores revealed alternating deposits of silty clay and muck to depths up to 2.6 m (8.5 ft) from the bed of the bayou. A small amount of *Rangia* shell was identified in Vibracores 1 and 4, though the small amount and size of the shells present appear to indicate that these are natural inclusions in the profile, rather than evidence of cultural features. No artifacts or evidence of cultural features was identified within the vibracores extracted from Long Point Bayou.

Additional portions of the DPACs not included above were examined by the excavation of shovel or auger tests in locations that were elevated or contained vegetation that indicated subsided landforms may be present. A total of eight shovel tests and four auger tests were excavated along the DPACs that met these criteria. There was no evidence of cultural resources being present within the two DPACs; no additional investigation of the two DPACs is recommended.

Organization of the Report

Natural settings, cartographic review, and historic land use of the Marsh Creation Project area are discussed in Chapter II. This chapter provides an overview of the physiography, geomorphology, geology, and soils characteristic of the project area and a review of the historical background of the larger study area. Chapter III includes an examination of all previously conducted archeological investigations and previously identified cultural resources identified

within 1.6 km (1.0 mi) of the project area. The field and laboratory methods utilized to complete the current investigation are discussed in Chapter IV. Chapter V presents the results of the field investigations and management recommendations. Appendix I depicts the proposed project items on aerial photographs. Appendix II provides the soil profiles in tabular format for each of the vibracores extracted during the examination of Long Point Bayou. Appendix III includes the ARPA permit and Sabine NWR Special Use Permit secured to conduct the investigation.

Curation

Following the completion and acceptance of the final report, all project materials, 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, 1835 North River Road, Baton Rouge, LA 70802.

NATURAL SETTINGS AND CARTOGRAPHIC REVIEW

Introuction

The proposed Marsh Creation Project APE is located in Cameron Parish, Louisiana between Calcasieu Lake and Sabine Lake and north of the Gulf of Mexico (Figure 1.1). Traditionally, the economy in this region has focused on agriculture and timber harvesting, and, more recently, on the exploitation of petroleum resources. This chapter presents a discussion of the natural setting and general history of southwestern Louisiana, with emphasis placed on Cameron Parish.

Natural Setting

The landforms included within the proposed Marsh Creation Project area as well as those recorded in the regional environment were created and influenced by a number of factors that can vary widely across small distances. The associated natural habitats and ecological features have affected prehistoric and historic populations, their settlement across the landscape, and their subsistence strategies. While prehistoric and/or historic period populations may adapt to specific geographical niches, it has been suggested that the local trends of larger cultural traditions often coincide with 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 patterns.

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 (e.g., climate, hydrology, etc.). 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 to exploit particular aspects of south Louisiana physiography and the associated flora, fauna, and geological features.

The Sabine River and the Calcasieu Ship Channel pass through the region on their way to the Gulf of Mexico. The current project area is situated directly west of Calcasieu Lake and Long Point Lake and located approximately 8 km (5 mi) south of the town of Hackberry, Louisiana.

Predictions of Archeologically Significant Areas Based on Geology, Geomorphology, and Soils

Utilizing topography and relief, a number of inferences can be made about archeological site location and preservation. These inferences take into consideration a combination of natural, geological, biological, and cultural processes, and the results of both previous archeological surveys and recorded cultural resource sites. Factors that influence prehistoric occupation, and to a lesser degree historic occupation, include proximity to water, ground slope or elevation, and the location of resources near areas characterized by multiple ecozones. Occupation sites are anticipated within areas of high elevation, e.g., on natural ridges located near water. Conditions like these were taken into account when evaluating archeological site potential throughout the project area.

Because the geomorphology of the proposed project area and the surrounding areas strongly influences the occurrence and subsequent preservation of the archeological materials initially deposited at these locations, a brief review of the

processes that may affect site preservation and human settlement are included in this discussion. The proposed Marsh Creation Project area is located in southwest Louisiana to the west of the Atchafalaya Basin, north of the Gulf of Mexico and directly west of Calcasieu Lake (Figure 1.1). More specifically, the proposed project area is situated within Cameron Parish, which lies within the Gulf Coast Physiographic Province of North America (Murray 1961). This province can be subdivided into several regions, two of which are located within Cameron Parish: the Gulf Coast Prairies and the Gulf Coast Marsh (Midkiff 2003; Midkiff et al. 1995; Roy and Midkiff 1988). Flood plains are located along the major waterways and include marshes, swamps, and hardwood bottom land. Terra firma throughout Cameron Parish primarily is used for rangeland for cattle, though this is limited by wetness. Marsh and swamp areas are poorly drained and are often flooded; these areas mainly are used for wildlife habitat and recreation.

The Prairie Complex is the youngest of several terraces that constitute a coastwise terrace belt, the surface of which gently dips southward beneath the fresh to saline marshes associated with the Holocene chenier plain of southwestern Louisiana. Local drainage networks on the Prairie Complex surface are developed poorly, resulting in high groundwater levels and moderate to severe seasonal flooding. Essentially all surface drainage is controlled by abandoned channels of the Red or Calcasieu Rivers, which are both of Holocene or Pleistocene age. The Red River deltaic complex marks the southern edge of the Pleistocene-age terrace complexes; this deltaic plain extends over much of southwestern Louisiana and to just west of the Calcasieu River (Autin et al. 1991). The Red River delta formed approximately 70,000 years ago, and it is included in the Prairie Complex (Saucier 1994:174-178). The deposits of deltaic plain overlie backswamp and near-shore Gulf marine deposits, though the near-shore marine deposits outcrop only in the northern portion of the project area. Within the marine deposits are a series of barrier ridges that display coast-parallel accretion ridges (Saucier 1994:178).

Geologically, the Marsh Creation Project area is situated near the southern limit of the broad, north-south trending Mississippi Embay-

ment, i.e., near the area where it joins the east-west trending Gulf Coast Geosyncline (Murray 1961; Saucier 1994). In combination, these two deep, subsiding structural troughs resulted in the deposition of tens of thousands of meters of sediments in alternating fluvial, deltaic, estuarine, and shallow marine environments during the Tertiary and Quaternary periods (Cenozoic Era). As a result of millions of years of deposition, the thick sedimentary sequence has witnessed the formation of zones of east-west trending growth faults and the intrusion of diapiric salt domes (Autin et al. 1991).

Within this overall structural geologic framework, events relevant to the current study are those that have occurred during the Pleistocene and Holocene epochs of the Quaternary period. Constituting the last 2.5 million years of geological time, these epochs were dominated by the cyclical advance and retreat of continental glaciers and the rise and fall of sea level. Glaciers did not directly affect the Lower Mississippi Valley area, but on several occasions the alluvial valley served as a giant sluiceway for the transport of vast quantities of meltwater and glacial outwash to the Gulf of Mexico. These glacial stages were episodes marked by the transport and deposition largely of sands and gravels, relatively low sea level stands, and a Mississippi River braided stream regime (Autin et al. 1991). In contrast, interglacial stages were times of stream meandering and meander belt formation, characterized predominantly by fine-grained sediment loads (silts and clays), and relatively high sea level stands. Near the Gulf Coast, glacial stages were characterized by stream entrenchment with the shoreline positioned well south of its present location. Interglacial stages were times of entrenched valley filling, transgressing shorelines, and the development of deltaic plains through delta lobe growth and decay.

In the project region, the Mississippi alluvial valley experienced incision and widening during the last (or Late Wisconsin) glaciation. The alluvial fill was deposited mostly during the waning of that glaciation (decay of the Laurentide ice sheet) during an episode known as the Holocene sea level transgression. The Pleistocene

formations, into which valley incision took place, were deposited during the Sangamon and Middle Wisconsinan stages. Laterally and away from the entrenchment, these Pleistocene formations constitute the young Prairie Complex terrace of the project area. Traditionally, the terrace (of Mississippi River origin) has been referred to as the Prairie terrace (Fisk 1939; Russell 1938), but recently the term Prairie Complex has been proposed (Autin et al. 1991; Saucier 1994) in view of a better understanding of its multiple origins and long history of development. Intermediate in age and elevation between the Prairie Complex and the Holocene floodplain are remnants of a terrace of Red River origin that has not been given a formal designation.

Soils

The U.S. Department of Agriculture, Natural Resources Conservation Service Web Soil Survey identifies two major soil map units within the proposed project area (Table 2.1; Figure 2.1). The Scatlake mucky clay map unit (SC) consists of a very deep layer of fluid mineral soils. Scatlake mucky clay is located within constantly flooded saline marshland. This very poorly drained mucky clay is typically at or below the water table (Web Soil Survey 2020). Scatlake mucky clays are derived from unconsolidated saline clayey and organic sediments and are located within marshes. This very poorly drained mucky clay is very frequently flooded and exhibits frequent ponding (Web Soil Survey 2020).

Also present in the survey area is Gently muck (GC). This very poorly drained soil is con-

stantly flooded and the water table typically is at or above the surface. The soils in this map unit were formed in thin accumulations of herbaceous plant remains and semifluid clayey alluvium over consolidated clayey deposits (Web Soil Survey 2020). Gently muck is typically located within slightly- to moderately saline marshy areas.

None of the soil map units identified within the proposed project area is considered prime farm land, and vegetation within the survey items generally consists of wetland vegetation associated with marshland (i.e., cat tail, cordgrass, salt-grass, etc.). Buried pipelines follow several transmission corridors through the areas.

Summary

Soils associated with the lower, marshy areas are less likely to contain archeological sites except in certain situations, such as elevated areas situated at the confluence of two or more distributaries. Due to the size and relatively consistent elevation of the proposed project area, proximity to natural water sources will potentially have a higher influence on site location than elevation. The shovel testing in those areas was completed at 30-m (98-ft) intervals; shovel tests also were placed judgmentally along elevated areas. Much of the project area was consistently inundated. These wet areas were accessed either by foot or by airboat and visually assessed. The presence of active pipeline corridors at several locations within the survey area suggests intense subsurface disturbance within the proposed project area decreasing the probability of encountering buried, intact cultural deposits.

Table 2.1 Table of soils mapped in the vicinity of the proposed Long Point Marsh Creation (CS-0085) Project Area in Cameron Parish, Louisiana.

Soil Type	Class	Landform	Taxonomic Class	Parent Material	Slope	Drainage	Depth to Water Table
Gently	muck	saline marshes	fine, smectitic, nonacid, hyperthermic Typic Hydraquents	thin accumulations of herbaceous plant remains and semifluid clayey alluvium over consolidated clayey deposits	< 1 percent	very poorly drained	0 in
Scatlake	muck	saline marsh	very-fine, smectitic, nonacid, hyperthermic Sodic Hydraquents	unconsolidated saline clayey and organic sediments	0 to 0.2 percent	very poorly drained	0 to 6 in (0 to 15.2 cm)



Figure 2.1 Soils mapped in the vicinity of the proposed Long Point Marsh Creation (CS-0085) Project Area in Cameron Parish, Louisiana.
Sheet 1

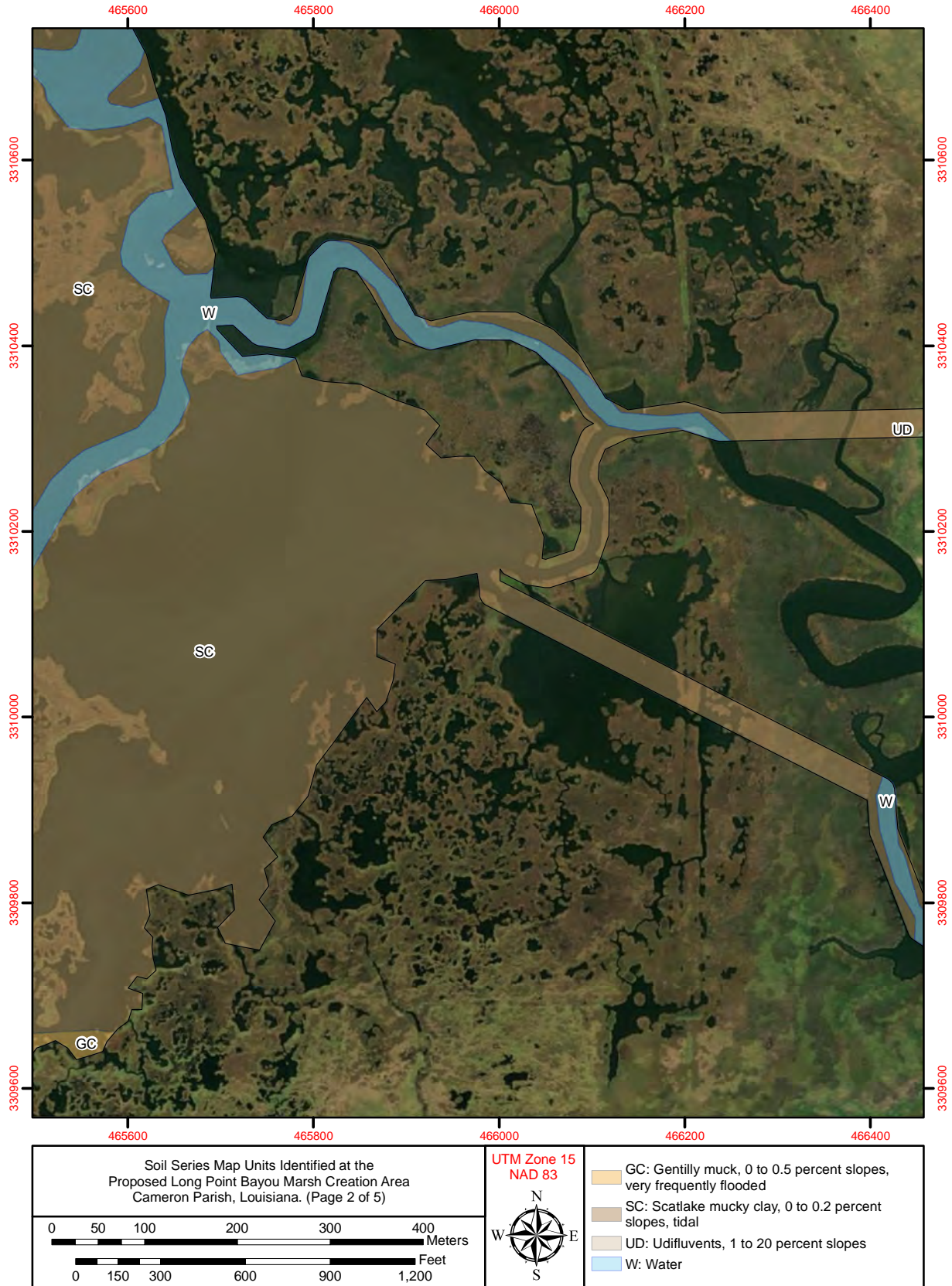


Figure 2.1 Soils mapped in the vicinity of the proposed Long Point Marsh Creation (CS-0085) Project Area in Cameron Parish, Louisiana.
Sheet 2

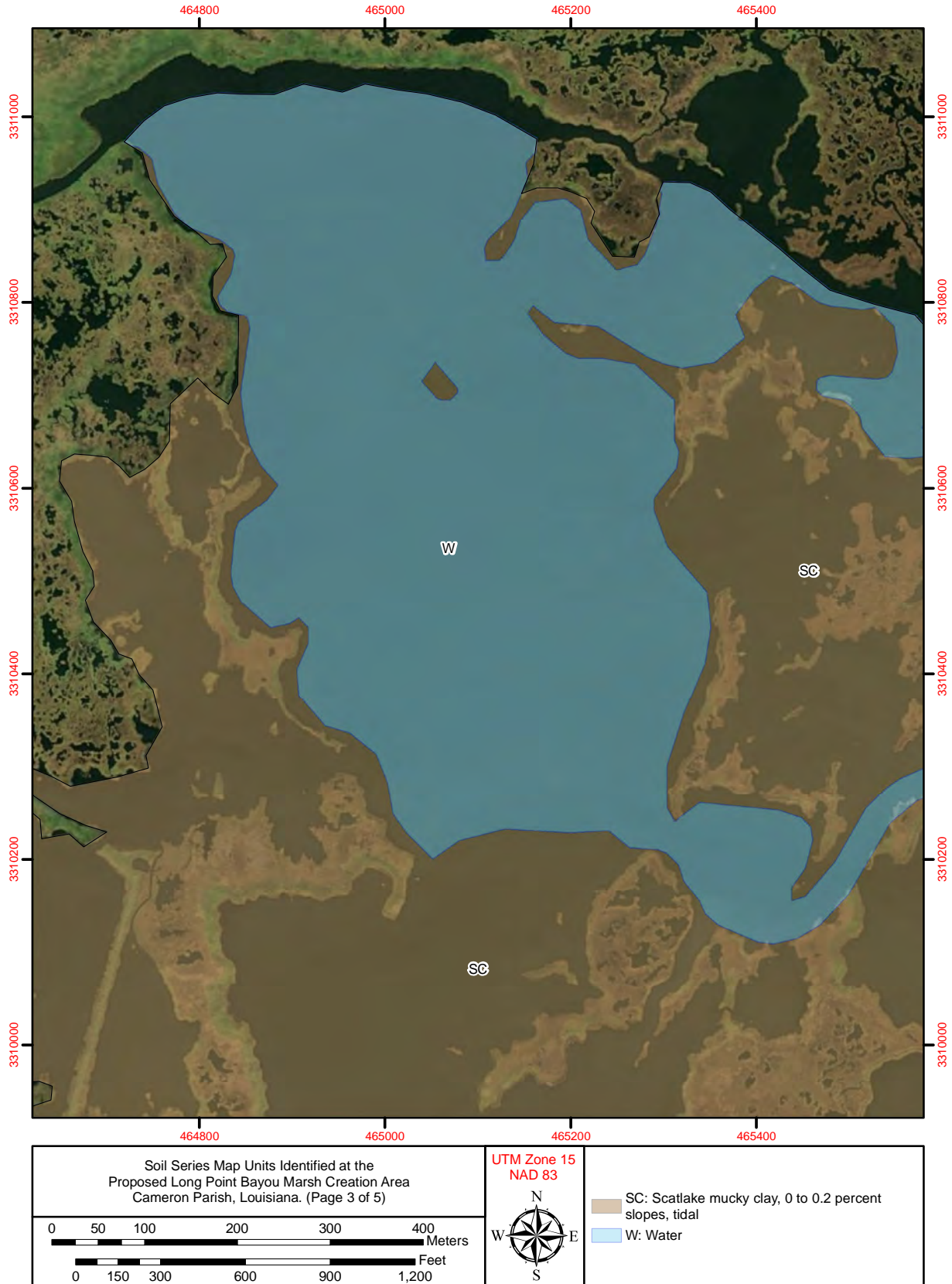


Figure 2.1 Soils mapped in the vicinity of the proposed Long Point Marsh Creation (CS-0085) Project Area in
Sheet 3 Cameron Parish, Louisiana.

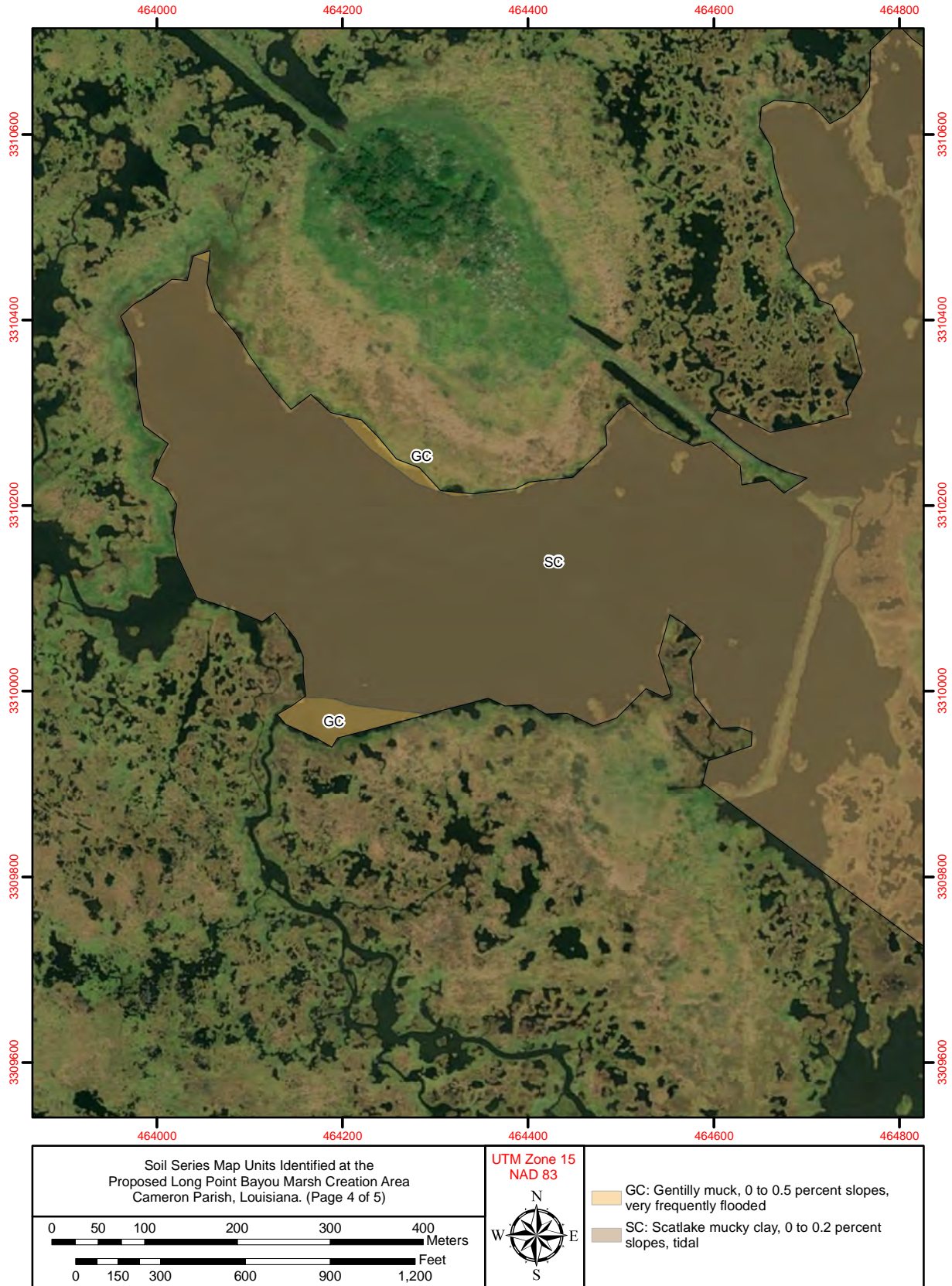


Figure 2.1 Soils mapped in the vicinity of the proposed Long Point Marsh Creation (CS-0085) Project Area in Cameron Parish, Louisiana.
Sheet 4

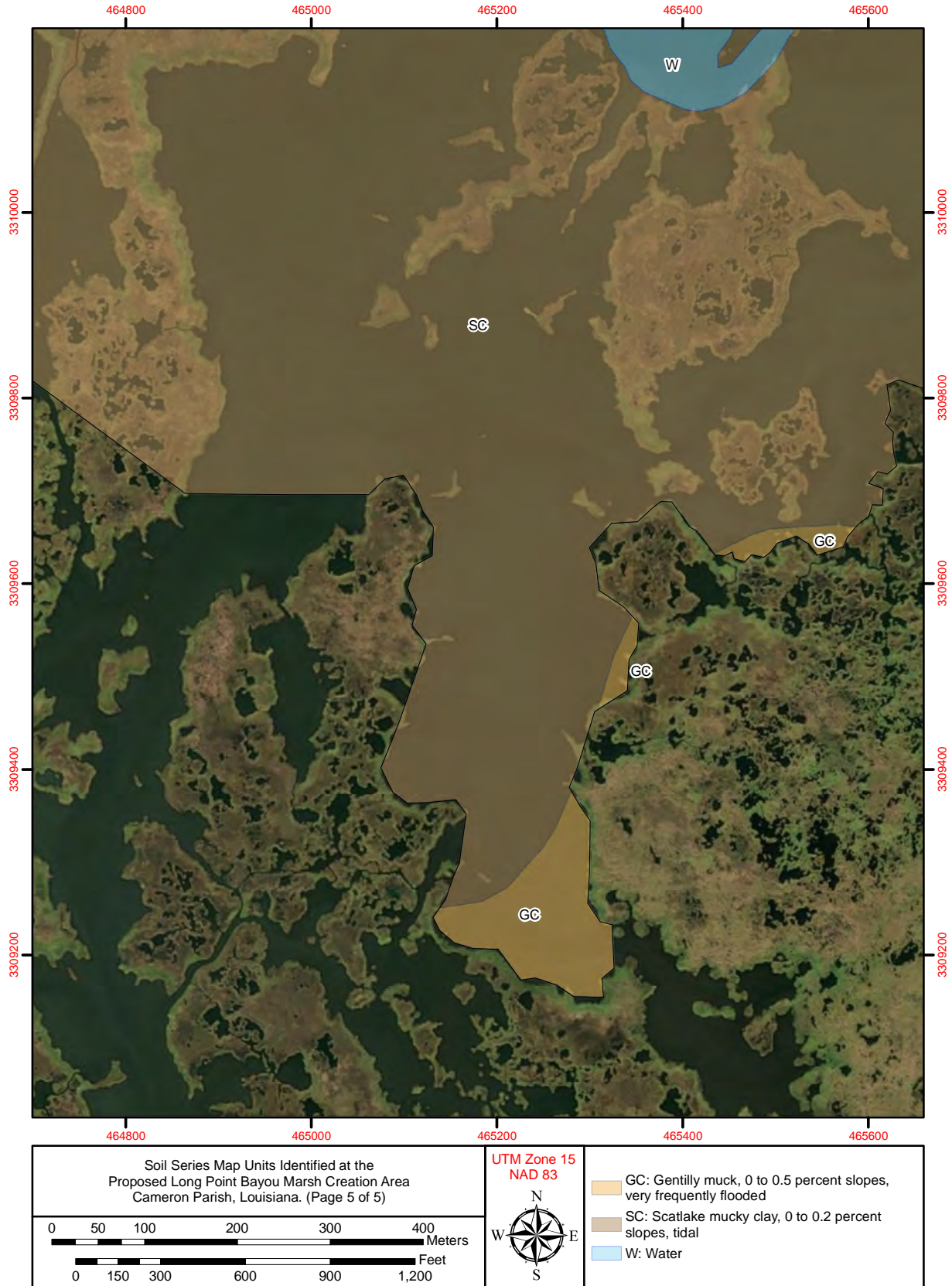


Figure 2.1 Soils mapped in the vicinity of the proposed Long Point Marsh Creation (CS-0085) Project Area in Cameron Parish, Louisiana.
Sheet 5

Historical Overview through Cartographic Review

Cartographic research was undertaken in order to aid in the identification of high probability areas located in the currently proposed project area, which is located south of the Hackberry community and immediately west of Long Point Lake, the Calcasieu Ship Channel, and Calcasieu Lake, in central Cameron Parish, Louisiana. This map study also has been utilized to draw conjectures regarding the general land use history of the project region. Numerous maps were researched, supplemented by selected documents that referenced occupation of the acreage encompassing the proposed project area. Many of the researched maps depicted the project region, but gave no indication of settlement or land usage. For the purpose of this study, then, a summary of only the positive historical map results follows.

Early maps depicted few landmarks of the project region. When identified, the Calcasieu River and Calcasieu Lake bore names such as “Catcatchook River” and “Baye de Carcusiou” (Gauld 1778; Lafon 1806). The earliest maps called the Calcasieu River “Rivière Mexicano” or “Mexicano River” – a nod to the Spanish colonial government’s long-disputed and ultimately dismissed assertion that the waterway was the eastern boundary of New Spain, i.e., present-day Texas (De L’Isle 1718; Senex 1721; U.S. Congress 1836:3537). Most telling was the absence of early cartographic information regarding southwesternmost Louisiana. In 1718, De L’Isle described western coastal Louisiana as terrain inhabited by “*Indiens errans et Antropophages*,” translated in 1721 by Senex as “Wandering Indians & Man-eaters.” D’Anville left the region nearly blank on his 1752 map, with only a few coastal notations, including “*Côte basse, peu connue, et sans eau douce*,” meaning “low coast, little known, and without fresh water.” On his 1806 survey, Lafon simply called the southwestern Louisiana coast “*Marais impraticables*” – “impassable swamp.” Gauld gave perhaps the most descriptive account of the region as it appeared during the late colonial era:

The Coast to the westward of the Mississippi, as far as this Plan extends, is very low and marshy, with hardly a tree or even a bush near the water side

This Coast does not run near so far to the Northward as it has been laid down in several [past] Draughts The entrance of the Catcatchook [Calcasieu] is the Northernmost part ... [sic throughout] (Gauld 1778).

Gauld further remarked that “There are several Indian Villages along the Banks of this [Catcatchook/Calcasieu] River. These Savages plunder and steal whatever they can from such as have the misfortune to be cast away on this inhospitable Coast [sic throughout]” (Gauld 1778). Indeed, Native Americans probably were the sole inhabitants of this part of the western shore of Calcasieu Lake during the colonial era. Still, the natural features and descriptions of these early maps provided markers and warnings for explorers, colonial travelers, and, later, smugglers and privateers (Watson ca. 2001).

The official plat of Township 13S, Range 10W, provides little evidence of early settlement within the vicinity of the project area. The plat claim notations, in combination with U.S. and State Tract Books and the Bureau of Land Management patent records, give information about the earliest land acquisitions located in the township, which, historically, was bordered to the east by Calcasieu Lake. In addition, natural features have been depicted on these surveys (Bureau of Land Management 2020; Louisiana State Land Office 1847; n.d.a:128-129; n.d.b:204-207).

All of the project area acreage was designated swampland and selected for the State of Louisiana by Congressional Act of March 2, 1849, selected by the State in 1850, and approved in 1852. These parcels later were sold by the State to private individuals between 1879 and 1883. Federal land patents were granted to a few landowners in the township during 1884-1904; however, none appear to have been granted in the immediate project area (Bureau of Land Management 2020; Louisiana State Land Office n.d.a:128-129; n.d.b:204-207).

In addition to the township plat, other maps published during the antebellum period depicted major roads and a few settlements scattered through the study region. Throughout the decades prior to the Civil War, the district encompassing the proposed project area remained largely isolated and unpopulated as part of the Great Calcasieu



Figure 2.2 [1848] Excerpt from *La Tourrette's Reference Map of the State of Louisiana*, in reference to the current project area. Map excerpt depicts the Kelso property along Black Lake Bayou.

Prairie and the salt marsh toward the coast line. The closest communities to the immediate project area probably were settlements along the Calcasieu River above Calcasieu Lake – Calcasieu, Lisbon, Marion, and, by the late 1840s, Lake Charles – all located several miles northeast of the current project area (Bayley 1853; Burr 1839; Carey 1814; Greenleaf 1848; La Tourrette 1848, 1853; Lucas 1817; Melish 1820; Tanner 1851).

By 1848, maps depicted the large landholding of George Y. Kelso, located along Black Lake Bayou (later known as Kelso Bayou) between Black Lake and Calcasieu Lake, about five kilometers north of the project area (Figure 2.2). Kelso patented this acreage in 1845, and developed the property as a sugar plantation. Following Kelso's death in 1856 and the hardships brought on by the Civil War, the plantation failed. The property became the core site of the community of Hackberry (Bureau of Land Management 2020; Lowery et al. 1991).

During the early to mid-nineteenth century, navigable waterways constituted the primary means of transportation through the project region, with waterfront landings established to accommodate travelers and deliveries; however, a few primary roads were constructed to connect major areas of settlement. In 1806, Lafon delineated the "*Chemin d'Orquouisas a Carcouisiou*" – a trail leading from the Neches River in New Spain, across the Sabine River into Louisiana, and then to the northwestern shore of Calcasieu Lake. Later maps eliminated that early thoroughfare, but depicted various routes that extended from the town of Opelousas in St. Landry Parish to the Calcasieu River and Calcasieu Lake. In fact, the principal thoroughfare traversing the Great Calcasieu Prairie was the Opelousas Road, which connected the important southwestern Louisiana hub of Opelousas to the Calcasieu River and then continued westward to cross the Sabine River into Texas. Besides serving as an immigration route, the Opelousas Road and its branches became an important cattle trailing network during the nineteenth century, with Texas cattle herded across southwestern Louisiana to Opelousas, where they were shipped via connecting waterways to the Mississippi River and downstream to the New Orleans market. These

roads all were located well north or northeast of the current project area (Bayley 1853; Burr 1839; Carey 1814; Greenleaf 1848; Lucas 1817; Melish 1820; Tanner 1851; Texas State Historical Association 2010; Watson ca. 2001).

A few maps were examined that charted the project region during the Civil War. These maps depicted towns and settlements, major roads, proposed railroads, and other features of the locale. The researched maps did not note anything of a military nature in the Long Point locale. The closest action would have been the operations in Calcasieu Pass, May 6-10, 1864, which occurred at the Confederate redoubt located at the entrance of Calcasieu Lake into the Gulf of Mexico, well south of the current project area. Although no major Civil War hostilities were fought in the immediate project vicinity, the study acreage was located near the Calcasieu River and Calcasieu Lake, which was an important transport route from the interior to the coast. The thousands of troops involved in supply shipments or in hostilities along the Calcasieu and Sabine Rivers may have passed through the project vicinity, by land or water, utilizing the waterways, ferries, and landings while traveling to and from supply depots, encampments, and military actions (Colton 1863; Copley et al. 2015:28-29; Holtz ca. 1864; National Park Service n.d.; U.S. War Department 1999).

Cartographic study suggests that railroads were projected to traverse the study region by the early to mid-1860s; however, the Civil War brought a temporary end to railway construction in the region. By the mid-1870s, new rail lines had been constructed or were projected across southwestern Louisiana. In 1880, the east-west Louisiana Western Railroad was completed between Vermilionville (present-day Lafayette), Louisiana, and Orange, Texas; this railway later became part of the Southern Pacific system. Within a decade and a half, the developing city of Lake Charles had become a hub for four rail lines. With the expansion of the railway network through the region during the late nineteenth and early twentieth centuries, a number of small towns were established along the track routes (Figure 2.3) (Colton 1863; Colton & Co. 1882; Goins and Caldwell 1995:37, 68-69; Holtz ca. 1864; Roeser 1876).

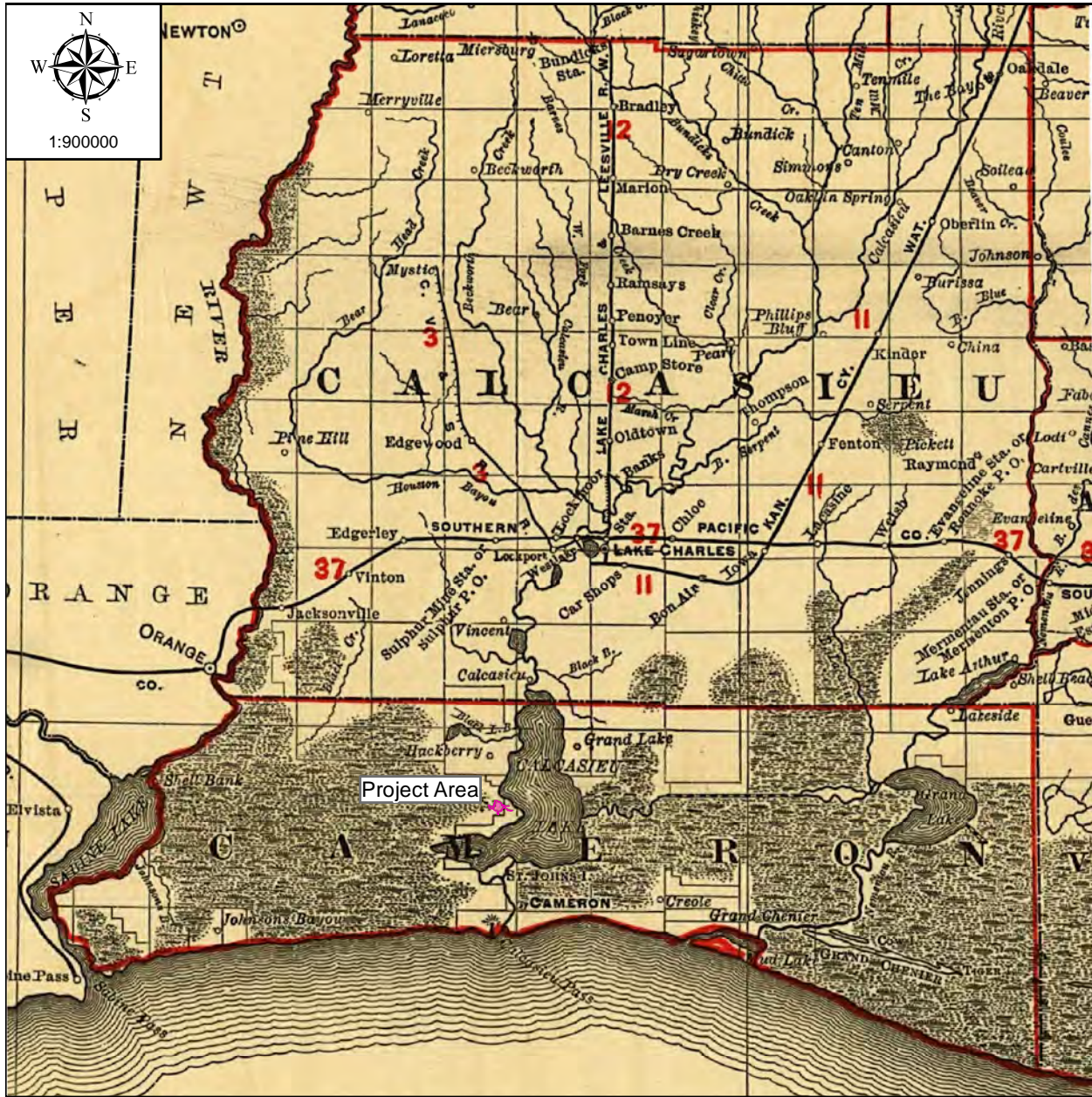


Figure 2.3 [1896] Excerpt from Rand, McNally & Co.'s Louisiana, in reference to the current project area. Map excerpt depicts the railroad network through Calcasieu Parish, north of Cameron Parish.

Cameron Parish was established on March 15, 1870 – carved from southern Calcasieu Parish and western Vermilion Parish. While the new parish benefitted from the railways traversing Calcasieu Parish to the north, no major rail lines ever were constructed through Cameron Parish. Furthermore, there was no good road system through the parish until after the turn of the century. Cameron residents continued to rely on local waterways for transportation and shipping well into the twentieth century (Figure 2.3) (Calhoun 1995:206; Colton & Co. 1882; Goins and Caldwell 1995:68-70; Lowery et al. 1991; Roeser 1876; Thorndale and Dollarhide 1987:138-139).

The researched topographic quadrangles published by the U.S. Geological Survey [USGS] during the first half of the twentieth century reflected little development of the study locale, although scattered structures were depicted along the local roads in the vicinity of the Hackberry community. By 1935, north-south State Highway 27 traversed Cameron Parish, only a short distance west of Calcasieu Lake and the current project area as it extended through Hackberry. In addition, these maps noted irrigation and drainage canals constructed in the study locale. In coastal Cameron Parish, “pirogue trails” were marked – narrow transportation canals cutting through the swamp (Goins and Caldwell 1995:71; USGS 1932-1955: Cameron and Sulphur 15’; Browns Lake, Hackberry, and Moss Lake 7.5’).

During the early twentieth century, the east-west Gulf Intracoastal Waterway was constructed through southwestern Louisiana, crossing southern Calcasieu Parish several kilometers north of the current project area. In mid-1941, construction was completed on the intersecting Calcasieu River Deep Water Way Project, giving the Port of Lake Charles a deep-water channel to the Gulf of Mexico. Subsequent improvements have been made to the channel, which today is known as the Calcasieu Ship Channel (or Calcasieu Shipping Channel) [CSC], and its success has contributed to the ranking of the Port of Lake Charles among the busiest seaports in

the nation. The north-south CSC extends immediately east of the current project area (Cropley et al. 2015:32-33; Goins and Caldwell 1995:73; USGS 1955-2018: Cameron and Sulphur 15’; Hackberry and Moss Lake 7.5’).

By the mid-1950s, petroleum exploitation was evident in the study district (although exploration had started decades earlier [Lowery et al. 1991]), and the examined maps depicted pipeline canals intersecting the agricultural and pirogue canals crisscrossing the project vicinity. Together with represented oil and gas fields, pumping and meter stations, storage units, and barge terminals, these facilities provide evidence of the petroleum industry activities that have burgeoned in Cameron Parish during the modern era. The studied maps also reflect the development of the offshore petroleum industry along the Cameron Parish coast (DTC 1992:12; USGS 1955-2018: Cameron and Sulphur 15’; Browns Lake, Hackberry, and Moss Lake 7.5’).

The studied maps also reflect the twentieth century creation of the Sabine National Wildlife Refuge [NWR]. Established in 1937, the 125,790-ac Refuge today extends across the marshlands and open waters of southwestern Cameron Parish between Calcasieu Lake and Sabine Lake. The southernmost part of the current project area and one of the associated DPACs extend into the eastern acreage of the Sabine NWR bordering the Calcasieu Ship Channel and Calcasieu Lake (U.S. Fish & Wildlife Service 2016; USGS 1955-2018: Cameron 15’; Browns Lake and Hackberry).

In summary, the researched maps and related documents indicate that land usage and settlement in the immediate project vicinity probably began during the late nineteenth century, with habitation and cultivation concentrated in the vicinity of Hackberry, generally north of the project area. Historically, this was fishing, hunting, and trapping country, with farming acreage located on the higher ground near Hackberry. The population of the district has remained fairly sparse and isolated throughout its history.

PREVIOUS INVESTIGATIONS

Introduction

The results of the cultural resources records review of the Marsh Creation Project area are discussed below. The examined area included MCA-1 and two DPACs that extended west from Long Point Lake in Cameron Parish, Louisiana (see Figures 1.1 and 1.2). This chapter contains a summary of the previously completed cultural resources investigations and previously recorded cultural resources (i.e., archeological sites and historic standing structures) that were identified within 1.6 km (1.0 mi) of the Marsh Creation Project APE. The discussions presented below are based on information currently on file with Louisiana Department of Culture, Recreation and Tourism, Office of Cultural Development, Divisions of Archaeology and Historic Preservation, in Baton Rouge, Louisiana, as well as the on-line National Register of Historic Places Database.

Previously Completed Cultural Resources Investigations Located within 1.6 km (1.0 mi) of the Marsh Creation Project APE

A single previously completed terrestrial cultural resources survey was identified within 1.6 km (1.0 mi) of the currently proposed Marsh Creation Project APE (Figure 1.2: sheet 3). No additional information or report on the project was available from the Louisiana Division of Archaeology website, however, it appears that the investigation may have been conducted prior to the rock revetment construction that was underway along the western bankline of the Calcasieu Shipping Channel and Long Point Lake (Report #22-5911).

Previously Identified Archeological Sites located within 1.6 km (1.0 mi) of the Marsh Creation Project APE

Three archeological sites were identified as situated within 1.6 km (1.0 mi) of the Marsh Cre-

ation Project APE (i.e., Sites 16CM17, 16CM111, and 16CM147). Only Site 16CM147 is situated within the project APE (Figure 1.2; Table 3.1).

Site 16CM17, the Long Point Bayou Site, is situated along Long Point Bayou and adjacent to Long Point Lake near the eastern margin of the current project APE (Figure 1.2: sheet 3). The site originally was recorded in 1972 by Neuman and revisited in 1982 by archeologists from Coastal Environments, Inc. (CEI). Site 16CM17 was described as a partially submerged shell midden that contained prehistoric ceramics that was covered with dredge spoil. To date, Site 16CM17 has not been assessed for listing in the NRHP.

Site 16CM111, the West Long Point Bayou Site, is situated on a portion of a remnant natural levee located northwest of the currently proposed project APE (Figure 1.2: sheet 3). An informant reported collecting prehistoric ceramic sherds at the site, however, no artifacts were recovered during an archeological reconnaissance conducted in 1980 by CEI. Shovel and auger testing conducted by CEI failed to locate any remains of a midden at that location, but did note that conditions in the vicinity of the site were favorable for further work. To date, Site 16CM111 has not been assessed for listing in the NRHP.

Site 16CM147, the Long Point Bayou Pirogue Site, was identified and reported to the Louisiana Division of Archaeology by duck hunters in 1999. The site is located along the west bank of Long Point Bayou and is situated within the currently proposed project area (Figure 1.2: sheet 3). Site 16CM147 consisted of two large fragments of a wooden pirogue recovered from the bottom of Long Point Bayou. Based on the lack of iron tool marks or drill holes in the vessel fragments, it was surmised that the vessel was of Native American origin. A radiocarbon assay of wood fragments extracted from the vessel indicated that the conventional age of the craft was

Table 3.1 Previously identified archeological sites within 1.6 km (1.0 mi) of the proposed Long Point Marsh Creation (CS-0085) Project Area in Cameron Parish, Louisiana.

Site Number	Site Name	USGS 7.5 Quad	Site Description	Cultural Affiliation	Field Methodology	NRHP Eligibility	Comments
16CM17	Long Point Bayou Site	Hackberry, LA	Shell midden with prehistoric artifact scatter	Prehistoric post-archaic occupation	Grab surface collection	Unassessed	Shell midden may be completely submerged.
16CM111	West Long Point Bayou Site	Hackberry, LA	Possible shell midden with artifacts	Prehistoric post-archaic occupation	Grab surface collection; shovel testing	Unassessed	Informant indicated that prehistoric ceramic sherds were recovered at site; CEI did not identify midden
16CM147	Long Point Bayou Pirogue Site	Hackberry, LA	Pirogue (watercraft)	Prehistoric Unknown	Pirogue recovered from marsh after hurricane	Ineligible	Pirogue is of interest and has additional research value; recovery location does not. Radiocarbon dating indicates dates of CE 1425 to 1650.

360±60 BP. That date correlated to an intercept with the radiocarbon curve at 460 BP (i.e. CE 1490), with a 2-sigma range of 525-300 BP (i.e. CE 1425 to 1650). A survey that attempted to locate additional fragments has not occurred to date. The site currently listed as ineligible for listing on the NRHP on the LDOA's website.

Two of the three archeological sites located within 1.6 km (1.0 mi) of the Marsh Creation Project APE have yet to be assessed for NRHP eligibility; i.e., Sites 16CM17 and 16CM111. Site 16CM147 was recommended as ineligible for listing. Of these sites, only Site 16CM147 is situated directly within the Marsh Creation Project area.

Previously Recorded Historic Standing Structures located within 1.6 km (1.0 mi) of the Marsh Creation Project APE

A single previously recorded historic standing structure was identified within 1.6 km (1.0 mi) of the current project APE. Standing Structure LHRI #12-00045 was located at 1455 Highway 27 in Hackberry and it was recorded in 2002. The structure is described as a residence of no particular architectural style that was in poor condition. A notation on the form indicates that the structure was moved in 1993 to an unknown location. Standing Structure LHRI# 12-00045 was recommended as ineligible for listing in the NRHP.

National Register of Historic Places Listed Properties within 1.6 km (1.0 mi) of the Marsh Creation Project APE

No properties listed on the National Register of Historic Places were identified within 1.6 km (1.0 mi) of the current project APE.

Cemeteries Identified within 1.6 km (1.0 mi) of the Marsh Creation Project APE

No previously recorded cemeteries were identified within 1.6 km (1.0 mi) of the current project APE.

Terrestrial Previous Investigations and Recommendations

Background research focused on the development of environmental and historic land use contexts for the project area and involved reviews of previous cultural resources investigations, inventories of identified historic properties, and terrestrial cultural resources (pre- and post-contact period) within and near the project APE. That research included a review of readily available historical maps, aerial photographs, cultural resources survey reports, and other relevant public records, as well as an examination of the National Register of Historic Places files and site files and records sourced from the Louisiana Cultural Resource Viewer maintained by the Louisiana Division of Archaeology in Baton Rouge. Based on the records available, the probability of locating archeological resources within the project area is classified as low to moderate.

CHAPTER IV

CULTURAL RESOURCES

INVESTIGATION METHODOLOGY

Methodologies employed during this investigation were designed to obtain data pertaining to the nature and distribution of cultural resources located within the limits of the proposed Marsh Creation Project APE. Archeological field survey included visual inspection, pedestrian survey, systematic shovel testing when possible, auger testing where necessary, as well as vibracore sampling within Long Point Bayou. In addition, an effort was made to identify all cultural resources that might possess those qualities of integrity and significance as defined by the National Register of Historic Places (NRHP) Criteria for Evaluation (36 CFR 60.4 [a-d]). Field methods, laboratory methods, and analytical procedures are described below.

Archeological Survey Methods

Travel to, within, and from the Marsh Creation Project APE was conducted by airboat. Within the project APE, visual inspection of the entire APE was augmented by the placement of shovel or auger tests at 30-m (98-ft) or 50-m (164-ft) intervals along a single survey transect situated along and parallel to the current shoreline and banklines areas within the APE, where possible. However, large portions of the shoreline and bankline locations were eroded and inundated to such an extent that shovel testing could not be conducted. These areas were visually inspected from the airboat for cultural material and/or possible features. Auger testing was conducted to determine if any non-fluid soils or sediments were present within the shoreline and bankline areas as well as the interior subareas of the marsh creation cell (see below). Judgmentally-placed shovel or auger tests were excavated in areas believed to potentially contain cultural material. Shovel and

auger tests were not excavated in areas that contained deep standing water or in areas characterized by excessive disturbance. Within the bounds of previously identified Site 16CM147, judgmental auger testing was conducted within the boundary of the flooded site, where possible.

Within the current APE, all excavated shovel tests measured at least 30 cm (12 in) in diameter and each was excavated to depths of at least 50 cm below surface (bs) (20 inbs) or until a known sterile subsoil was reached or the influx of water hampered the excavation process. All shovel test fill was screened through 0.64 cm (0.25 in) hardware cloth; extremely wet soils and clays were hand-sifted, troweled, and visually examined 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. All shovel and auger tests were backfilled immediately upon completion of the archeological recordation process.

Auger testing typically was conducted within inundated areas that contained semifluid soils. An effort to remove and describe these wet soils was made at each auger test location. The depth of each auger test varied according to how much of the semifluid soils could be removed; however an attempt to reach a depth of 1 m (3.3 ft) was made at each auger location. For both shovel tests and auger tests, Munsell® Soil Color Charts were used to record soil color; soil texture and other identifiable characteristics also were recorded using standard soils nomenclature.

Extraction of Vibracores

During the investigation of the Marsh Creation Project APE, a total of 15 vibracores were extracted from Long Point Bayou to determine if

cultural deposits were present (see Figure 1.2). Each vibrocore location was accessed by airboat and the location of vibrocore extractions were dispersed along a portion of Long Point Bayou in order to determine if intact deposits were still present in that portion of the bayou.

The aluminum core tubes used during this investigation for vibrocore extraction measured 3.0 m (10.0 ft) in length and 7.6 cm (3.0 in) in diameter. During coring activities, the top of each tube was plugged with a test plug and affixed to the vibrocore device. The vibrocore equipment used was an OZTEC GU-5H (OZTEC) concrete vibrator with a 3.0 m (10.0 ft) whip and a 2 in (5 cm) vibrator head attached to the OZTEC device. A customized pipe vice was affixed to the vibrator head and attached to the core tube for sampling. After the tube was affixed to the device, the generator was engaged and the core was pushed into the soil. A tripod with a winch and cable attached was set up over the core to extract it from the soil once the sampling was completed. After each sample was extracted, the bottom was capped with a plastic end cap and secured with duct tape. Measurements of the sample were logged and any excess tube was removed before the top cap was secured to the sample. Samples then were transported to the RCG&A laboratory for processing.

Processing of Vibrocores

As indicated above, all vibrocore samples were transported to the RCG&A laboratory facility in New Orleans for processing. Cutting (splitting) of the cores was accomplished using a hand-held circular saw that was fitted with a 7 in (18 cm), grinder/abrader-type metal cutting saw blade. Personnel processing the cores were required to wear appropriate eye and ear protection during cutting, and they also were provided with particulate-filtering masks to protect breathing.

The process involved in splitting a core so that the soils contained within it could undergo stratigraphic examination included placing each core into a wooden form that was designed to hold the 7.6 cm (3 in) tube in place and serve as a guide for the saw when cutting. The saw was set to cut to a depth that penetrated through the thickness of the metal pipe only. Once one side of the pipe was cut lengthwise, the cut side was

covered over with duct tape to prevent spillage of the core contents while the opposite side was being cut. The pipe then was turned so that a second cut could be made that was positioned opposite of the first cut. Once cutting of the pipe was completed, the plastic endcaps that had been inserted into each end of the pipe were cut in half using a utility knife, effectively creating a single seam that extended through the pipe and endcaps for the length of the core.

After removing the duct tape that covered the cut sides of the pipe and any filler material inserted with the endcaps, a thin wire was inserted into the seam from the bottom end of the core and pulled towards the top end of the core, effectively splitting the soil column within the core lengthwise into equal halves. Cutting the full length of the core with the wire was not always possible if it encountered soils that contained heavy concentrations of shell or vegetation; in those cases, the soil column was not split in that portion of the core, and the soils containing the shell or vegetation were contained fully within only one half of the bisected core.

The collected vibrocore samples were cut, split, and recorded on one day and then the two halves were put back together and allowed to dry slightly overnight, after which they were again examined. The soils were not allowed to dry completely as this would have caused the samples to shrink and crack. To prevent overdrying and keep soils from falling out, the seams of the cores again were covered with duct tape during the overnight drying interval.

The soil column recordation of each core included opening the split core and photographing each half using natural sunlight. Natural strata within each core were recorded using Munsell® Soil Color Charts to document soil color, while soil texture and other identifiable characteristics were recorded using standard soils nomenclature.

Once the stratigraphy within a core was fully recorded, the soil comprising each recorded stratum was removed and water screened separately. Soils from near the top of the column and any that appeared to represent possible cultural deposits were screened through 3.20 mm (0.13 in) hardware mesh, while subsoils were screened through 6.35 mm (0.25 in) hardware mesh.

Curation

Following the completion and acceptance of the final report, all records, photographs, and field notes will be curated with the State of Loui-

siana, Department of Culture, Recreation & Tourism, Office of Cultural Development, Division of Archaeology and housed at the facility located at 1835 North River Road, Baton Rouge, LA 70802.

RESULTS OF THE INVESTIGATION

Introduction

RCG&A completed the cultural resources survey of the Long Point Marsh Creation Project (CS-0085) APE in Cameron Parish, Louisiana between June 23 and July 10, 2020 (Figures 1.1, 1.2, and Appendix I). The proposed project items examined encompassed approximately 168.8 ha (417 ac) and included: an approximately 160.2 ha (396 ac) marsh creation cell (MCA-1) and two dredge pipeline access corridors (DPACs) that measured approximately 2.8 km (1.74 mi) in length and 30 m (98 ft) in width and encompassed a total of 8.5 ha (21 ac). The entire perimeter of MCA-1 was examined for cultural resources and six subareas within MCA-1 were examined. A total of 15 vibracores were extracted from within the portions of the two DPACs situated within Long Point Bayou and Site 16CM147 was revisited. RCG&A fieldwork at the location of previously recorded Site 16CM147 consisted of an effort to locate intact deposits, ascertain if either site possesses integrity and additional research value, and provide an updated assessment of the site's eligibility for listing in the National Register of Historic Places (NRHP) as defined by the NRHP Criteria for Evaluation (36 CFR 60.4 [a-d]). All of the above-listed project items were accessed via airboat. No cultural resources were identified during the current investigation of the Long Point Marsh Creation Project (CS-0085) APE. The results of this investigation and management recommendations for the project APE are presented below.

Dredge Pipeline Access Corridors - Vibracores

The initial work conducted within the Marsh Creation Project area consisted of the extraction of 15 vibracores from the portions of the DPACs situated within Long Point Bayou in Cameron Parish, Louisiana (Figure 1.2; Appendix I: Sheets

1-2; Appendix II). These project items were only accessible by boat. The portions of the DPACs examined by the extraction of vibracores measured 1.4 km (0.9 mi) in length. A description of the methods utilized for the extraction and analysis of the vibracores is provided in Chapter III. Appendix II presents the stratigraphic profiles for each vibracore in tabular form.

A total of six vibracores were extracted along the portion of the southern DPAC that extends west and north from the confluence of Long Point Lake and Long Point Bayou (Figures 1.2 and 5.1; Appendix I: Sheets 1-2; Appendix II: LP-VB-01 to LP-VB-06). The initial plan was to recover vibracores from the mid-channel of the bayou; however, in several mid-channel locations, the depth of the bayou exceeded 1.8 m (6 ft). In these cases, vibracores were relocated towards the bankline of the bayou to depths that were less than 1.5 m (5 ft). Generally, the stratigraphic profiles for the six vibracores extracted from this area consisted of alternating layers of gleyed clays, occasionally intermixed with organic material and small amounts of fragmented shell (Figures 5.2 through 5.7). A few examples of almost whole *Rangia* shell also were recovered from small lenses within three of the vibracores, which also included other varieties of marine shell (Appendix II: LP-VB-01, LP-VB-02, and LP-VB-04). The small amount of shell identified within these vibracores appear to represent natural inclusions of a variety of marine shell types and do not appear to represent a cultural deposit. No artifacts or other evidence of cultural deposits was identified within cores LP-VB-01 to LP-VB-06.

The northern DPAC extended west from Long Point Lake across flooded marsh grassland before following Long Point Bayou and terminating at the eastern boundary of MCA-1 (Figure 1.2; Appendix I: Sheets 1-2). A total of



Figure 5.1 Photograph of extraction of vibracore along the dredge pipeline corridors at Long Point Bayou.

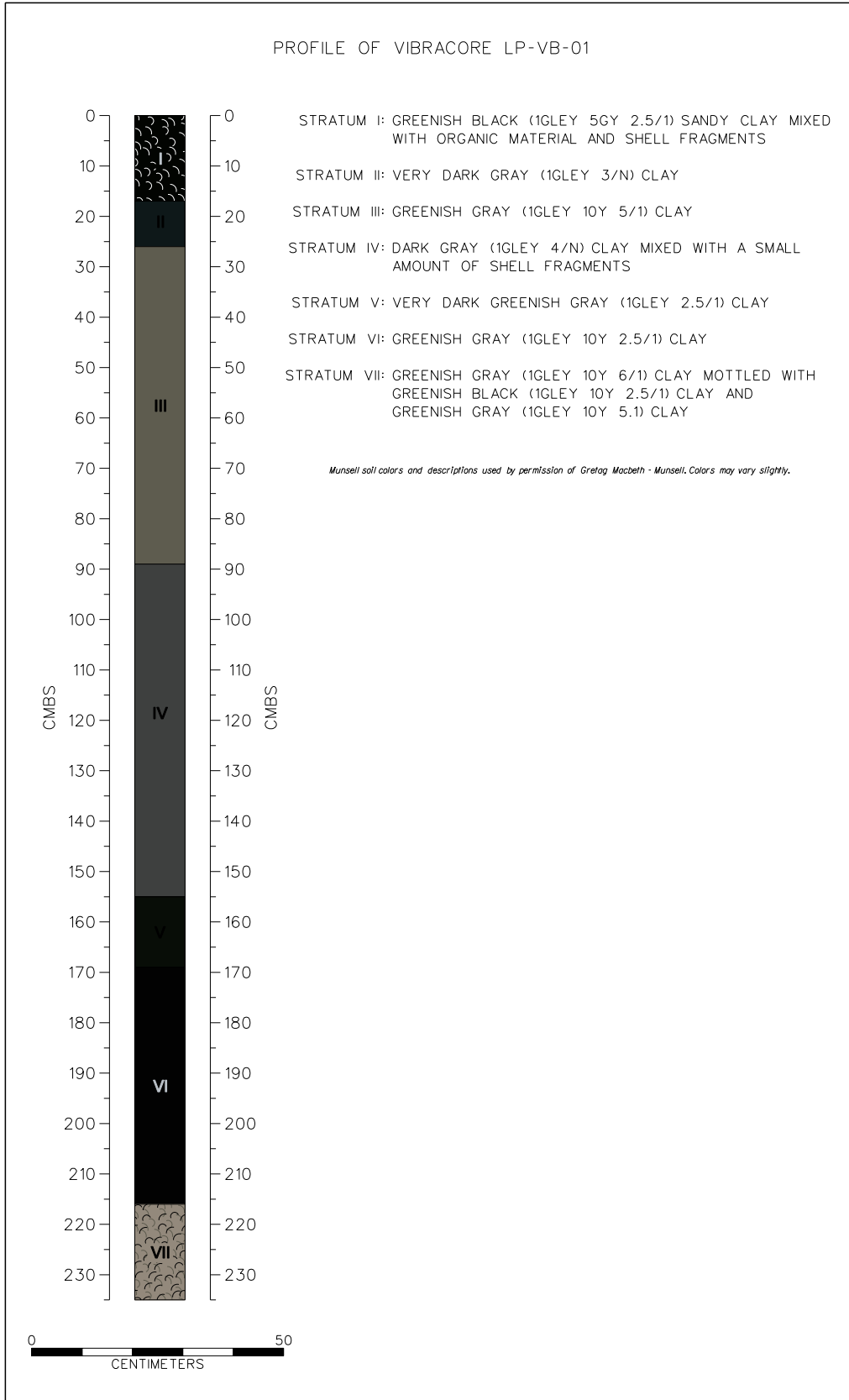


Figure 5.2 Profile of vibracore LP-VB-01.

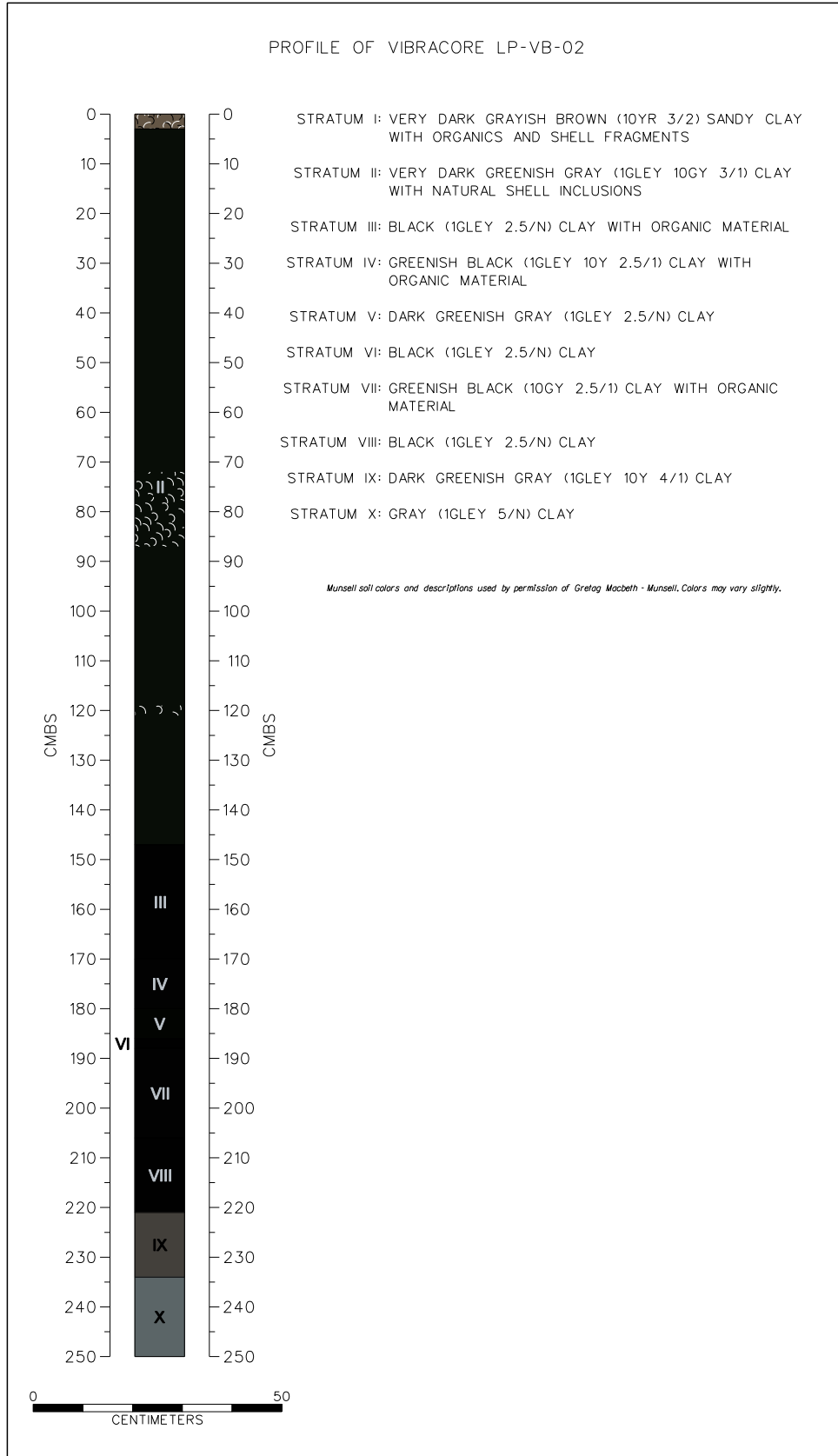


Figure 5.3 Profile of vibracore LP-VB-02.

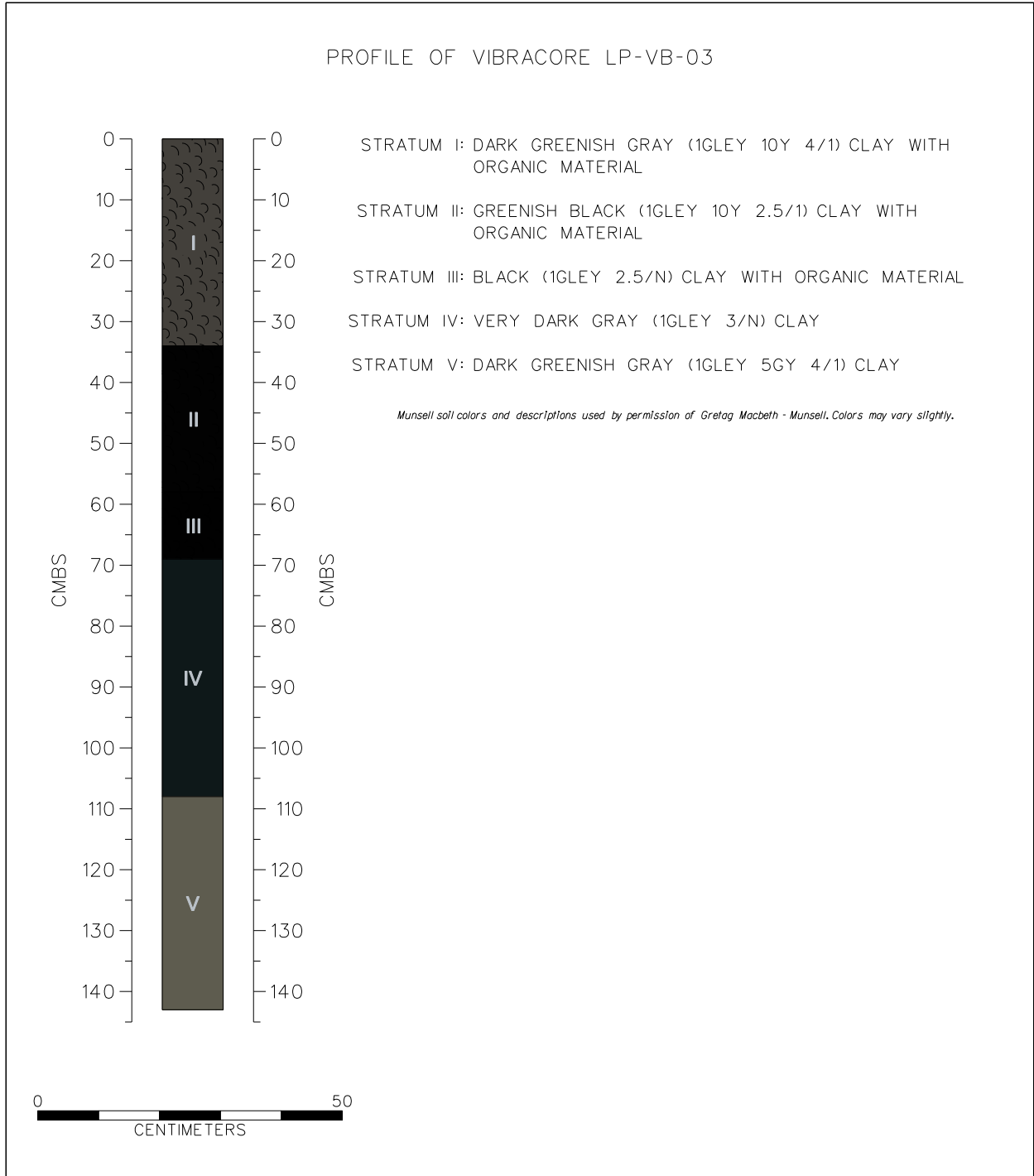


Figure 5.4 Profile of vibracore LP-VB-03.

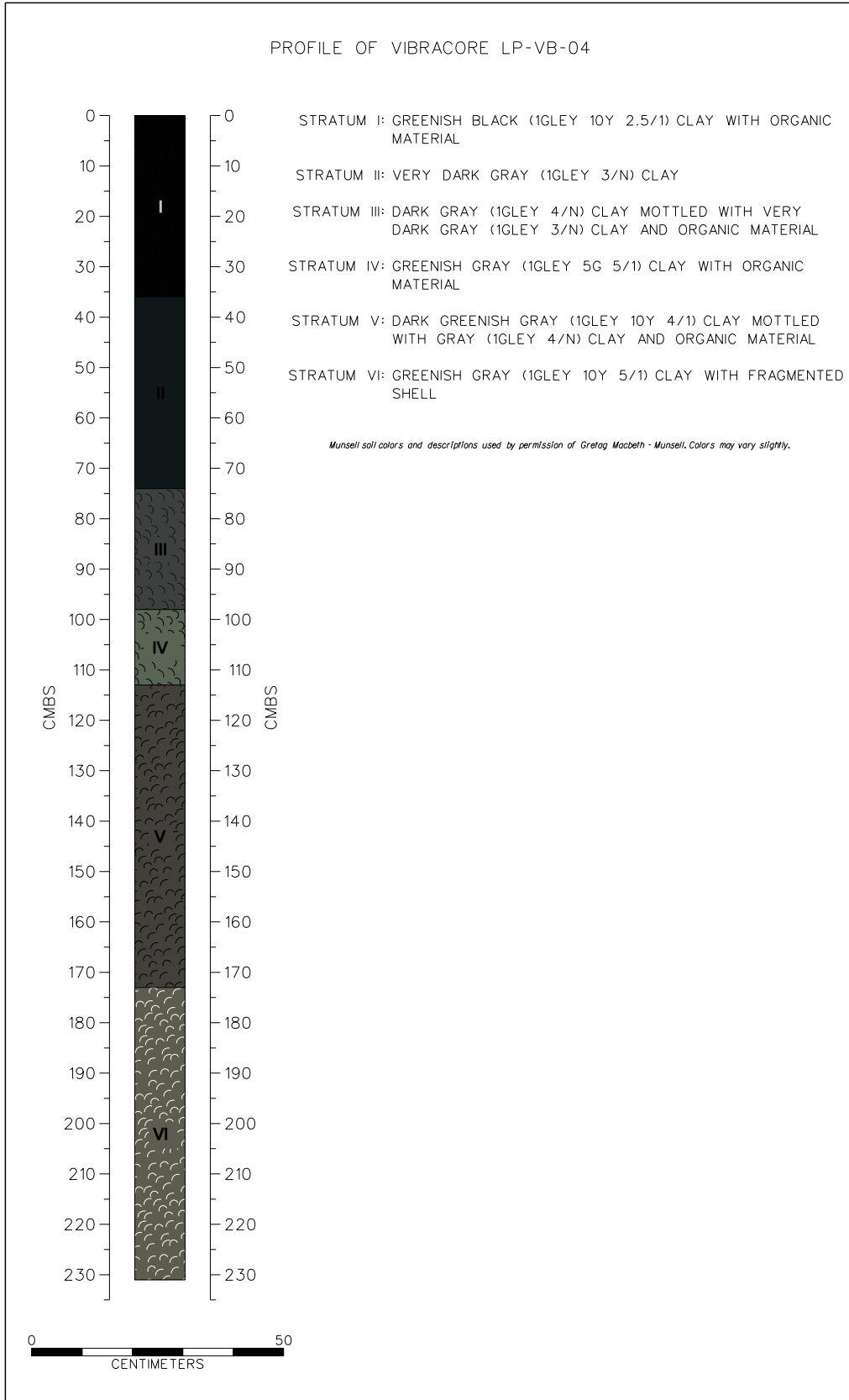


Figure 5.5 Profile of vibracore LP-VB-04.

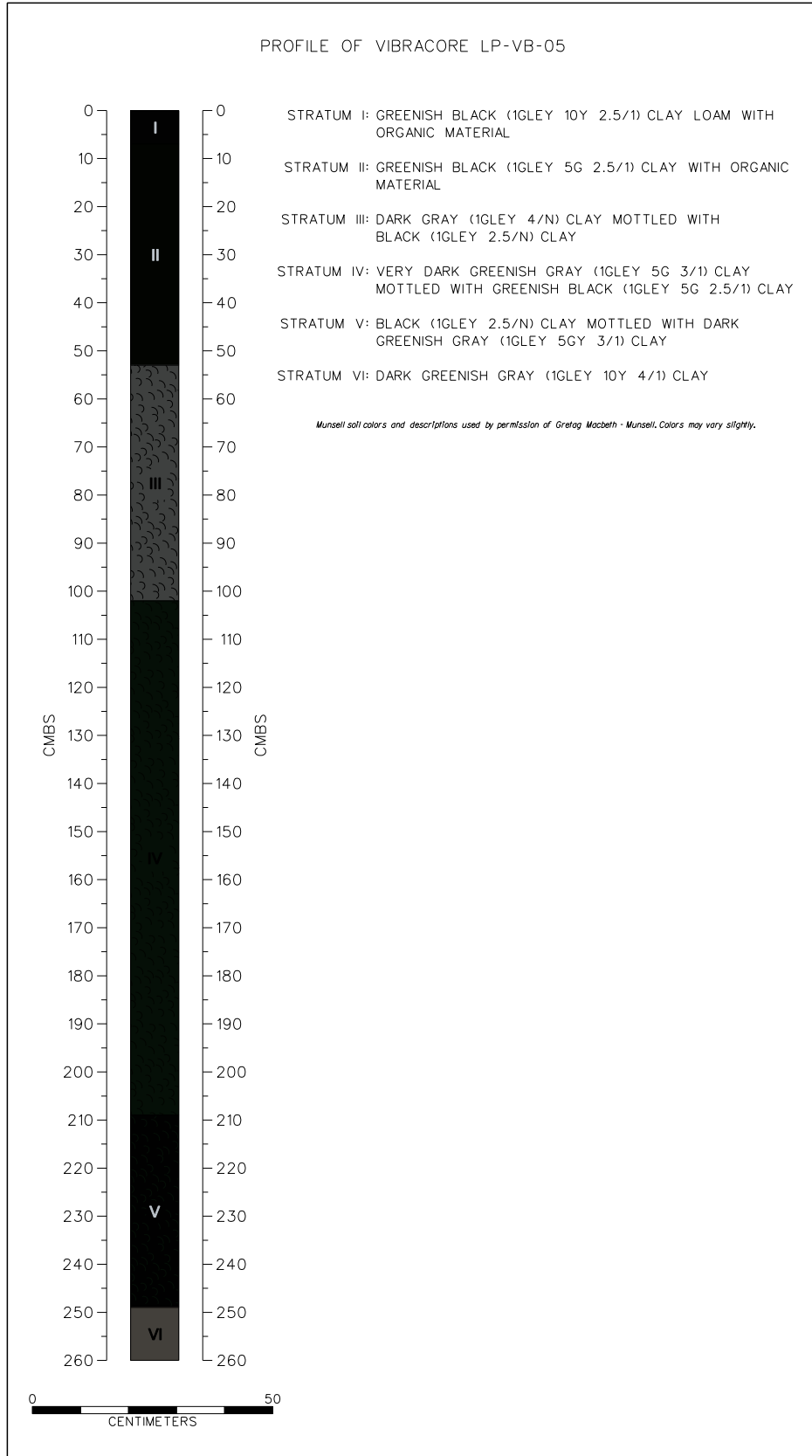


Figure 5.6 Profile of vibracore LP-VB-05.

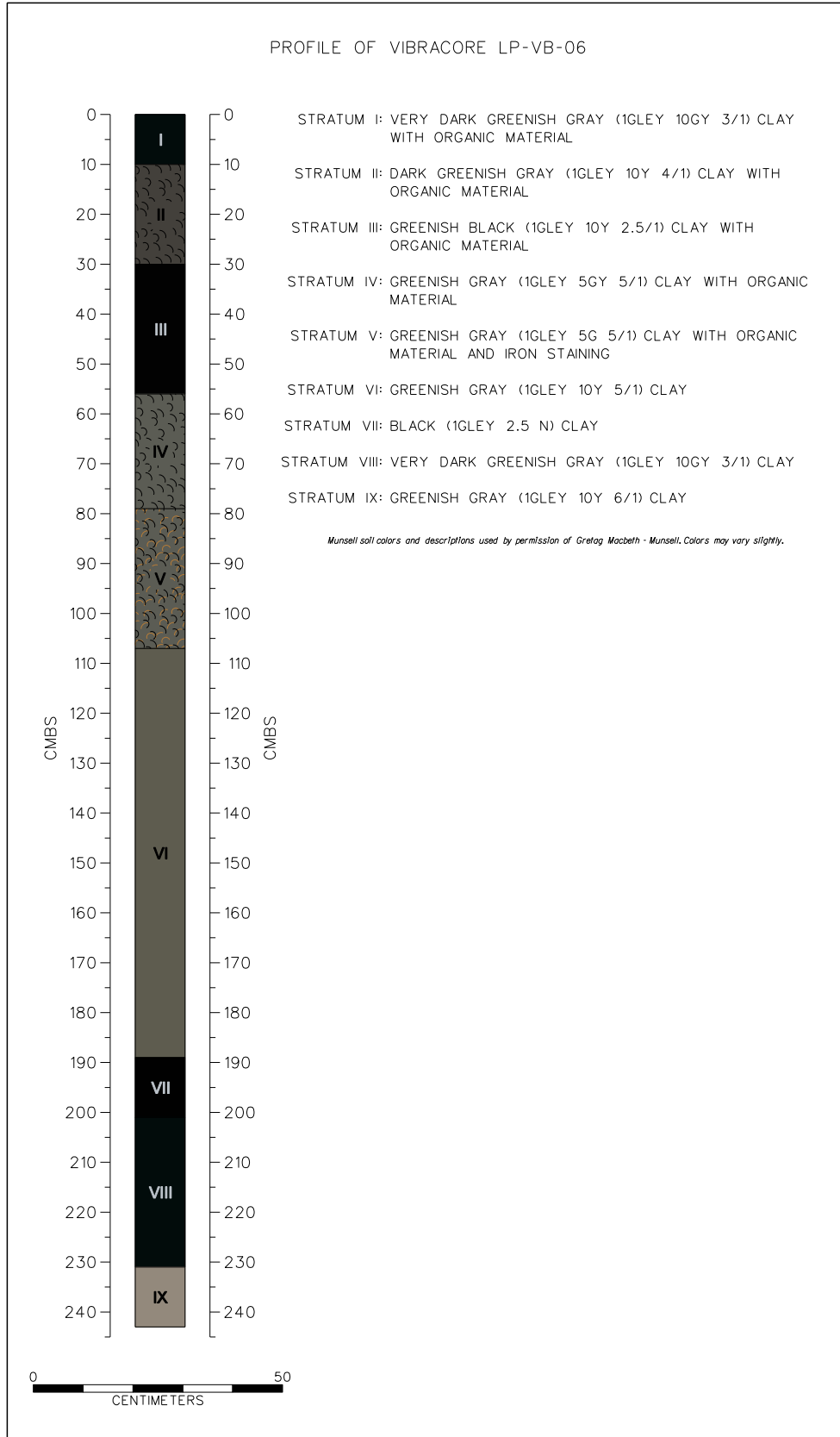


Figure 5.7 Profile of vibracore LP-VB-06.

nine vibracores were extracted from within Long Point Bayou and an unnamed tributary (Figures 5.8 through 5.16; Appendix II: LP-VB-07 to LP-VB-15). Like the southern DPAC, several of the planned mid-channel vibracore locations were situated in water that exceeded 1.8 m (6 ft) in depth and were relocated closer to the bankline in depths no greater than 1.5 m (5 ft). The stratigraphic profiles for the vibracores extracted along the northern DPAC generally consisted of alternating layers of gleyed clay material. Organic material was generally confined to the upper strata within the cores; several of the cores also contained small amounts of fragmented shell that originated from Stratum I (0-15 cmbs [0 to 5.9 inbs]; Appendix II: LP-VB-11, LP-VB-12, and LP-VB-14). The types of shell fragments observed within these vibracores was difficult to discern given their small size and water-worn condition. The shell observed in the vibracores extracted from the northern DPAC does not appear to represent a cultural deposit, rather they appear to be natural inclusions. No artifacts or other evidence of cultural deposits was identified within cores LP-VB-07 through LP-VB-15.

Dredge Pipeline Access Corridors - Additional Examination

The additional portions of the DPACs that were not situated within Long Point Bayou were only accessible by airboat. These DPAC portions measured 885 m (2,903 ft) in length and 30 m (98 ft) in width; they were visually examined and shovel or auger tests were excavated in areas that were not inundated (Figure 1.2 and Appendix I: Sheets 1-2). Much of the area consisted of flooded marsh grassland or open water; a segment of the northern DPAC located directly east of Long Point Lake consisted of marsh grasses, shrubs, and secondary growth. A description of each of the three survey segments placed along the DPACs in these areas is presented below.

Survey Segment PAC070720C

Survey Segment PAC070720C originated at the eastern boundary of MCA-1 and extended 460 m (1,509 ft) southeast along the southern DPAC to the western bankline of Long Point Bayou (Figure 1.2; Appendix I: Sheet 2). The

southern DPAC measured 30 m (98 ft) in width. More than half of the survey segment consisted of open water (Figures 5.17 and 5.18). An extant pipeline corridor intersected with the DPAC at approximately 235 m (771 ft). Vegetation within the vicinity of the survey segment solely consisted of common marsh grass species. Slope across within the vicinity of the survey segment was described as nearly level (0-3 percent). No evidence of cultural deposits or features was identified along Survey Segment PAC070720C.

A single auger test excavated at the terminus of Survey Segment PAC070720C and the western bankline of Long Point Bayou extended to a maximum depth of 50 cmbs (20 inbs) and it exhibited a single stratum in profile (Figure 5.19). Stratum I, dark gray (10YR 4/1) muck, extended from 0 to 50 cmbs (0 to 20 inbs). The auger was extracted from an area that contained standing water. The auger test was terminated at 50 cmbs (20 inbs) due to the semifluid nature of the soils.

Survey Segment PAC070720B

Survey Segment PAC070720B originated at the eastern bankline of Long Point Bayou and it extended 200 m (656 ft) east along the northern DPAC until it terminated at the origin of Survey Segment PAC070720A (Figures 1.2 and 5.20; Appendix I: Sheet 2). The northern DPAC measured 30 m (98 ft) in width. The entirety of the survey segment consisted of inundated marsh grassland; surface water along the flooded segment measured up to 20 cm (8 in) in depth. Vegetation within the vicinity of the survey segment solely consisted of common marsh grass species. Slope across the vicinity of the survey segment was described as nearly level (0-3 percent). Three judgmental auger tests were excavated along the survey segment. No evidence of cultural deposits or features was identified along Survey Segment PAC070720B.

A typical auger test excavated along Survey Segment PAC070720B extended to a maximum depth of 70 cmbs (28 inbs) and it exhibited a single stratum in profile (Figure 5.21). Stratum I, dark gray (10YR 4/1) muck, extended from 0 to 70 cmbs (28 inbs). The auger was extracted from an area that contained standing water. The auger

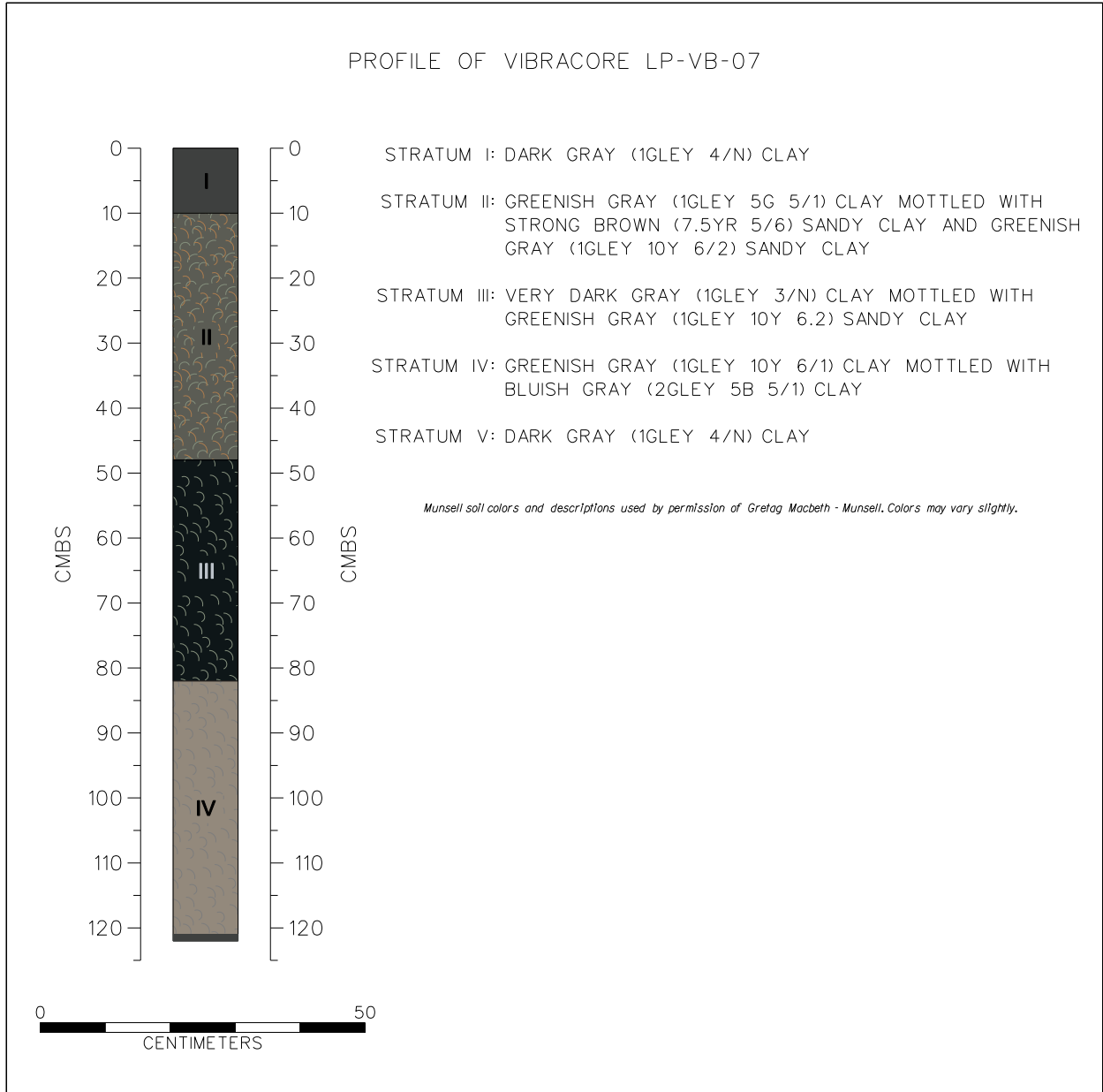


Figure 5.8 Profile of vibracore LP-VB-07.

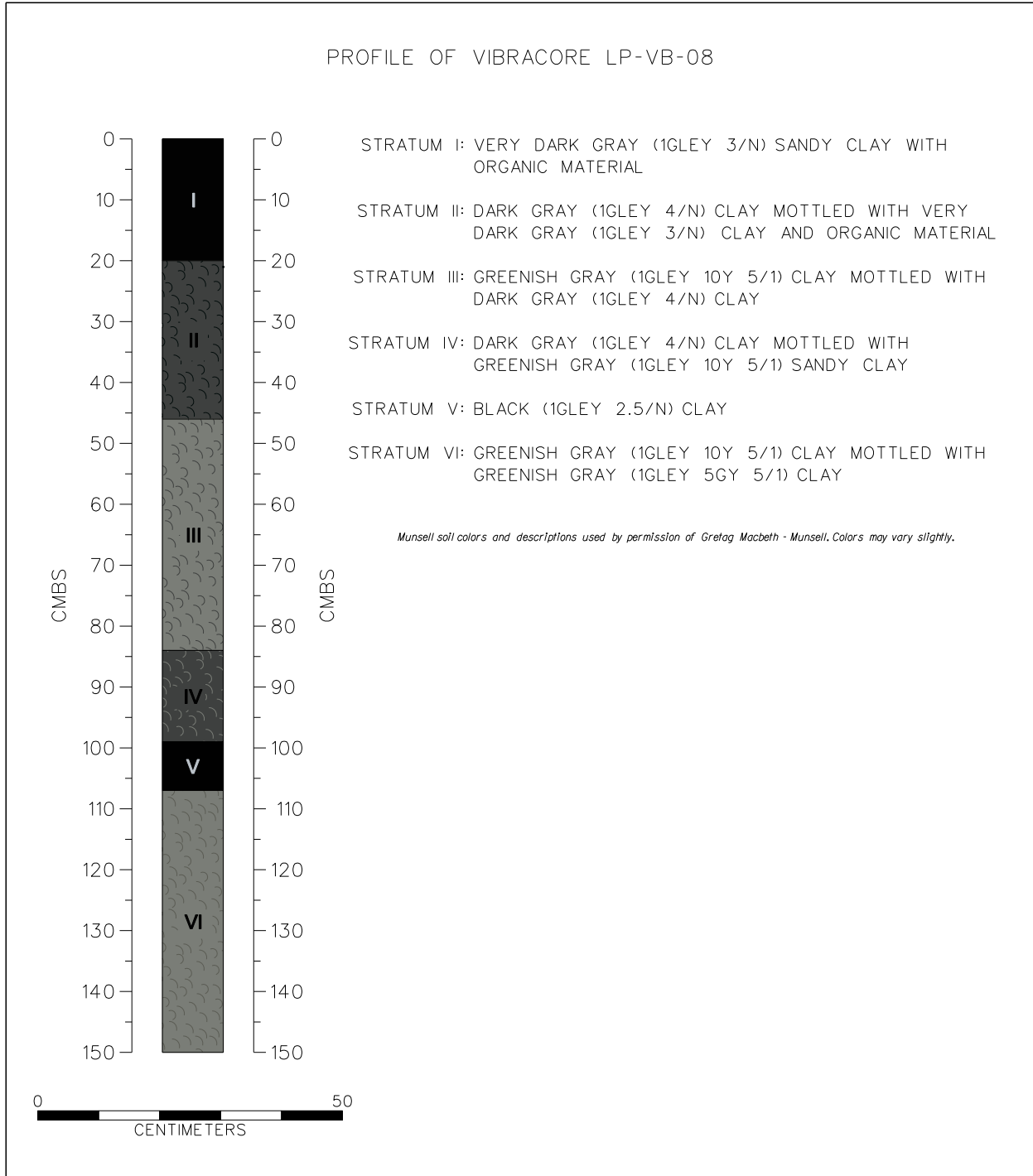


Figure 5.9 Profile of vibracore LP-VB-08.

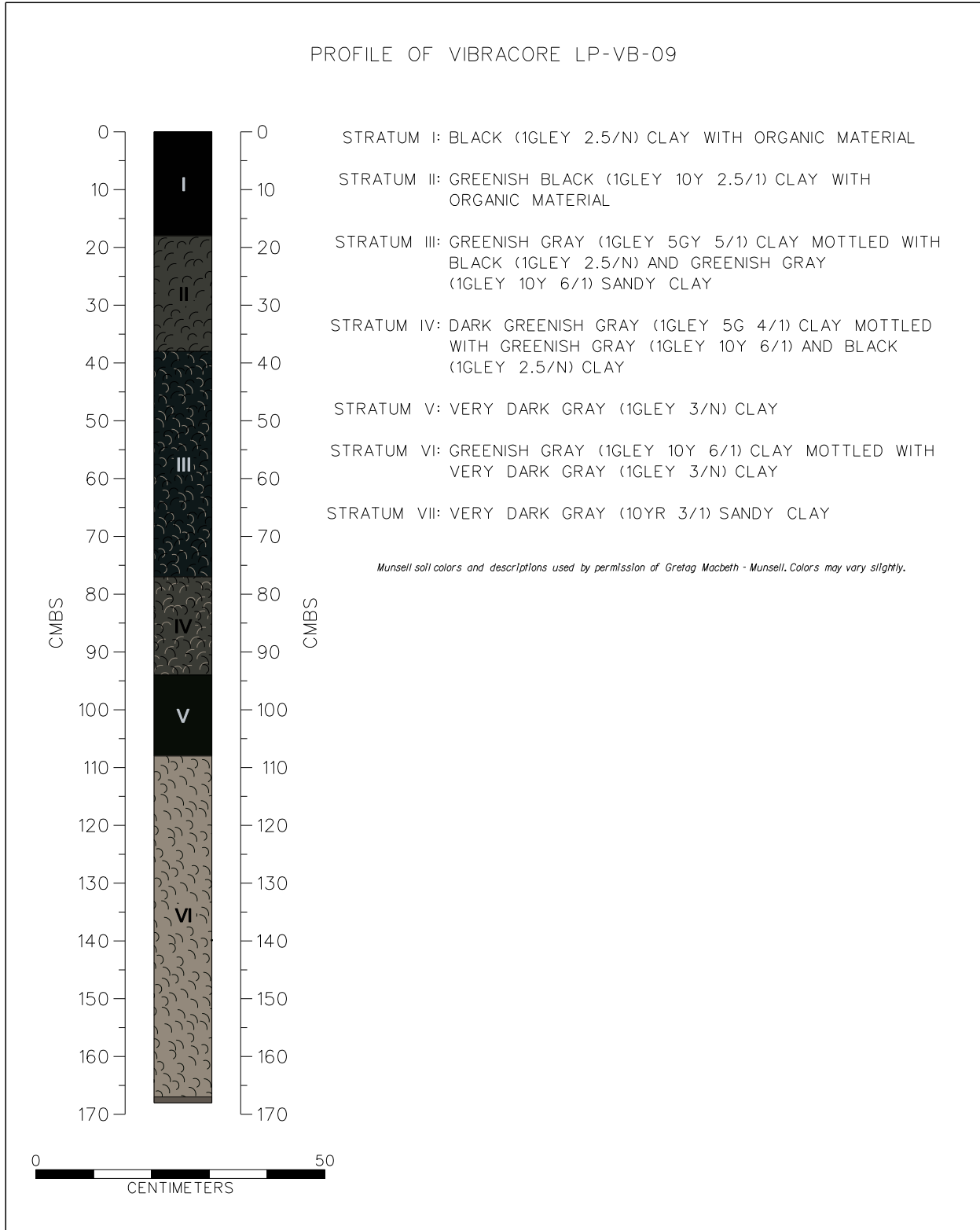


Figure 5.10 Profile of vibracore LP-VB-09.

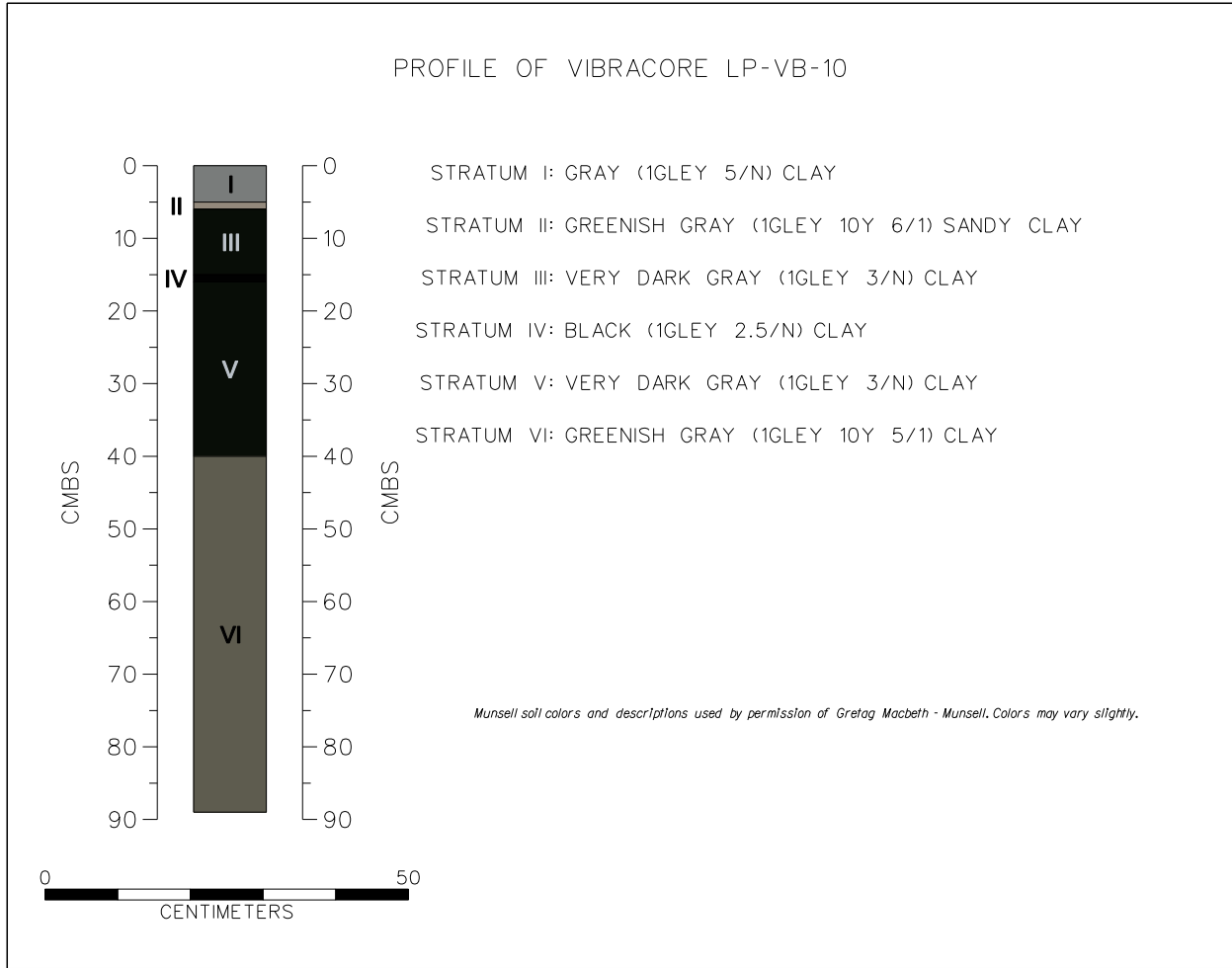


Figure 5.11 Profile of vibracore LP-VB-10.

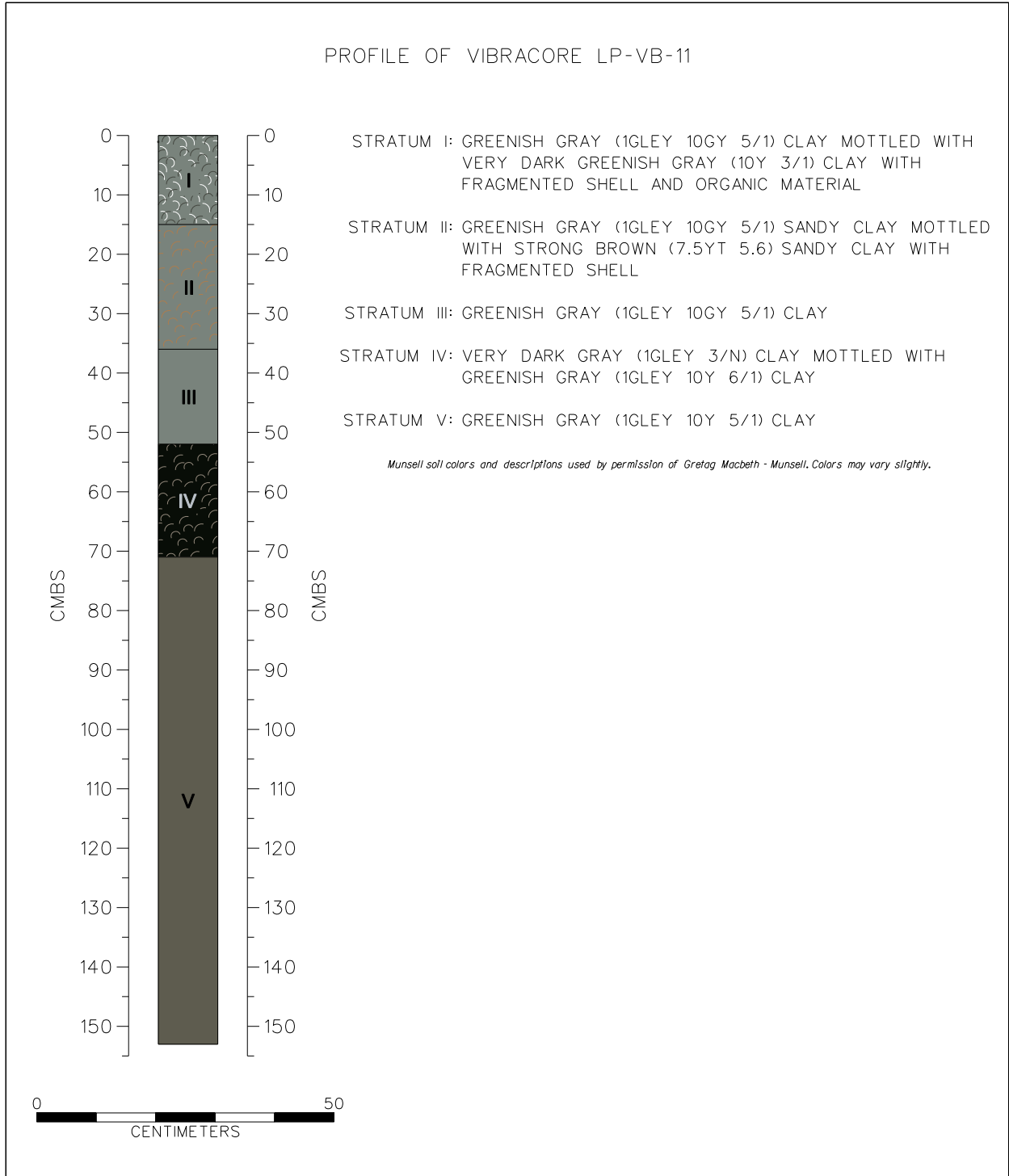


Figure 5.12 Profile of vibracore LP-VB-11.

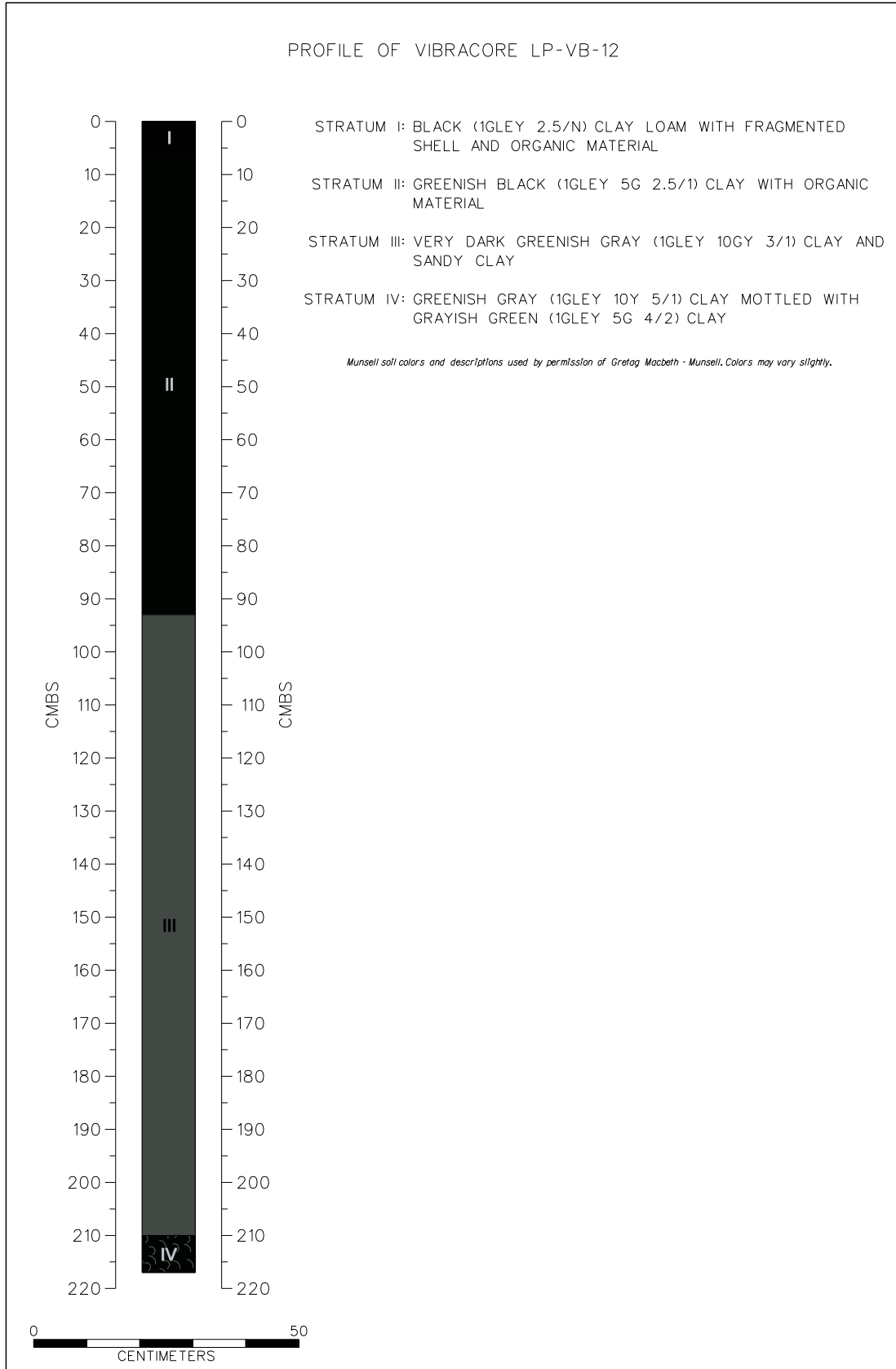


Figure 5.13 Profile of vibracore LP-VB-12.

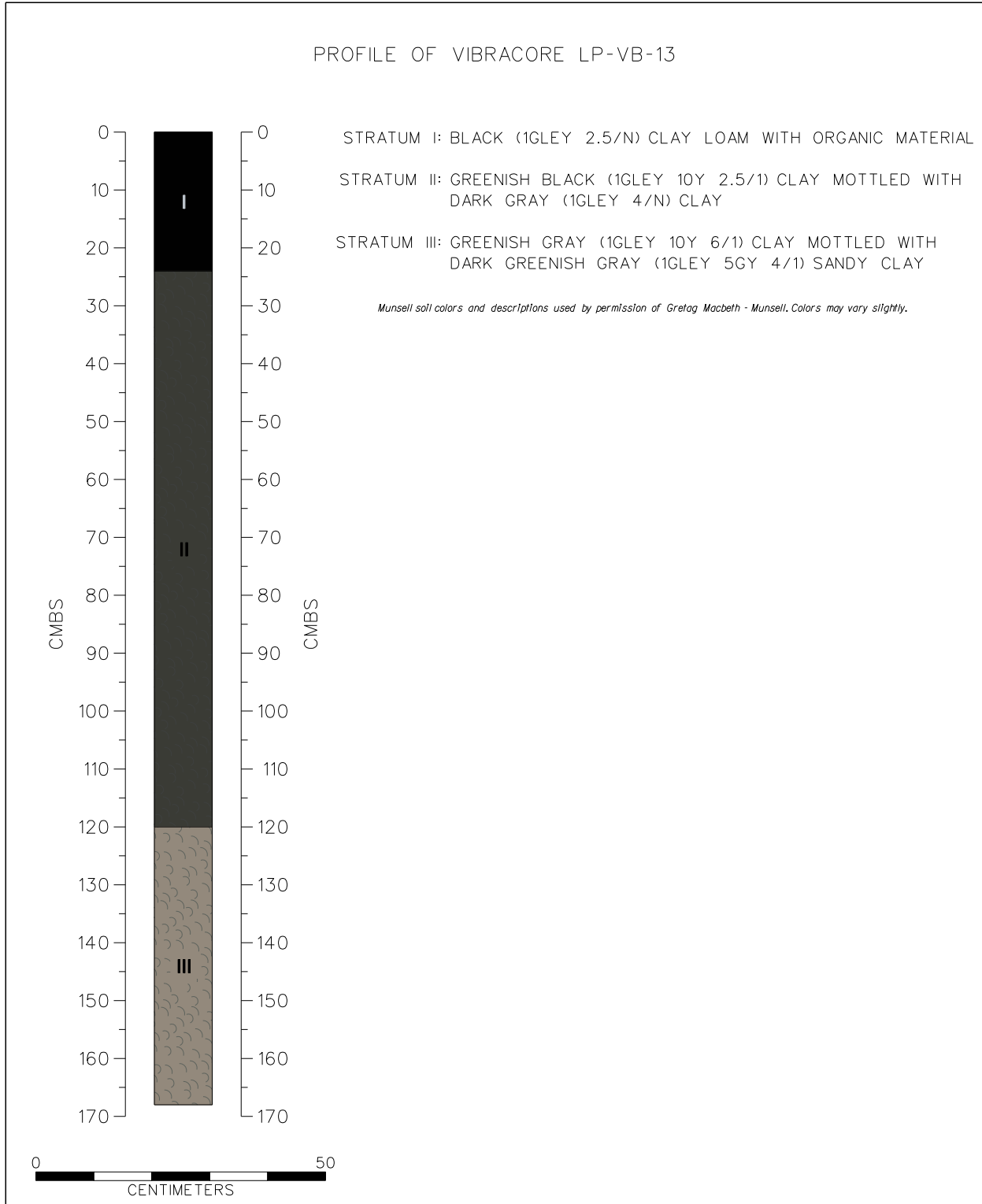


Figure 5.14 Profile of vibracore LP-VB-13.

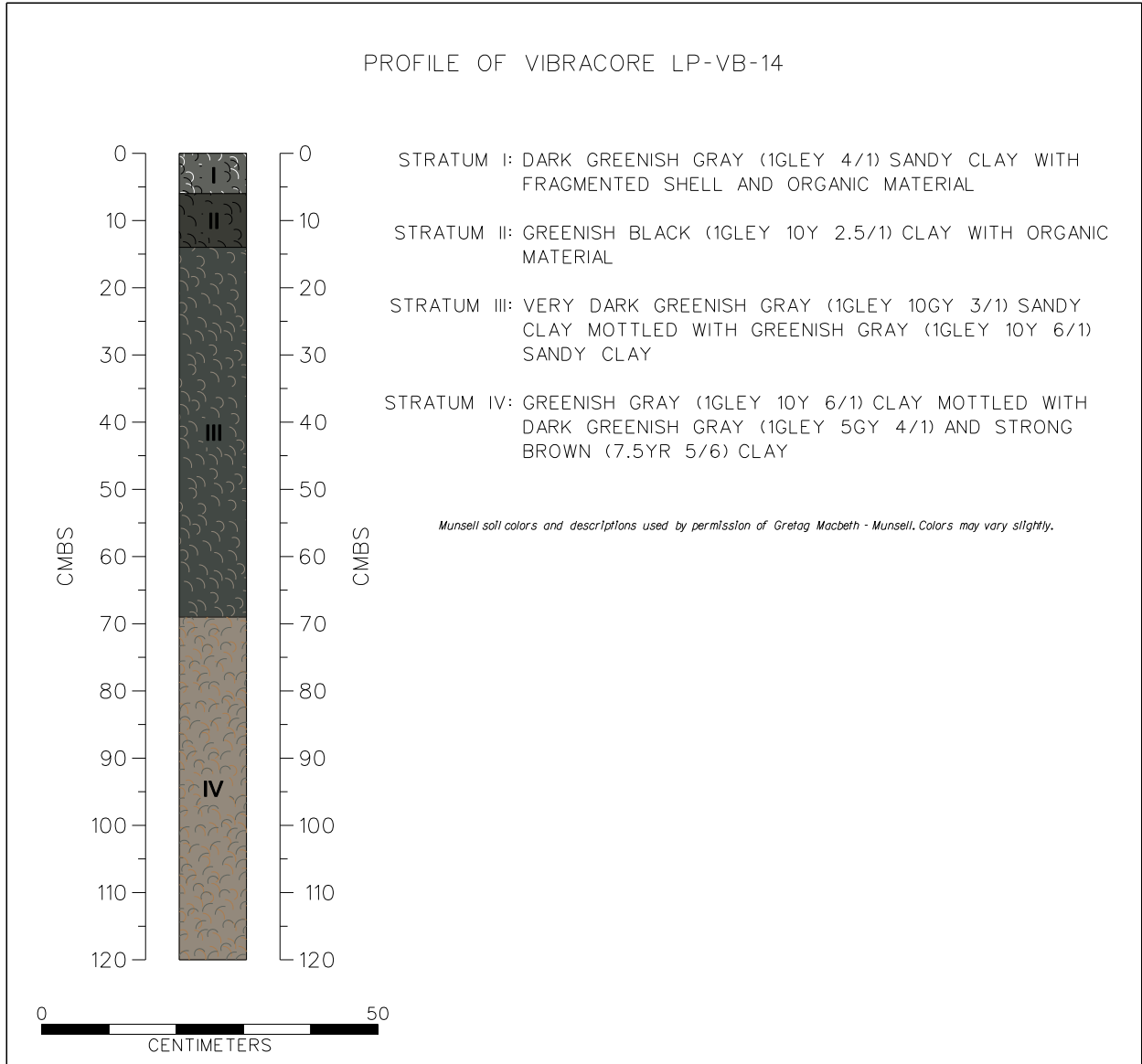


Figure 5.15 Profile of vibracore LP-VB-14.

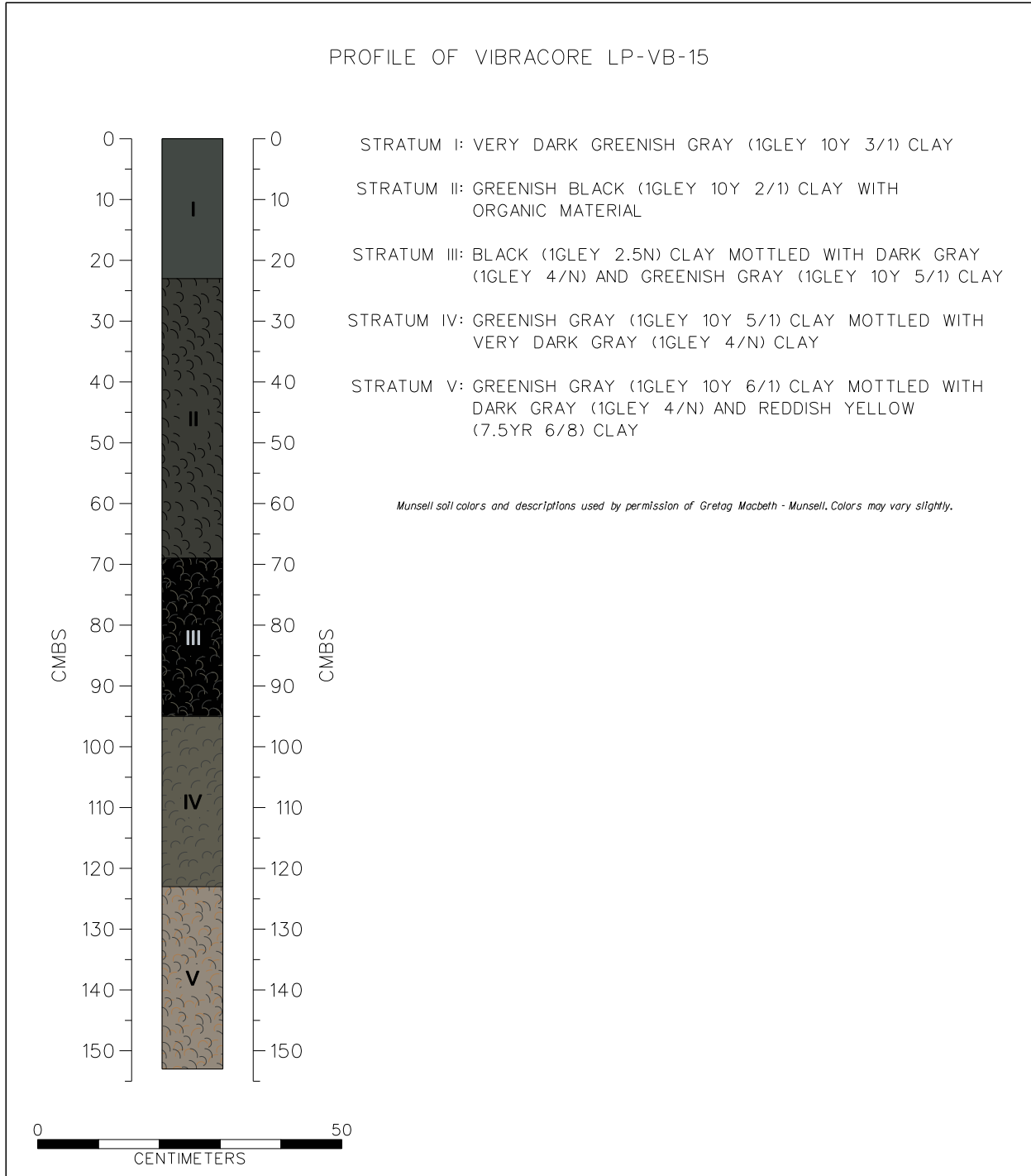


Figure 5.16 Profile of vibracore LP-VB-15.



Figure 5.17 Overview photograph of Survey Segment PAC070720C, facing northwest.



Figure 5.18 Additional overview photograph of Survey Segment PAC070720C, facing southeast.
Note: pipeline riser in left-rear of the photograph.

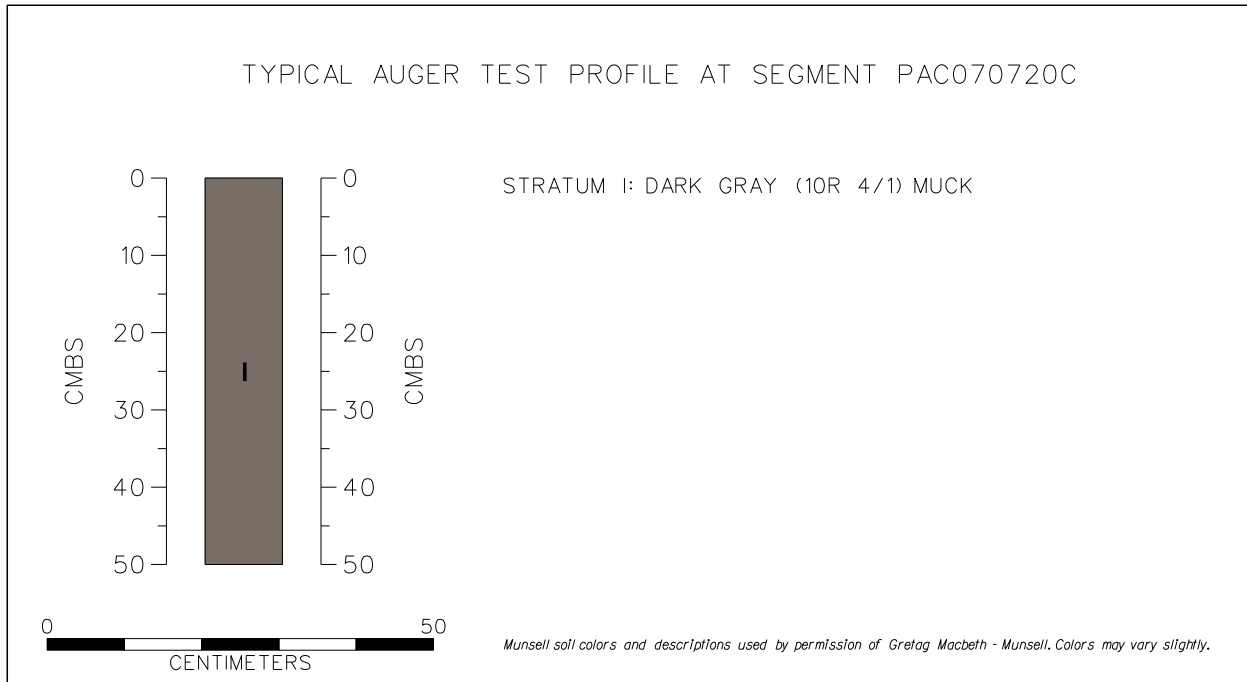


Figure 5.19 Profile of auger test from Survey Segment PAC070720C.



Figure 5.20 Overview photograph of Survey Segment PAC070720B, facing east.

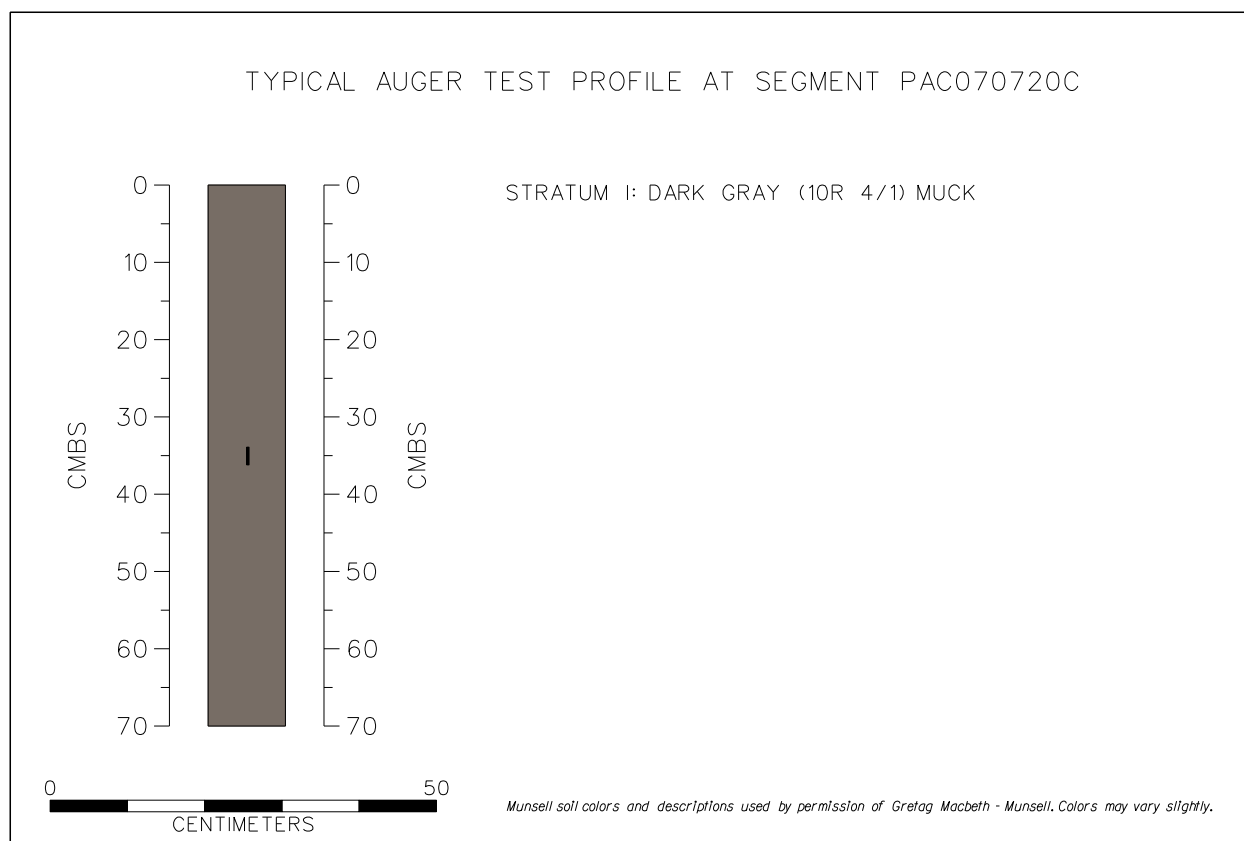


Figure 5.21 Profile of typical auger test at Survey Segment PAC070720B.

test was terminated at 70 cmbs (28 inbs) due to the semifluid nature of the soils.

Survey Segment PAC070720A

Survey Segment PAC070720A originated at the terminus of Survey Segment PAC070720B and it extended 225 m (738 ft) east to the western bankline of Long Point Lake (Figures 1.2 and 5.22; Appendix I: Sheet 1). The northern DPAC measured 30 m (98 ft) in width. Vegetation within the vicinity of the survey segment consisted of marsh grasses, Roseau cane, shrubs, and secondary growth species (Figure 5.23). Slope within the vicinity was described as nearly level (0-3 percent); however there was a slight rise in elevation to the western bankline of Long Point Lake. A total of eight shovel tests were excavated at 30 m (98 ft) intervals along a single survey transect. No evidence of cultural deposits or features was identified along Survey Segment PAC070720A.

A typical shovel test at Survey Segment PAC070720A was excavated to a maximum depth of 50 cmbs (20 inbs) and it exhibited two strata in profile (Figure 5.24). Stratum I, grayish brown (10YR 5/2) sandy loam, extended from the surface to 10 cmbs (4 inbs). Stratum II, light brownish gray (10YR 6/2) sandy loam mottled with yellowish brown (10YR 5/6) sandy loam, extended from the base of Stratum I to 50 cmbs (20 inbs). Further excavation of the shovel test was terminated due to the influx of groundwater.

Marsh Creation Area 1 (MCA-1)

As indicated above, RCG&A examined a single 160.2 ha (396 ac) marsh creation area. The perimeter of the marsh creation cell was examined, as well as six subareas within the cell that did not appear to be completely inundated. The majority of the area around the perimeter of MCA-1 consisted of open water punctuated with



Figure 5.22 Overview photograph of Survey Segment PAC070720A, facing east.



Figure 5.23 Additional overview photograph of Survey Segment PAC070720A, facing east. Note: Long Point Lake in rear of the photograph.

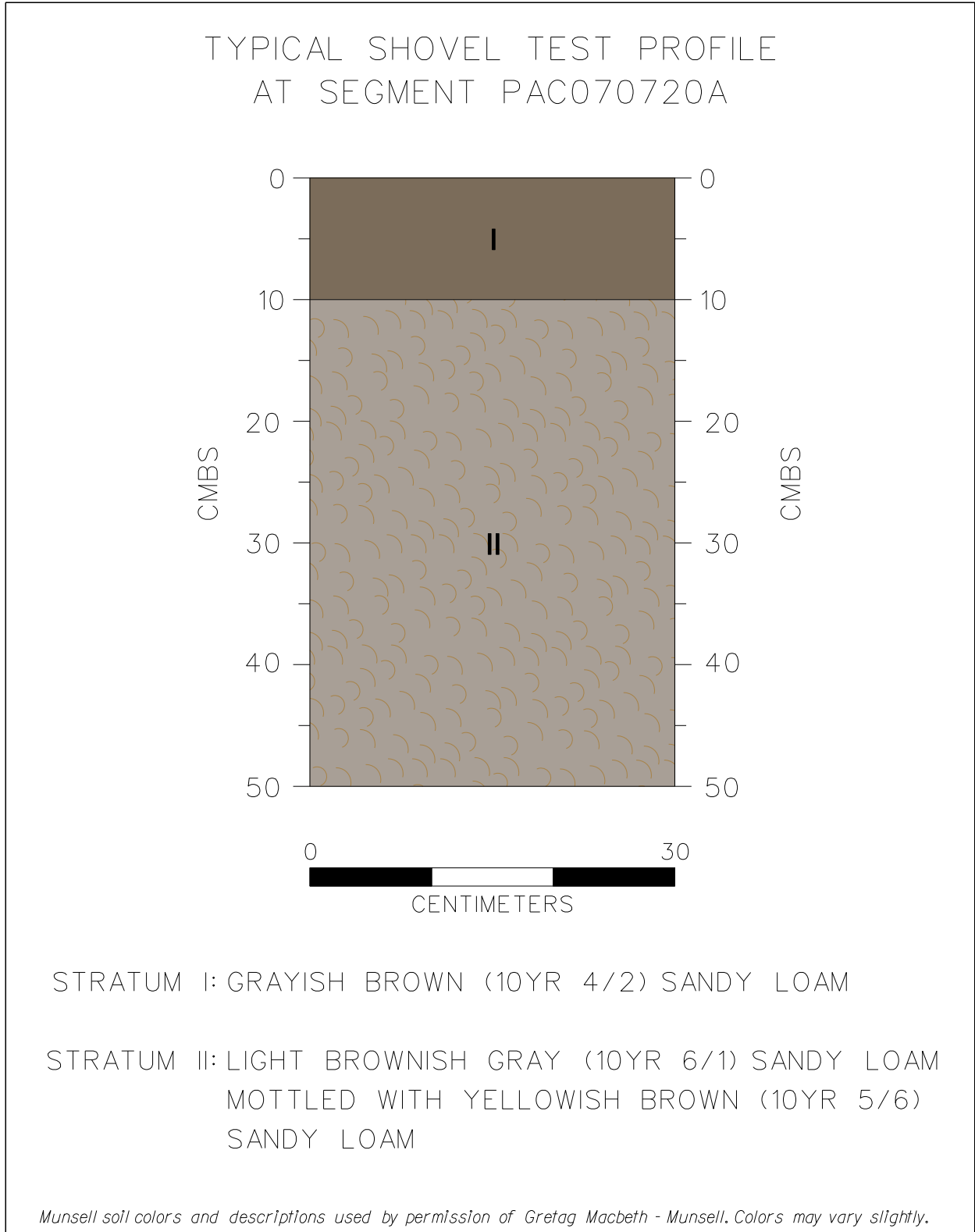


Figure 5.24 Profile of typical shovel test at Survey Segment PAC070720A.

smaller subareas of flooded marsh grassland. The results of the examination of the marsh cell perimeter, six subareas, and the revisit to previously identified Site 16CM147 is presented below.

MCA-1 Perimeter

The MCA-1 project item consists of a large marsh creation cell that measured 160.2 ha (396 ac) in extent and is situated west of Long Point Lake in Cameron Parish, Louisiana (Figures 1.1 and 1.2). The perimeter of the marsh cell measured 8.9 km (5.5 mi) in length. This project item is a large, open water area punctuated with stands of flooded marsh grassland (Figures 5.25 and 5.26). With the exception of an abandoned access road in the southwestern portion of MCA-1, no areas that contained elevated landforms were identified during the examination (Figure 5.27; Appendix I: Sheets 3-4). Slope across the vicin-

ity of the perimeter of MCA-1 was described as nearly level (0-3 percent). A total of 47 auger tests were judgmentally placed along the perimeter of MCA-1 at locations that were not inundated (Survey Segments PAC070720D and PAC070820A; Appendix I: Sheets 2-5). No artifacts or other evidence of cultural deposits or features were identified during the examination of the perimeter of MCA-1.

A typical auger test along the perimeter of MCA-1 was excavated to a maximum depth of 70 cmbs (28 inbs) and it exhibited two strata in profile (Figure 5.28). Stratum I, very dark grayish brown (10YR 3/2) muck, extended from the surface to 50 cmbs (20 inbs). Stratum II, dark gray (10YR 4/1) wet silty clay, extended from the base of Stratum I to 70 cmbs (28 inbs). Further excavation of the auger test was terminated due to the influx of groundwater.



Figure 5.25 Overview photograph of MCA-1 Perimeter from the northwest side, facing south.



Figure 5.26 Additional overview photograph of MCA-1 Perimeter from the southeast side, facing west.



Figure 5.27 Additional overview photograph of MCA-1 Perimeter from the west side, facing west. Note: abandoned access road in center of the photograph. Site 16CM111 (outside of project area) is in the far-rear of the photograph.

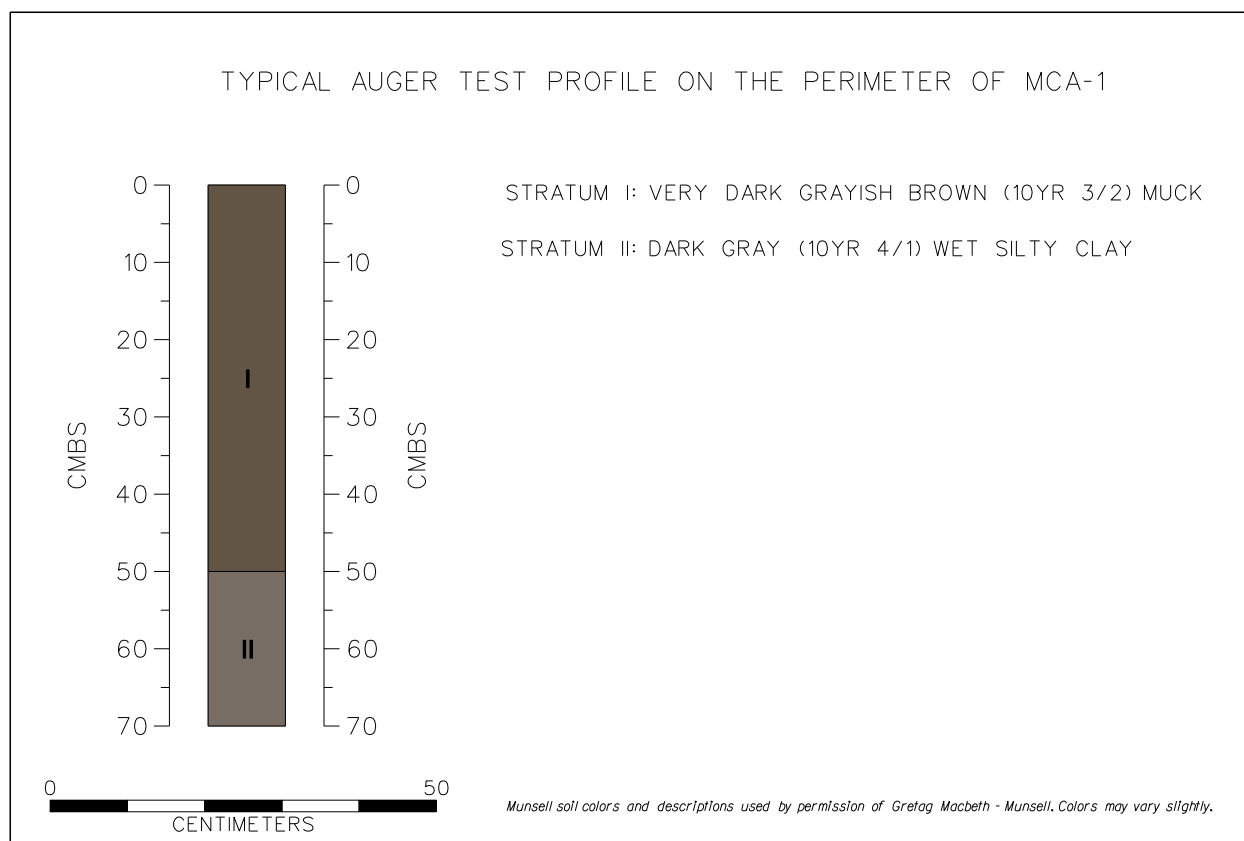


Figure 5.28 Profile of typical auger test at MCA-1 Perimeter.

MCA-1 Subarea 1

Subarea 1 is situated within the southwestern portion of the project APE and approximately 1.3 km (0.8 mi) west of Long Point Bayou (Figure 1.2; Appendix I: Sheets 3-5). Subarea 1 encompassed an area measuring 7.3 ha (18 ac) in extent and it consisted of a stand of flooded marsh grasses punctuated by small interior ponded areas. Vegetation within Subarea 1 solely consisted of common marsh grass species (Figures 5.29 and 5.30). Slope across the vicinity of Subarea 1 was described as nearly level (0-3 percent).

Shovel test excavation was attempted at two different locations along the perimeter of the area; however due to the consistently flooded nature of the marsh grassland within Subarea 1, shovel testing was discontinued. In lieu of shovel testing, subsurface testing proceeded using a mud auger in order to determine if any areas of non-inundated and non-saturated soils were located within Subarea 1. No such soils were encountered. A total of ten auger tests were excavated

within Subarea 1. No evidence of cultural material or features was identified during the examination of Subarea 1.

A typical auger test within Subarea 1 was excavated to a depth of 100 cmbs (39 inbs) and it exhibited three strata in profile (Figure 5.31). Stratum I, dark grayish brown (10YR 4/2) fluid muck with organic material, extended from the surface to 45 cmbs (18 inbs). Stratum II, dark gray (10YR 4/1) silty clay, extended from the base of Stratum I to 70 cmbs (28 inbs). Stratum III, dark gray (10YR 4/1) silty clay mottled with light gray (10YR 7/1) silty clay, extended from 70 to 100 cmbs (28 to 39 inbs).

MCA-1 Subarea 2

Subarea 2 is situated within the northwestern portion of the project APE and approximately 1.0 km (0.6 mi) west of Long Point Bayou (Figure 1.2; Appendix I: Sheet 3-4). Subarea 1 encompassed an area measuring 1.5 ha (3.8 ac) in extent and it consisted of a stand of flooded marsh



Figure 5.29 Overview photograph of MCA-1 Subarea 1, facing north-northeast.



Figure 5.30 Additional overview photograph of MCA-1 Subarea 1, facing southwest.

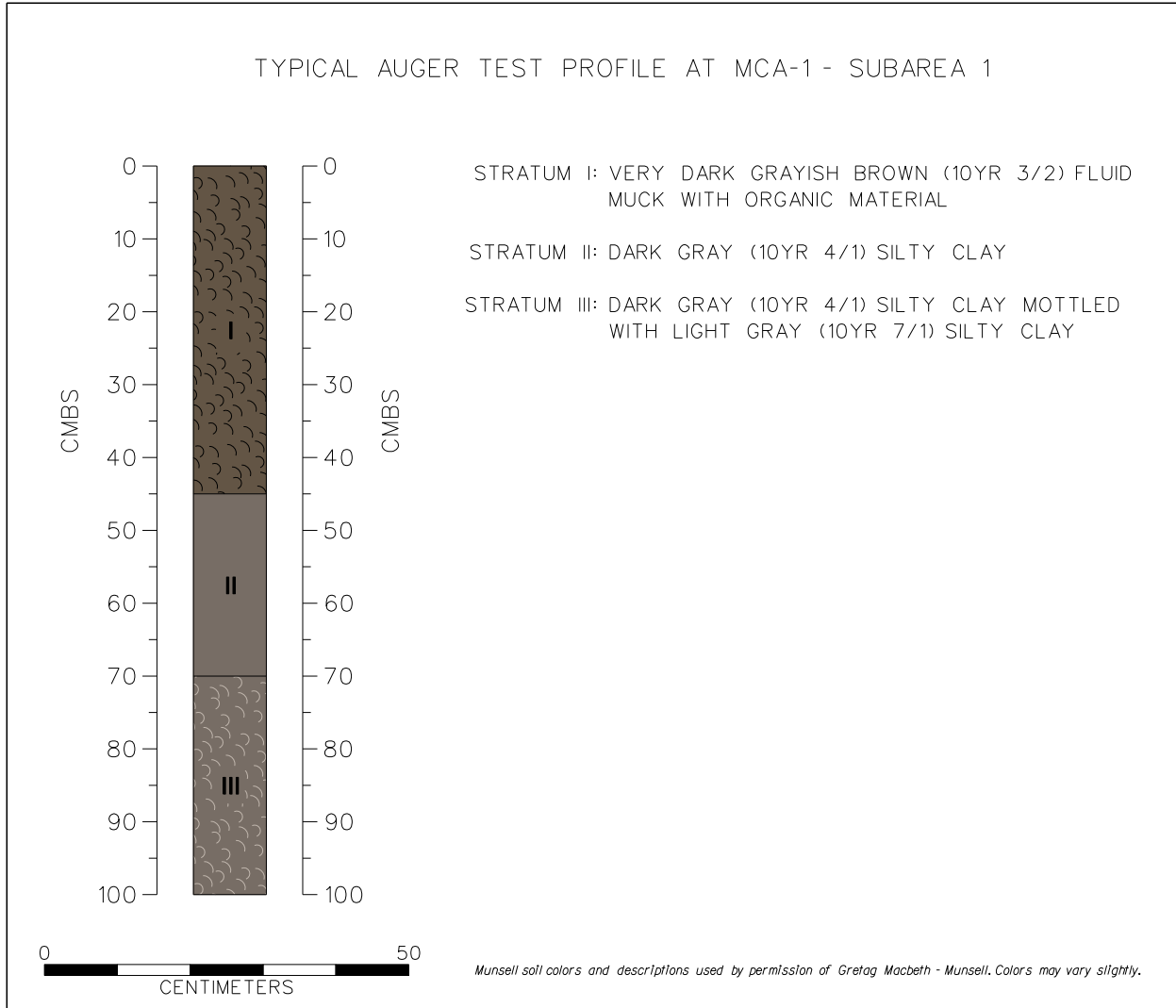


Figure 5.31 Profile of typical auger test at MCA-1 Subarea 1.

grasses punctuated by small interior ponded areas. Vegetation within Subarea 2 solely consisted of common marsh grass species (Figures 5.32 and 5.33). Slope across the vicinity of Subarea 2 was described as nearly level (0-3 percent).

Subsurface testing proceeded using a mud auger in order to determine if any areas of non-inundated and non-saturated soils were located within Subarea 2. No such soils were encountered. A total of eight auger tests were excavated within Subarea 2. No evidence of cultural material or features was identified during the examination of Subarea 2.

A typical auger test within Subarea 2 was excavated to a depth of 90 cmbs (35 inbs) and it

exhibited two strata in profile (Figure 5.34). Stratum I, very dark grayish brown (10YR 3/2) muck with organic material, extended from the surface to 60 cmbs (24 inbs). Stratum II, dark gray (10YR 4/1) silty clay, extended from the base of Stratum I to 90 cmbs (35 inbs).

MCA-1 Subarea 3

Subarea 3 is situated within the central portion of the project APE and approximately 0.6 km (0.4 mi) southwest of Long Point Bayou (Figure 1.2; Appendix I: Sheet 3 and 5). Subarea 3 encompassed an area measuring 4.0 ha (10.0 ac) in extent and it consisted of a stand of flooded marsh grasses punctuated by small interior ponded ar-



Figure 5.32 Overview photograph of MCA-1 Subarea 2, facing west.



Figure 5.33 Additional overview photograph of MCA-1 Subarea 2, facing northwest.

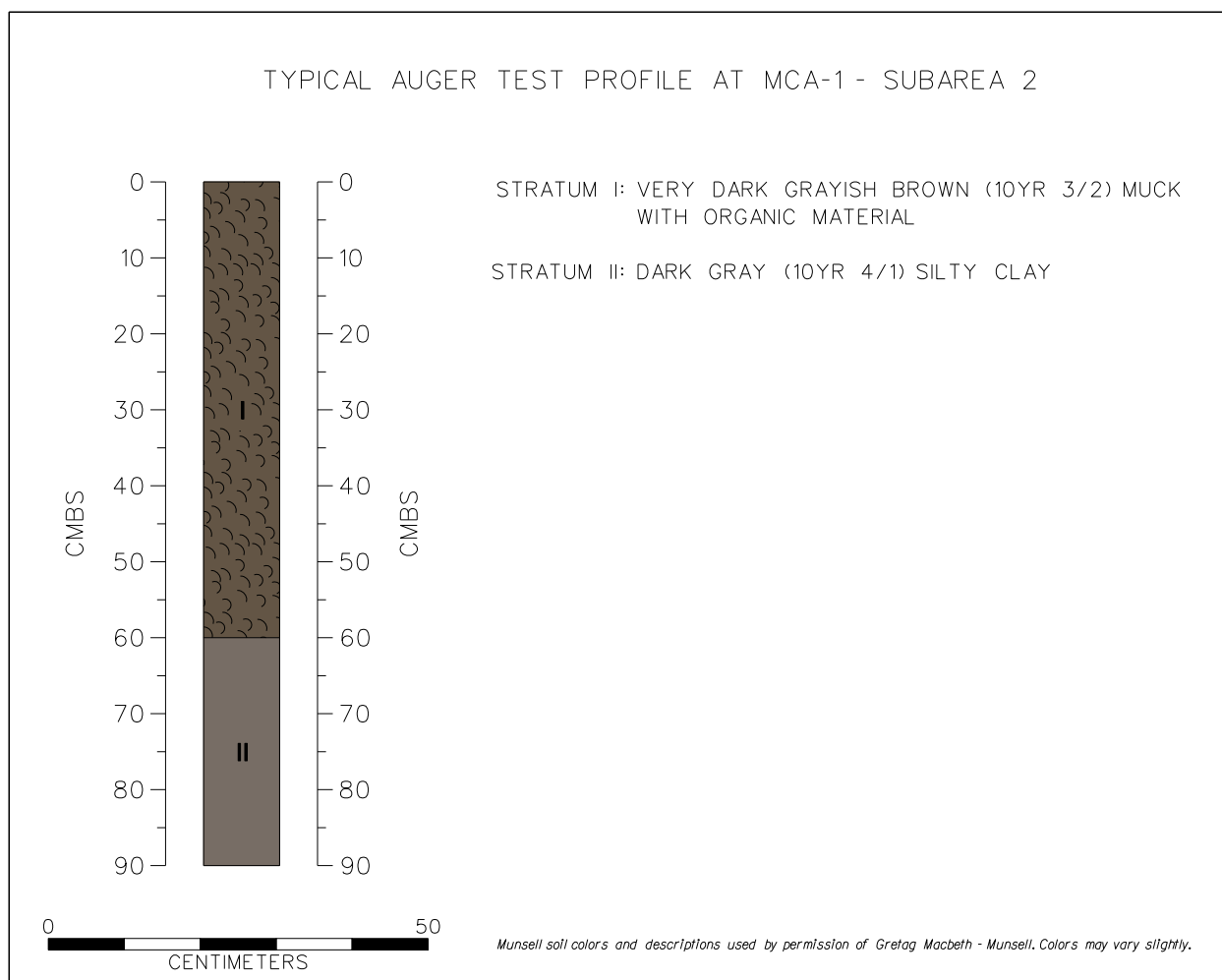


Figure 5.34 Profile of typical auger test at MCA-1 Subarea 2.

eas. Vegetation within Subarea 3 solely consisted of common marsh grass species (Figures 5.35 and 5.36). Slope across the vicinity of Subarea 3 was described as nearly level (0-3 percent).

Subsurface testing proceeded using a mud auger in order to determine if any areas of non-inundated and non-saturated soils were located within Subarea 3. No such soils were encountered. A total of 11 auger tests were excavated within Subarea 3. No evidence of cultural material or features was identified during the examination of Subarea 3.

A typical auger test within Subarea 3 was excavated to a depth of 120 cmbs (47 inbs) and it exhibited three strata in profile (Figure 5.37). Stratum I, very dark grayish brown (10YR 3/2) muck mottled with dark gray (10YR 4/1) silty clay, extended from the surface to 40 cmbs (16 inbs). Stra-

tum II, very dark grayish brown (10YR 3/2) muck, extended from the base of Stratum I to 100 cmbs (39 inbs). Stratum III, gray (10YR 5/1) silty clay mottled with very dark gray (10YR 3/1) silty clay, extended from 100 to 120 cmbs (39 to 47 inbs).

MCA-1 Subarea 4

Subarea 4 is situated within the central portion of the project APE and approximately 0.50 km (0.34 mi) southwest of Long Point Bayou (Figure 1.2; Appendix I: Sheet 3 and 5). Subarea 4 encompassed an area measuring 7.3 ha (18.0 ac) in extent and it consisted of a stand of flooded marsh grasses punctuated by small interior ponded areas. Vegetation within Subarea 4 solely consisted of common marsh grass species (Figures 5.38 and 5.39). Slope across the vicinity of Subarea 4 was described as nearly level (0-3 percent).



Figure 5.35 Overview photograph of MCA-1 Subarea 3, facing north.



Figure 5.36 Additional overview photograph of MCA-1 Subarea 3, facing northwest.

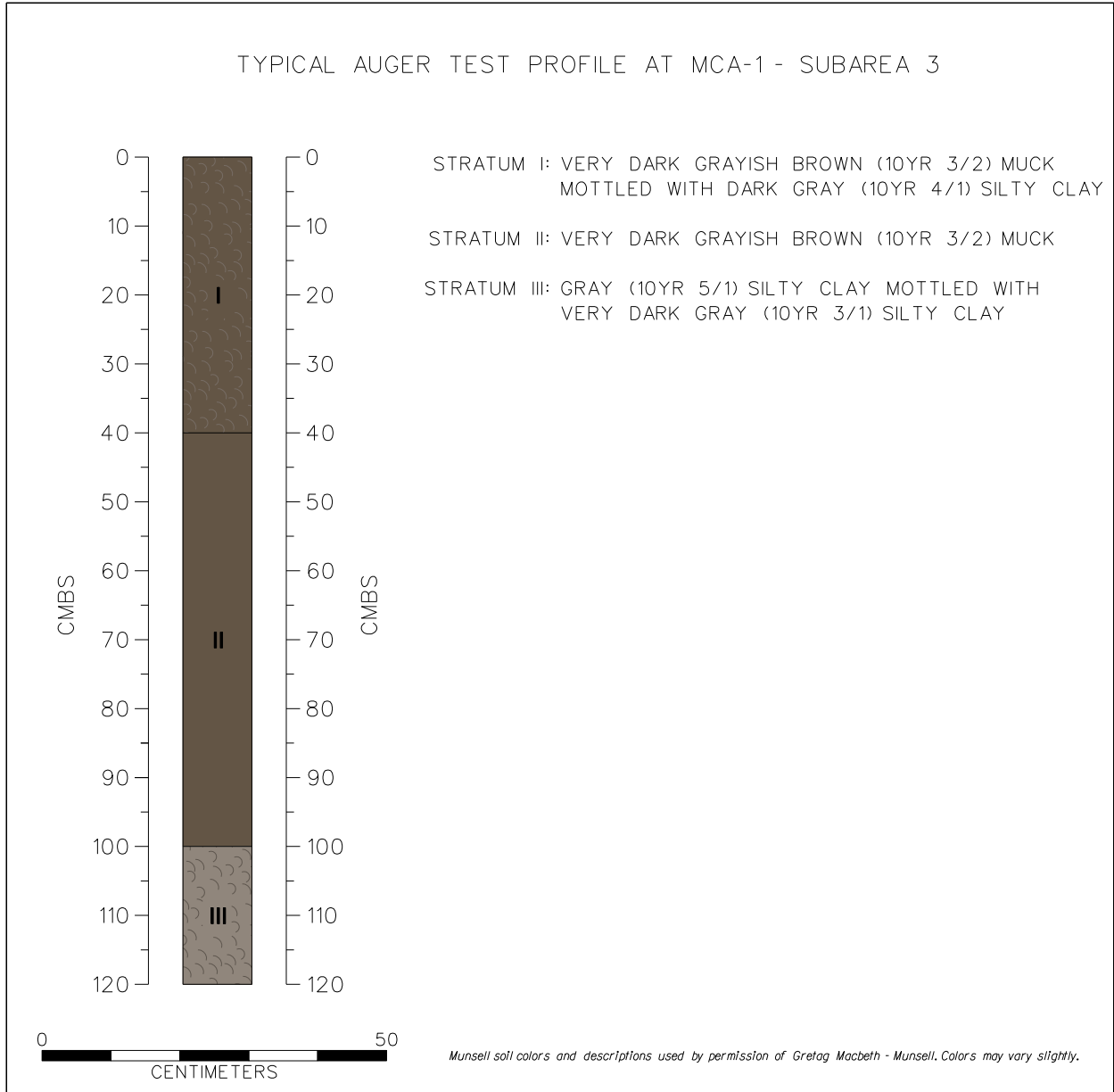


Figure 5.37 Profile of typical auger test at MCA-1 Subarea 3.



Figure 5.38 Overview photograph of MCA-1 Subarea 4, facing east.



Figure 5.39 Additional overview photograph of MCA-1 Subarea 4, facing west-northwest.

Subsurface testing proceeded using a mud auger in order to determine if any areas of non-inundated and non-saturated soils were located within Subarea 4. No such soils were encountered. A total of 14 auger tests were excavated within Subarea 4. No evidence of cultural material or features was identified during the examination of Subarea 4.

A typical auger test within Subarea 4 was excavated to a depth of 75 cmbs (30 inbs) and it exhibited three strata in profile (Figure 5.40). Stratum I, very dark grayish brown (10YR 3/2) muck, extended from the surface to 50 cmbs (20 inbs). Stratum II, very dark gray (10YR 3/1) silty clay, extended from the base of Stratum I to 65 cmbs (26 inbs). Stratum III, gray (10YR 5/1) silty clay mottled with very olive yellow (5Y 6/6) silty clay, extended from 65 to 75 cmbs (26 to 30 inbs).

MCA-1 Subarea 5

Subarea 5 is situated within the southeastern portion of the project APE and approximately 0.8 km (0.5 mi) southwest of Long Point Bayou (Fig-

ure 1.2; Appendix I: Sheet 2 and 5). Subarea 5 encompassed an area measuring 1.8 ha (4.5 ac) in extent and it consisted of a stand of flooded marsh grasses punctuated by small interior ponded areas. Vegetation within Subarea 5 solely consisted of common marsh grass species (Figures 5.41 and 5.42). Slope across the vicinity of Subarea 5 was described as nearly level (0-3 percent).

Subsurface testing proceeded using a mud auger in order to determine if any areas of non-inundated and non-saturated soils were located within Subarea 5. No such soils were encountered. A total of nine auger tests were excavated within Subarea 5. No evidence of cultural material or features was identified during the examination of Subarea 5.

A typical auger test within Subarea 5 was excavated to a depth of 80 cmbs (32 inbs) and it exhibited three strata in profile (Figure 5.43). Stratum I, very dark grayish brown (10YR 3/2) muck mottled with dark gray (10YR 4/1) silty clay, extended from the surface to 50 cmbs (20

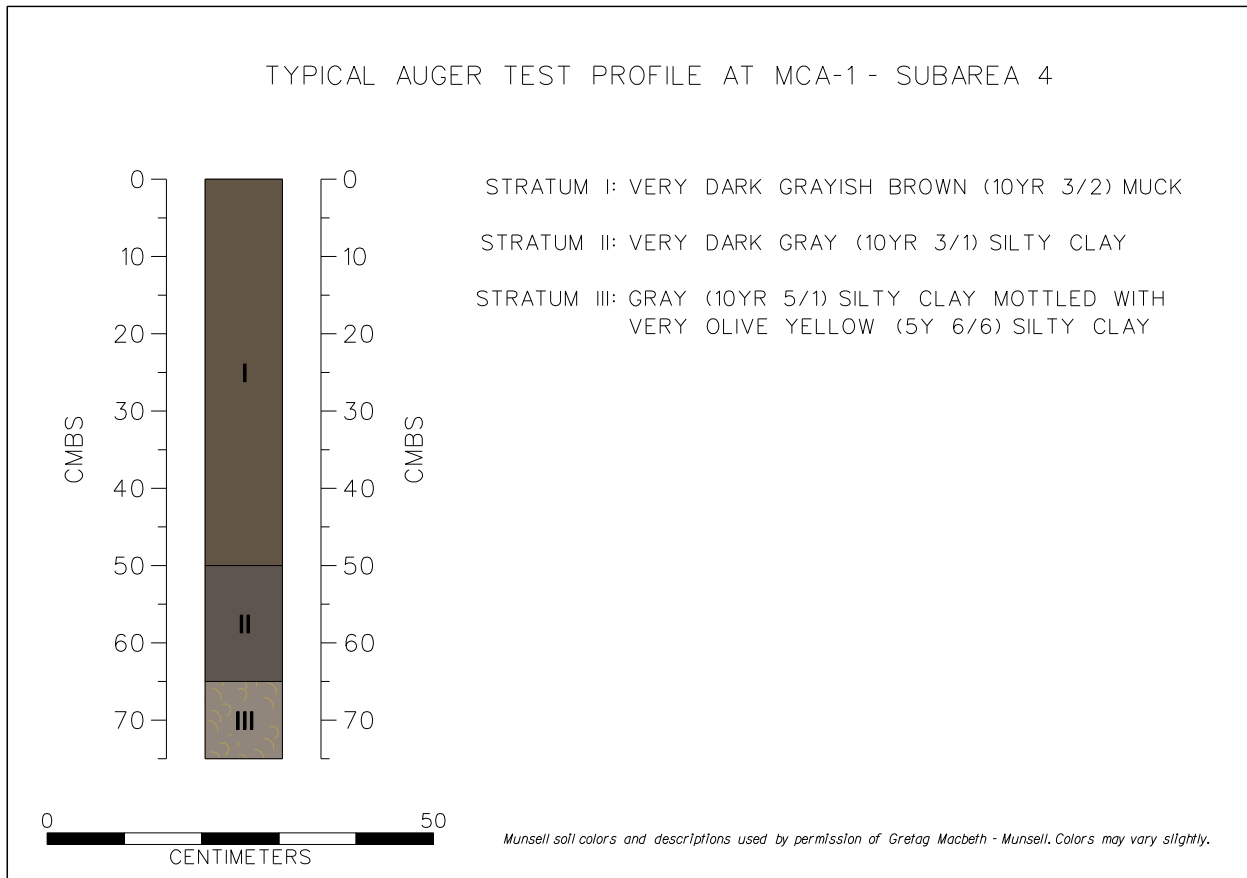


Figure 5.40 Profile of typical auger test at MCA-1 Subarea 4.



Figure 5.41 Overview photograph of MCA-1 Subarea 5, facing east.



Figure 5.42 Additional overview photograph of MCA-1 Subarea 5, facing west.

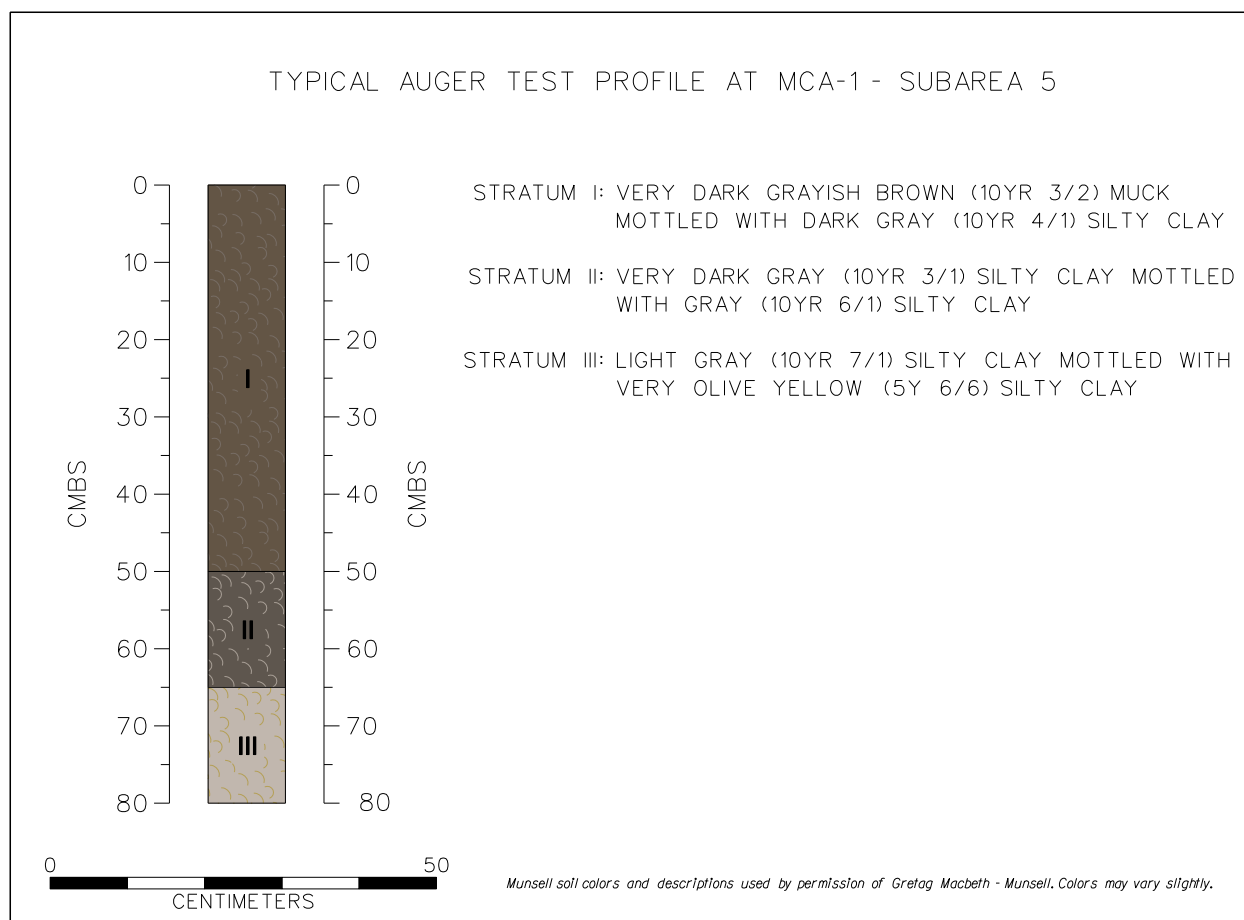


Figure 5.43 Profile of typical auger test at MCA-1 Subarea 5.

inbs). Stratum II, very dark gray (10YR 3/1) silty clay mottled with gray (10YR 6/1) silty clay, extended from the base of Stratum I to 65 cmbs (26 inbs). Stratum III, light gray (10YR 7/1) silty clay mottled with very olive yellow (5Y 6/6) silty clay, extended from 65 to 80 cmbs (26 to 32 inbs).

MCA-1 Subarea 6

Subarea 6 is situated within the northeastern portion of the project APE and approximately 0.06 km (0.04 mi) west of Long Point Bayou (Figure 1.2; Appendix I: Sheet 2-3). Subarea 6 encompassed an area measuring 16.3 ha (40.2 ac) in extent and it consisted of a stand of flooded marsh grasses punctuated by small interior ponded areas. Vegetation within Subarea 6 solely consisted of common marsh grass species (Figures 5.44 and 5.45). Slope across the vicinity of Subarea 6 was described as nearly level (0-3 percent).

Previously identified Site 16CM147, the Pirogue Site, was situated within Subarea 6 and the current revisit to this site is discussed below.

Subsurface testing proceeded using a mud auger in order to determine if any areas of non-inundated and non-saturated soils were located within Subarea 6. No such soils were encountered. A total of 23 auger tests were excavated within Subarea 6. No evidence of cultural material or features, including at Site 16CM147, was identified during the examination of Subarea 6.

A typical auger test within Subarea 6 was excavated to a depth of 80 cmbs (32 inbs) and it exhibited two strata in profile (Figure 5.46). Stratum I, very dark grayish brown (10YR 3/2) muck, extended from the surface to 50 cmbs (19.7 inbs). Stratum II, gray (10YR 5/1) silty clay, extended from the base of Stratum I to 80 cmbs (31.5 inbs).



Figure 5.44 Overview photograph of MCA-1 Subarea 6, facing northeast.



Figure 5.45 Additional overview photograph of MCA-1 Subarea 6, facing west.

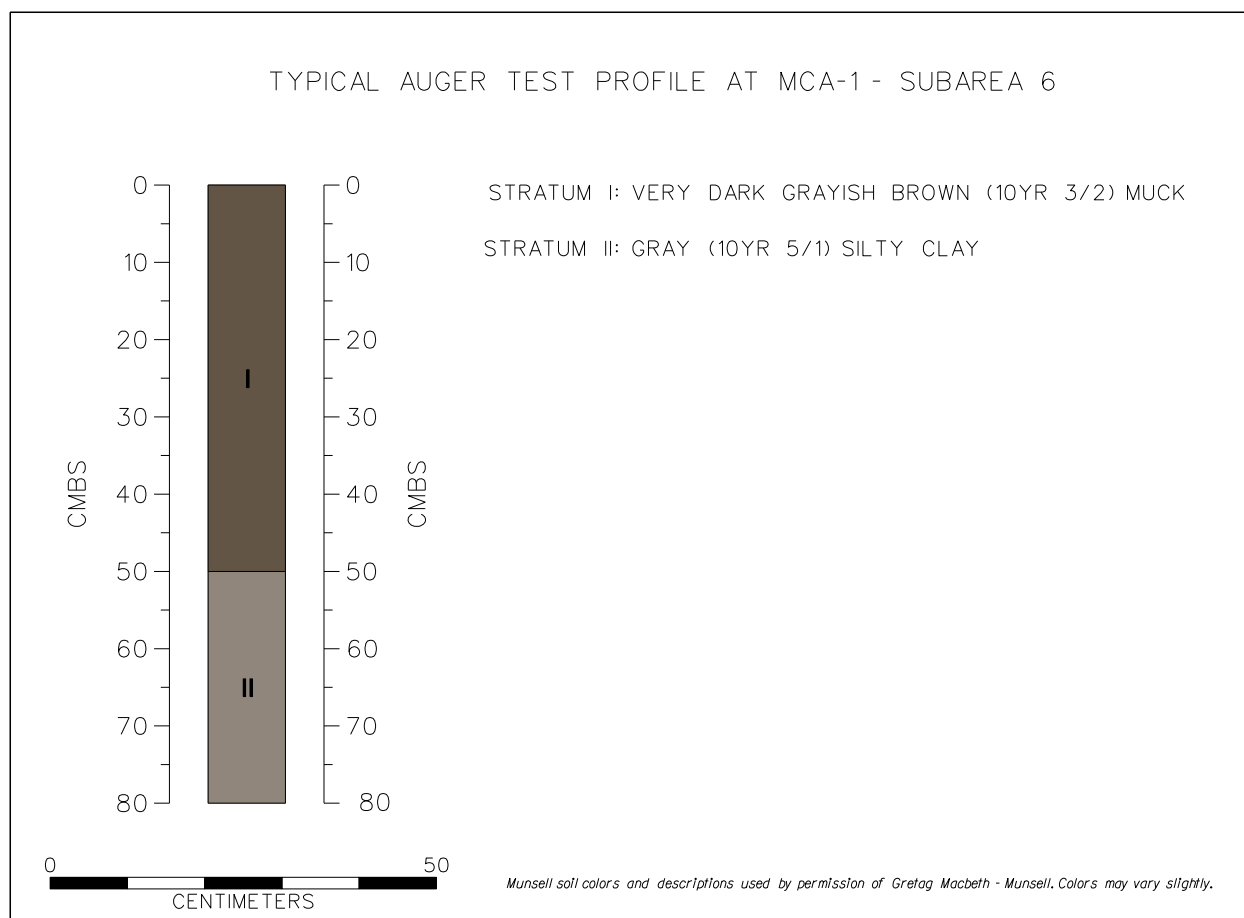


Figure 5.46 Profile of typical auger test at MCA-1 Subarea 6.

Site 16CM147

Site 16CM147, the Long Point Bayou Pirogue Site, is located along the west bank of Long Point Bayou and within the currently proposed project area. An attempt to locate additional fragments had not occurred to date. The site is currently listed as ineligible for listing on the NRHP on the LDOA's website.

During the current revisit to Site 16CM147, two auger tests were excavated within the site boundaries as mapped previously. The site area consisted of open water surrounded by flooded marsh grassland (Figures 5.47 and 5.48). No artifacts or other evidence of the site was observed in the vicinity or within the boundary of Site 16CM147. No boundary changes are proposed as a result of the current work at Site 16CM147. No evidence of artifacts or features was identified at the site and no changes to the current NRHP eligibility status of the site is recommended.

A typical auger test at Site 16CM147 extended to a maximum depth of 80 cmbs (32 inbs) and it exhibited two strata in profile (Figure 5.49). Stratum I, very dark grayish brown (10YR 3/2) muck, extended from the surface to 45 cmbs (18 inbs). Stratum II, dark gray (10YR 4/1) silty clay, extended from the base of Stratum I to 80 cmbs (32 inbs).

Summary and Recommendations

The Phase I cultural resources investigations of the Long Point Marsh Creation Project (CS-00085) APE in Cameron Parish, Louisiana included: the extraction of 15 vibracores from portions of two dredge pipeline access corridors situated within Long Point Bayou; Phase I cultural resources survey that examined a large marsh creation cell and two dredge pipeline access corridors that measured approximately 168.8 ha (417 ac) in total area; and, a revisit to the loca-



Figure 5.47 Overview photograph of Site 16CM147, facing west.

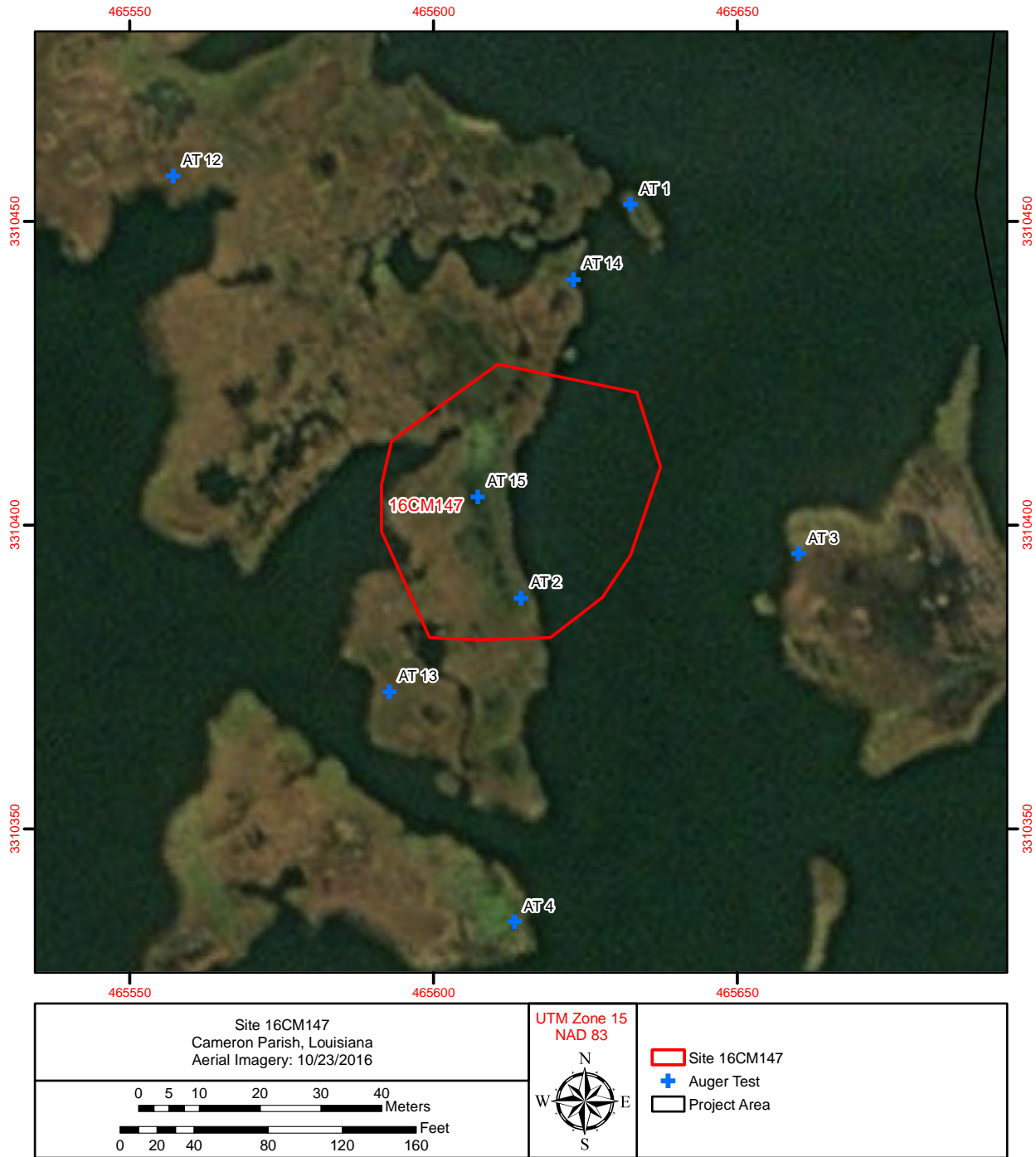


Figure 5.48 Aerial planview of Site 16CM147.

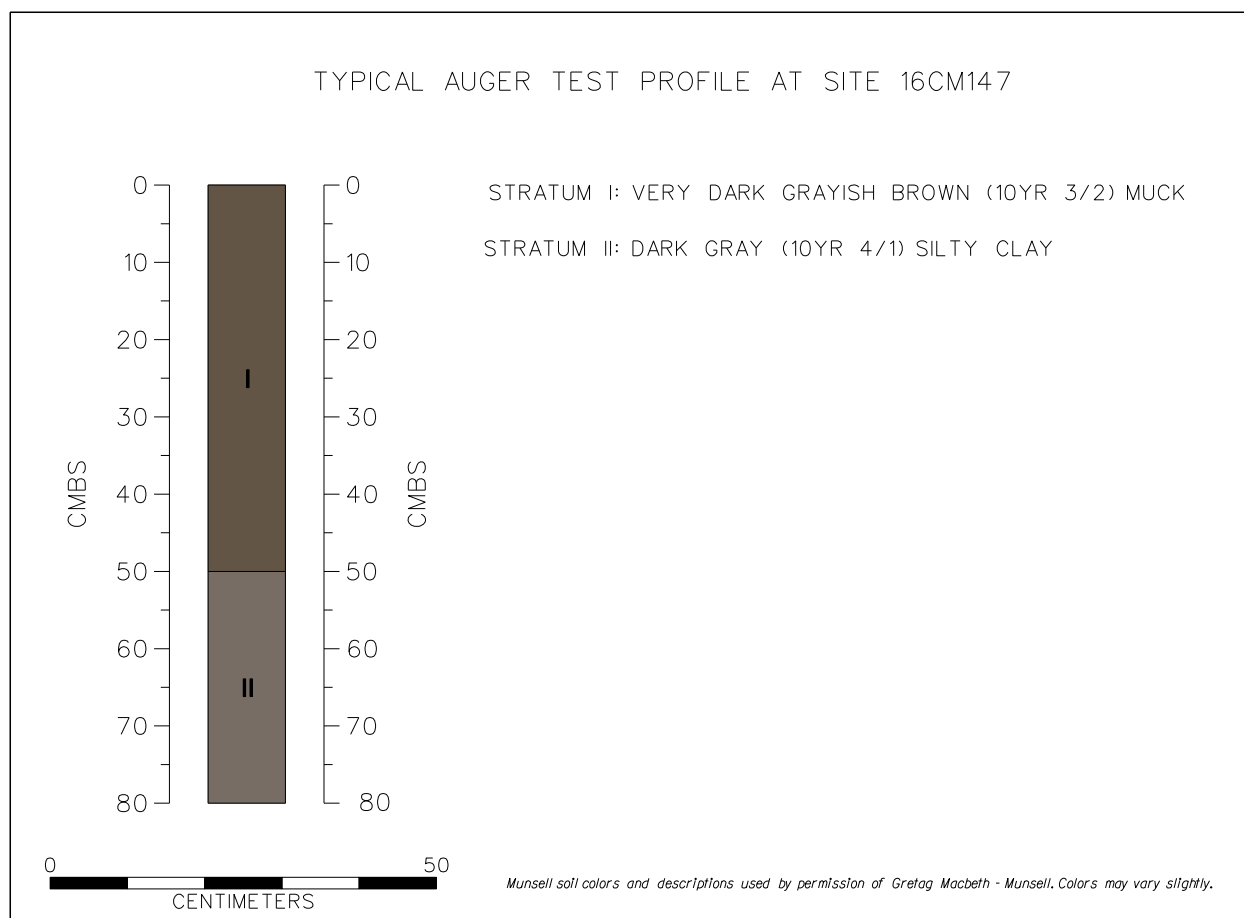


Figure 5.49 Profile of typical auger test at Site 16CM147.

tion of Site 16CM147. Fieldwork at each location consisted of visual inspection and pedestrian survey augmented by shovel or auger testing. All of the project items were accessed via watercraft. A total of 134 shovel or auger tests were excavated within the project items. A summary of the results and management recommendations for the project are provided below.

Marsh Creation Area (MCA-1)

The Long Point Marsh Creation Project (CS-0085) included the examination of a marsh creation area that measured 160.2 ha (396 ac) in extent (Figures 1.1, 1.2, and Appendix I). Shovel and auger testing, where possible, was completed within the marsh creation area and a total of 122 auger tests were excavated within MCA-1. No cultural resources were identified. No additional investigation of MCA-1 is recommended.

Dredge Pipeline Access Corridors (DPACs)

During the current cultural resources investigation two dredge pipeline access corridors were examined within the Long Point Marsh Creation Project APE. The two DPACs measured approximately 2.8 km (1.74 mi) in length and 30 m (98 ft) in width and encompassed a total of 8.5 ha (21 ac). A total of 15 vibracores were extracted from within those portions of Long Point Bayou in which the DPACs are situated. An additional 12 auger and shovel tests were excavated within the proposed DPAC corridors. No cultural resources were identified and no additional investigation of the two DPACs is recommended.

Investigation of Site 16CM147

During the course of the current cultural resources investigation, Site 16CM147 was revisited and examined. No artifacts or other evidence

of the site was observed in the vicinity or within the boundary of Site 16CM147. No boundary changes are proposed as a result of the current work at Site 16CM147. No evidence of artifacts

or features was identified at the site and no changes to the current NRHP eligibility status of the site is recommended. Site 16CM147 is recommended to remain ineligible for listing in the NRHP.

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APPENDIX I

AERIAL PHOTOGRAPHS



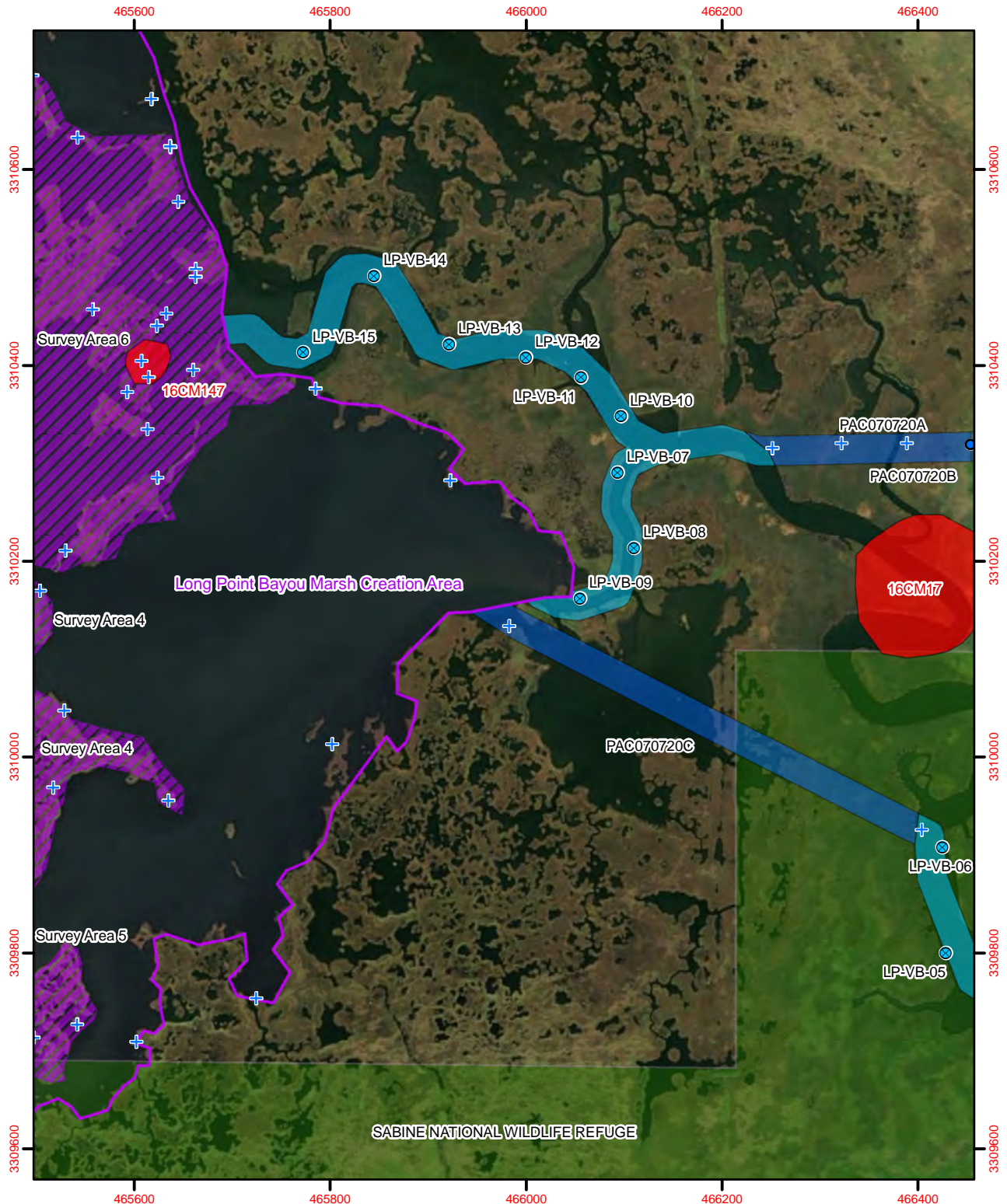
Proposed Long Point Bayou Marsh Creation Area
Cameron Parish, Louisiana. (Page 1 of 5)

0 50 100 200 300 400 Meters

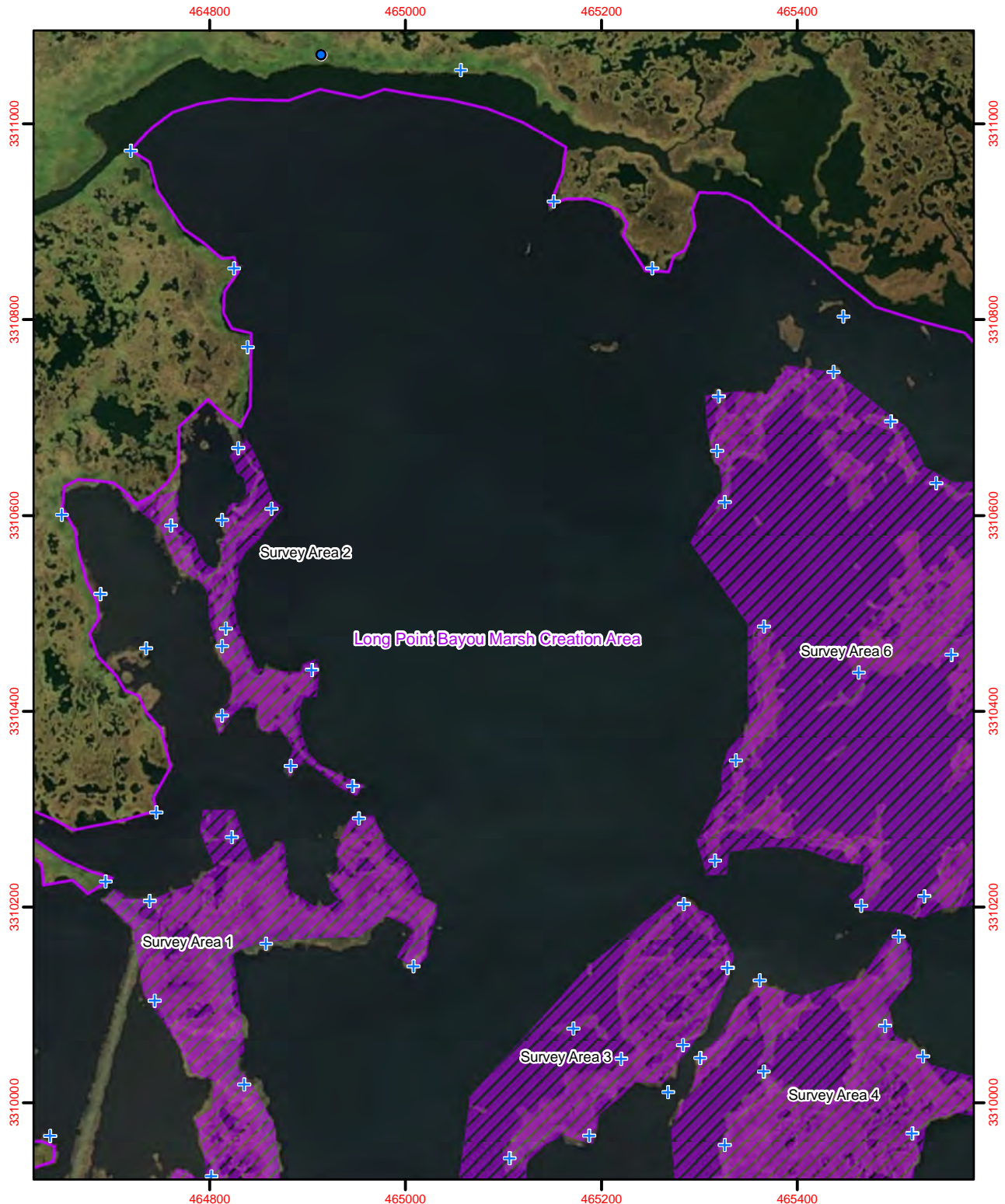
0 150 300 600 900 1,200 Feet



- Dredge Pipeline Corridor-Survey Segment
- Dredge Pipeline Corridor-Vibracore
- Recorded Archeological Site
- Sabine National Wildlife Refuge
- ⊗ Vibracore Test
- Shovel Test
- + Auger Test



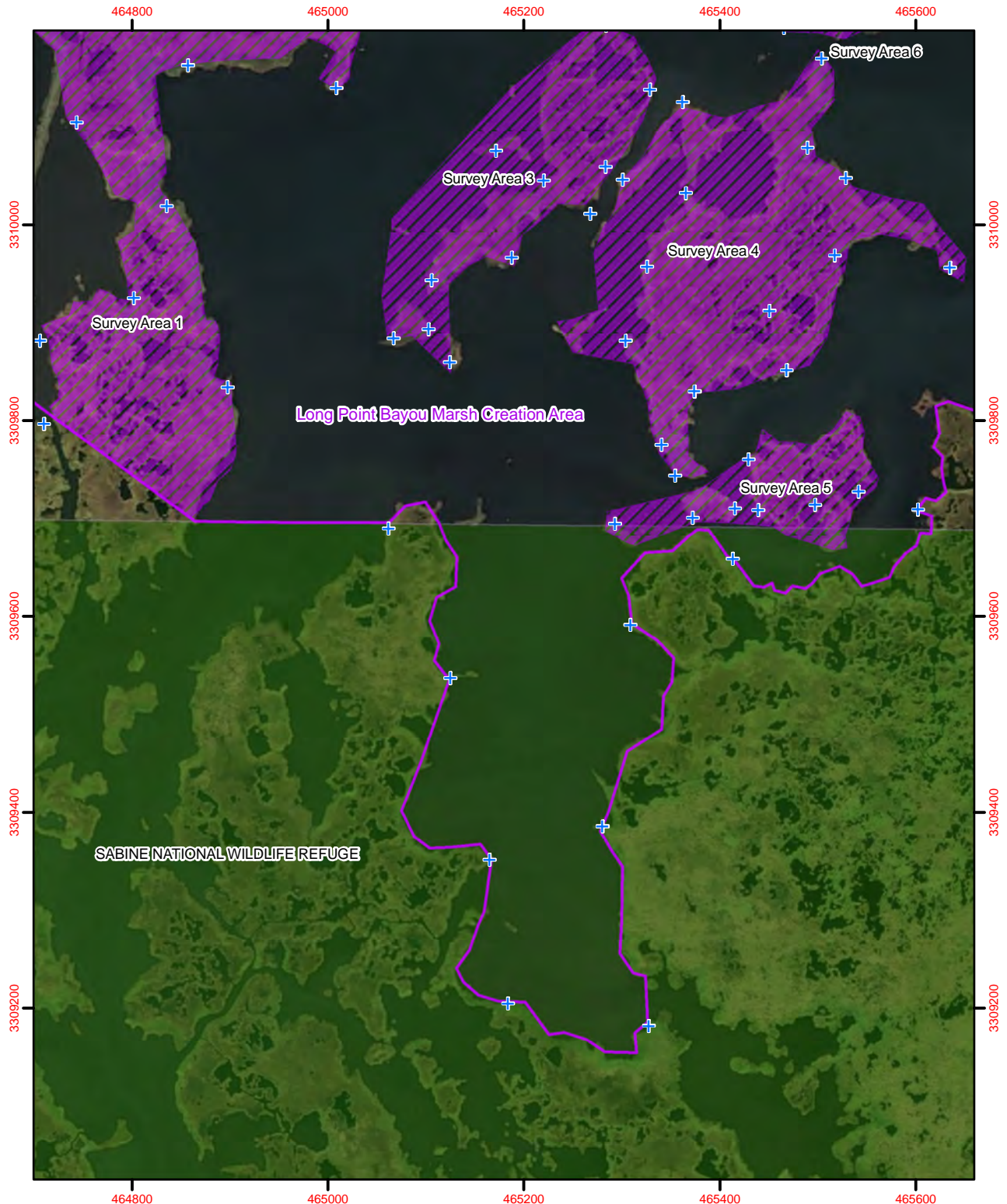
<p>Proposed Long Point Bayou Marsh Creation Area Cameron Parish, Louisiana. (Page 2 of 5)</p>		<p>UTM Zone 15 NAD 83</p>	
<p>0 50 100 200 300 400 Meters</p> <p>0 150 300 600 900 1,200 Feet</p>			
<ul style="list-style-type: none"> Marsh Creation Area (MCA-01) MCA-01 Survey Sub-Area Dredge Pipeline Corridor-Survey Segment Dredge Pipeline Corridor-Vibracore Recorded Archeological Site 	<ul style="list-style-type: none"> Sabine National Wildlife Refuge Vibracore Test Shovel Test Auger Test Long Point Bayou Marsh Creation Area 		



<p>Proposed Long Point Bayou Marsh Creation Area Cameron Parish, Louisiana. (Page 3 of 5)</p>		<p>UTM Zone 15 NAD 83</p>	<ul style="list-style-type: none"> Marsh Creation Area (MCA-01) MCA-01 Survey Sub-Area ● Shovel Test + Auger Test Long Point Bayou Marsh Creation Area
<p>0 50 100 200 300 400 Meters</p> <p>0 150 300 600 900 1,200 Feet</p>			



<p>Proposed Long Point Bayou Marsh Creation Area Cameron Parish, Louisiana. (Page 4 of 5)</p>		<p>UTM Zone 15 NAD 83</p>	
		<ul style="list-style-type: none"> Marsh Creation Area (MCA-01) MCA-01 Survey Sub-Area Recorded Archeological Site Sabine National Wildlife Refuge Shovel Test 	<ul style="list-style-type: none"> Auger Test Long Point Bayou Marsh Creation Area



<p>Proposed Long Point Bayou Marsh Creation Area Cameron Parish, Louisiana. (Page 5 of 5)</p>		<p>UTM Zone 15 NAD 83</p>	<ul style="list-style-type: none"> Marsh Creation Area (MCA-01) MCA-01 Survey Sub-Area Sabine National Wildlife Refuge Auger Test Long Point Bayou Marsh Creation Area

APPENDIX II

SOIL PROFILES OF VIBRACORES

Sample #:	LP-VB-01				
Stratum/Zone	Depths (cmbs)	Color	Munsell	Texture	Comments
I	0-17 cmbs (0-6.7 inbs)	greenish black	1Gley 5GY 2.5/1	sandy clay	mixed with organic material and shell fragments
II	17-26 cmbs (6.7-10.2 inbs)	very dark gray	1Gley 3/N	clay	n/a
III	26-89 cmbs (10.2-35.0 inbs)	greenish gray	1Gley 10Y 5/1	clay	n/a
IV	89-155 cmbs (35.0-61.0 inbs)	dark gray	1Gley 4/N	clay	mixed with small amount of shell fragments
V	155-169 cmbs (61.0-66.5 inbs)	very dark greenish gray	1Gley 10Y 3/1	clay	n/a
VI	169-216 cmbs (66.5-85.0 inbs)	greenish black	1Gley 10Y 2.5/1	clay	n/a
VII	216-235 cmbs (85.0-92.5 inbs)	greenish gray mottled with greenish black and greenish gray	1Gley 10Y 6/1 w/ 1Gley 10Y 2.5/1 and 1Gley 10Y 5/1	clay	n/a
Sample #:	LP-VB-02				
Stratum/Zone	Depths (cmbs)	Color	Munsell	Texture	Comments
I	0-3 cmbs (0-1.2 inbs)	very dark grayish brown	10YR 3/2	sandy clay	mixed with organic material and shell fragments
II	3-147 cmbs (1.2-57.9 inbs)	very dark greenish gray	1Gley 10GY 3/1	clay	small amounts of shell between 71-86 cmbs (28.0-33.9 inbs; natural inclusions) and at 122 cmbs (48.0 inbs; natural inclusions)

III	147-170 cmbs (57.9-67.0 inbs)	black	1Gley 2.5/N	clay	mixed with organic material
IV	170-180 cmbs (67.0-70.9 inbs)	greenish black	1Gley 10Y 2.5/1	clay	mixed with organic material
V	180-186 cmbs (70.9-73.2 inbs)	dark greenish gray	1Gley 5G 4/1	clay	n/a
VI	186-188 cmbs (73.2-74.0 inbs)	black	1Gley 2.5/N	clay	n/a
VII	188-206 cmbs (74.0-81.1 inbs)	greenish black	1Gley 10GY 2.5/1	clay	mixed with organic material
VIII	206-221 cmbs (81.1-87.0 inbs)	black	1Gley 2.5/N	clay	n/a
IX	221-234 cmbs (87.0-92.1 inbs)	dark greenish gray	1Gley 10Y 4/1	clay	n/a
X	234-250 cmbs (92.1-98.4 inbs)	gray	1Gley 5/N	clay	n/a
Sample #:	LP-VB-03				
Stratum/Zone	Depths (cmbs)	Color	Munsell	Texture	Comments
I	0-34 cmbs (0-13.4 inbs)	dark greenish gray	1Gley 10Y 4/1	clay	mixed with organic material
II	34-58 cmbs (13.4-22.8 inbs)	greenish black	1Gley 10Y 2.5/1	clay	mixed with organic material
III	58-69 cmbs (22.8-27.2 inbs)	black	1Gley 2.5/N	clay	mixed with small amount of organic material
IV	69-108 cmbs (27.2-42.5 inbs)	very dark gray	1Gley 3/N	clay	n/a
V	108-143 cmbs (42.5-56.3 inbs)	dark greenish gray	1Gley 5GY 4/1	clay	n/a
Sample #:	LP-VB-04				
Stratum/Zone	Depths (cmbs)	Color	Munsell	Texture	Comments
I	0-36 cmbs (0-14.2 inbs)	greenish black	1Gley 10Y 2.5/1	clay	mixed with organic material
II	36-74 cmbs (14.2-29.1 inbs)	very dark gray	1Gley 3/N	clay	n/a
III	74-98 cmbs (29.1-38.6 inbs)	dark gray mottled with very dark gray	1Gley 4/N mottled with 1Gley 3/N	clay	mixed with small amount of organic material

IV	98-113 cmbs (38.6-44.5 inbs)	greenish gray	1Gley 5G 5/1	clay	mixed with organic material
V	113-173 cmbs (44.5-68.1 inbs)	dark greenish gray mottled with gray	1Gley 10Y 4/1 mottled with 1Gley 4/N	clay	mixed with small amount of organic material
VI	173-231 cmbs (68.1-91.0 inbs)	greenish gray	1Gley 10Y 5/1	clay	small of amount of fragmented shell
Sample #:	LP-VB-05				
Stratum/Zone	Depths (cmbs)	Color	Munsell	Texture	Comments
I	0-7 cmbs (0-2.8 inbs)	greenish black	1Gley 10Y 2.5/1	clay loam	mixed with organic material
II	7-53 cmbs (2.8-21.0 inbs)	greenish black	1Gley 5G 2.5/1	clay	mixed with small amount of organic material
III	53-102 cmbs (21.0-40.2 inbs)	dark gray mottled with black	1Gley 4/N mottled with 1Gley 2.5/N	clay	n/a
IV	102-209 cmbs (40.2-82.3 inbs)	very dark greenish gray mottled with greenish black	1Gley 5G 3/1 mottled with 1Gley 5G 2.5/1	clay	n/a
V	209-249 cmbs (82.3-98.0 inbs)	black mottled with very dark greenish gray	1Gley 2.5/N mottled with 1Gley 5GY 3/1	clay	n/a
VI	249-260 cmbs (98.0-102.4 inbs)	dark greenish gray	1Gley 10Y 4/1	clay	n/a
Sample #:	LP-VB-06				
Stratum/Zone	Depths (cmbs)	Color	Munsell	Texture	Comments
I	0-10 cmbs (0-3.9 inbs)	very dark greenish gray	1Gley 10GY 3/1	clay	mixed with organic material
II	10-30 cmbs (3.9-11.8 inbs)	dark greenish gray	1Gley 10Y 4/1	clay	mixed with organic material
III	30-56 cmbs (11.8-22.0 inbs)	greenish black	1Gley 10Y 2.5/1	clay	mixed with organic material
IV	56-79 cmbs (22.0-31.1 inbs)	greenish gray	1Gley 5GY 5/1	clay	mixed with organic material
V	79-107 cmbs (31.1-42.1 inbs)	greenish gray	1Gley 5G 5/1	clay	mixed with organic material; small amount of iron staining
VI	107-189 cmbs (42.1-74.4 inbs)	greenish gray	1Gley 10Y 5/1	clay	n/a
VII	189-201 cmbs (74.4-79.1 inbs)	black	1Gley 2.5/N	clay	n/a
VIII	201-231 cmbs (79.1-90.9 inbs)	very dark greenish gray	1Gley 10GY 3/1	clay	n/a

IX	231-243 cmbs (90.9-95.7 inbs)	greenish gray	1Gley 10Y 6/1	clay	n/a
Sample #:	LP-VB-07				
Stratum/Zone	Depths (cmbs)	Color	Munsell	Texture	Comments
I	0-10 cmbs (0-3.9 inbs)	dark gray	1Gley 4/N	clay	n/a
II	10-48 cmbs (3.9-18.9 inbs)	greenish gray mottled with strong brown and greenish gray	1Gley 5G 5/1 mottled with 7.5YR 5/6 and 1Gley 10Y 6/2	clay mottled with sandy clay	n/a
III	48-82 cmbs (18.9-32.3 inbs)	very dark gray mottled with greenish gray	1Gley 3/N mottled with 1Gley 10Y 6/2	clay mottled with sandy clay	n/a
IV	82-121 cmbs (32.3-47.6 inbs)	greenish gray mottled with bluish gray	1Gley 10Y 6/1 mottled with 2Gley 5B 5/1	clay	n/a
V	121-122 cmbs (47.6-48.0 inbs)	dark gray	1Gley 4/N	clay	n/a
Sample #:	LP-VB-08				
Stratum/Zone	Depths (cmbs)	Color	Munsell	Texture	Comments
I	0-20 cmbs (0-7.9 inbs)	very dark gray	1Gley 3/N	sandy clay	mixed with organic material
II	20-46 cmbs (7.9-18.1 inbs)	dark gray mottled with very dark gray	1Gley 4/N mottled with 1Gley 3/N	clay	mixed with organic material
III	46-84 cmbs (18.1-33.1 inbs)	greenish gray mottled with dark gray	1Gley 10Y 5/1 mottled with 1Gley 4/N	clay	n/a
IV	84-99 cmbs (33.1-39.0 inbs)	dark gray mottled with greenish gray	1Gley 4/N mottled with 1Gley 10Y 5/1	clay mottled with sandy clay	n/a
V	99-107 cmbs (39.0-42.1 inbs)	black	1Gley 2.5/N	clay	n/a
VI	107-150 cmbs (42.1-59.1 inbs)	greenish gray mottled with greenish gray	1Gley 10Y 5/1 mottled with 1Gley 5GY 5/1	clay	n/a
Sample #:	LP-VB-09				
Stratum/Zone	Depths (cmbs)	Color	Munsell	Texture	Comments
I	0-18 cmbs (0-7.1 inbs)	black	1Gley 2.5/N	clay	mixed with organic material

II	18-38 cmbs (7.1-15.0 inbs)	greenish black	1Gley 10Y 2.5/1	clay	mixed with organic material
III	38-77 cmbs (15.0-30.3 inbs)	greenish gray mottled with black and greenish gray	1Gley 5GY 5/1 mottled with 1Gley 10Y 6/1 and 1Gley 2.5/N	clay mottled with sandy clay	n/a
IV	77-94 cmbs (30.3-37.0 inbs)	dark greenish gray mottled with greenish gray and black	1Gley 5G 4/1 mottled with 1Gley 10Y 6/1 and 1Gley 2.5/N	clay mottled with sandy clay	n/a
V	94-108 cmbs (37.0-42.5 inbs)	very dark gray	1Gley 3/N	clay	n/a
VI	108-167 cmbs (42.5-65.7 inbs)	greenish gray mottled with very dark gray	1Gley 10Y 6/1 mottled with 1Gley 3/N	clay	n/a
VII	167-168 cmbs (65.7-66.1 inbs)	very dark gray	10YR 3/1	sandy clay	n/a
Sample #:	LP-VB-10				
Stratum/Zone	Depths (cmbs)	Color	Munsell	Texture	Comments
I	0-5 cmbs (0-2.0 inbs)	gray	1Gley 5/N	clay	n/a
II	5-6 cmbs (2.0-2.4 inbs)	greenish gray	1Gley 10Y 6/1	sandy clay	n/a
III	6-15 cmbs (2.4-5.9 inbs)	very dark gray	1Gley 3/N	clay	n/a
IV	15-16 cmbs (5.9-6.3 inbs)	black	1Gley 2.5/N	clay	n/a
V	16-40 cmbs (6.3-15.7 inbs)	very dark gray	1Gley 3/N	clay	n/a
VI	40-89 cmbs (15.7-35.0 inbs)	greenish gray	1Gley 10Y 5/1	clay	n/a
Sample #:	LP-VB-11				
Stratum/Zone	Depths (cmbs)	Color	Munsell	Texture	Comments
I	0-15 cmbs (0-5.9 inbs)	greenish gray mottled with very dark greenish gray	1Gley 10GY 5/1 mottled with 1Gley 10Y 3/1	clay	small amount of fragmented shell and organics
II	15-36 cmbs (5.9-14.2 inbs)	greenish gray mottled with strong brown	1Gley 10GY 5/1 mottled with 7.5YR 5/6	sandy clay	small amount of fragmented shell
III	36-52 cmbs (14.2-20.5 inbs)	greenish gray	1Gley 10GY 5/1	clay	n/a

IV	52-71 cmbs (20.5-27.9 inbs)	very dark gray mottled with greenish gray	1Gley 3/N mottled with 1Gley 10Y 6/1	clay	n/a
V	71-153 cmbs (27.9-60.2 inbs)	greenish gray	1Gley 10Y 5/1	clay	n/a
Sample #:	LP-VB-12				
Stratum/Zone	Depths (cmbs)	Color	Munsell	Texture	Comments
I	0-6 cmbs (0-2.4 inbs)	black	1Gley 2.5/N	clay loam	small amount of fragmented shell and organics
II	6-93 cmbs (2.4-36.6 inbs)	greenish black	1Gley 5G 2.5/1	clay	small amount of organics
III	93-210 cmbs (36.6-82.7 inbs)	very dark greenish gray	1Gley 10GY 3/1	clay and sandy clay	n/a
IV	210-217 cmbs (82.7-85.4 inbs)	greenish gray mottled with grayish green	1Gley 10Y 5/1 mottled with 1Gley 5G 4/2	clay	n/a
Sample #:	LP-VB-13				
Stratum/Zone	Depths (cmbs)	Color	Munsell	Texture	Comments
I	0-24 cmbs (0-9.5 inbs)	black	1Gley 2.5/N	clay loam	small amount of organics
II	24-120 cmbs (9.5-47.2 inbs)	greenish black mottled with dark gray	1Gley 10Y 2.5/1 mottled with 1Gley 4/N	clay	n/a
III	120-168 cmbs (47.2-66.1 inbs)	greenish gray mottled with dark greenish gray	1Gley 10Y 6/1 mottled with 1Gley 5GY 4/1	clay and sandy clay	n/a
Sample #:	LP-VB-14				
Stratum/Zone	Depths (cmbs)	Color	Munsell	Texture	Comments
I	0-6 cmbs (0-2.4 inbs)	dark greenish gray	1Gley 10Y 4/1	sandy clay	small amount of fragmented shell and organics
II	6-14 cmbs (2.4-5.5 inbs)	greenish black	1Gley 10Y 2.5/1	clay	small amount of organics
III	14-69 cmbs (5.5-27.1 inbs)	very dark greenish gray mottled with greenish gray	1Gley 10GY 3/1 mottled with 1Gley 10Y 6/1	sandy clay	n/a
IV	69-120 cmbs (27.1-47.2 inbs)	greenish gray mottled with dark greenish gray and strong brown	1Gley 10Y 6/1 mottled with 1Gley 5GY 4/1 and 7.5YR 5/6	clay	n/a

Sample #:	LP-VB-15				
Stratum/Zone	Depths (cmbs)	Color	Munsell	Texture	Comments
I	0-23 cmbs (0-9.1 inbs)	very dark greenish gray	1Gley 10Y 3/1	clay	n/a
II	23-69 cmbs (9.1-27.2 inbs)	greenish black	1Gley 10Y 2.5/1	clay	small amount of organics
III	69-95 cmbs (27.2-37.4 inbs)	black mottled with dark gray and greenish gray	1Gley 2.5/N mottled with 1Gley 4/N and 1Gley 10Y 5/1	clay	n/a
IV	95-123 cmbs (37.4-48.4 inbs)	greenish gray mottled with very dark gray	1Gley 10Y 5/1 mottled with 1Gley 4/N	clay	n/a
V	123-153 cmbs (48.4-60.2 inbs)	greenish gray mottled with dark gray and reddish yellow	1Gley 10Y 6/1 mottled with 1Gley 4/N and 7.5YR 6/8	clay	n/a

APPENDIX III

PERMITS

Please use this number
when referring to this permit

DI Form 1991 (Rev Jan 2008)
for use with DI Form 1926
OMB No. 1024-0037
Exp. Date (01/31/2008)

No.: _SABNWR041020

United States Department of the Interior

PERMIT FOR ARCHAEOLOGICAL INVESTIGATIONS

To conduct archeological work on Department of the Interior lands and Indian lands under the authority of:

- The Archaeological Resources Protection Act of 1979 (16 U.S.C. 470aa-mm) and its regulations (43 CFR 7).
- The Antiquities Act of 1906 (P.L. 59-209; 34 Stat. 225, 16 U.S.C. 431-433) and its regulations (43 CFR 3).
- Supplemental regulations (25 CFR 262) pertaining to Indian lands.
- Bureau-specific statutory and/or regulatory authority: 50 CFR 27.62

Permit issued to R. Christopher Goodwin & Associates, Inc.		2. Under application dated April 10, 2020
3. Address R. Christopher Goodwin & Associates, Inc. 309 Jefferson Hwy. New Orleans, LA 70121		4. Telephone number(s) (504) 837-1940
		5. E-mail address(es) Neworleans@rcgoodwin.com
6. Name of Permit Administrator William P. Athens Telephone number(s): (504) 858-3401 Email address(es): bathens@rcgoodwin.com	7. Name of Principal Investigator(s) Wayne Boyko Telephone number(s): (504) 201-1714 Email address(es): wboyko@rcgoodwin.com	
8. Name of Field Director(s) authorized to carry out field projects Wayne Boyko Peter Cropley		Telephone number(s): (504) 201-1714 or 1713 Email address(es): rcropley@rcgoodwin.com wboyko@rcgoodwin.com
9. Activity authorized To conduct Phase I archaeological investigations of that portion of the Long Point Bayou Project located on Sabine National Wildlife Refuge. Methodology includes literature and site file reviews, pedestrian survey, systematic shovel testing, auger boring, and submission of a technical report.		
10. On lands described as follows Sabine National Wildlife Refuge, Cameron Parish, Louisiana, Sections 14, 15, 22, & 23; Township 13S, Range 10W		
11. During the duration of the project From May 31, 2020 To October 31, 2020		
12. Name and address of the curatorial facility in which collections, records, data, photographs, and other documents resulting from work under this permit shall be deposited for permanent preservation on behalf of the United States Government. Karla Oeuch, Collections Manager, Louisiana Division of Archaeology, P.O. Box 44247, Baton Rouge, Louisiana 70804-4247		
13. Permittee is required to observe the listed standard permit conditions and the special permit conditions attached to this permit.		
14. Signature and title of approving official: BRETT HUNTER Digitally signed by BRETT HUNTER Date: 2020.05.26 08:46:24 -04'00' Chief, U.S. Fish and Wildlife Service, National Wildlife Refuge System, Southeast Region		15. Date

15. Standard Permit Conditions

- a. This permit is subject to all applicable provisions of 43 CFR Part 3, 43 CFR 7, and 25 CFR 262, and applicable departmental and bureau policies and procedures, which are made a part hereof.
- b. The permittee and this permit are subject to all other Federal, State, and local laws and regulations applicable to the public lands and resources.
- c. This permit shall not be exclusive in character, and shall not affect the ability of the land managing bureau to use, lease or permit the use of lands subject to this permit for any purpose.
- d. This permit may not be assigned.
- e. This permit may be suspended or terminated for breach of any condition or for management purposes at the discretion of the approving official, upon written notice.
- f. This permit is issued for the term specified in 11 above.
- g. Permits issued for a duration of more than one year must be reviewed annually by the agency official and the permittee.
- h. The permittee shall obtain all other required permit(s) to conduct the specified project.
- i. Archeological project design, literature review, development of the regional historic context framework, site evaluation, and recommendations for subsequent investigations must be developed with direct involvement of an archeologist who meets the Secretary of the Interior's Standards for Archeology and Historic Preservation; fieldwork must be generally overseen by an individual who meets the Secretary of the Interior's Standards for Archeology and Historic Preservation.
- j. Permittee shall immediately request that the approving official (item 14 above) make a modification to accommodate any change in an essential condition of the permit, including individuals named and the nature, location, purpose, and time of authorized work, and shall without delay notify the approving official of any other changes affecting the permit or regarding information submitted as part of the application for the permit. Failure to do so may result in permit suspension or revocation.
- k. Permittee may request permit extension, in writing, at any time prior to expiration of the term of the permit, specifying a limited, definite amount of time required to complete permitted work.
- l. Any correspondence about this permit or work conducted under its authority must cite the permit number. Any publication of results of work conducted under the authority of this permit must cite the approving bureau and the permit number.
- m. Permittee shall submit a copy of any published journal article and any published or unpublished report, paper, and manuscript resulting from the permitted work (apart from those required in items o. and p., below), to the approving official and the appropriate official of the approved curatorial facility (item 12 above).
- n. Prior to beginning any fieldwork under the authority of this permit, the permittee, following the affected bureau's policies and procedures, shall contact the field office manager responsible for administering the lands involved to obtain further instructions.

15. Standard Permit Conditions (continued)

- q. Permittee shall submit a preliminary report to the approving official within a timeframe established by the approving official, which shall be no later than 6 weeks after the completion of any episode of fieldwork, setting out what was done, how it was done, by whom, specifically where, and with what results, including maps, GPS data, updated site forms for recorded sites and completed site forms for newly identified sites in Orleans Parish, Louisiana, and the permittee's professional recommendations, as results require. If other than 6 weeks, the timeframe shall be specified in Special Permit Condition p. Depending on the scope, duration, and nature of the work, the approving official may require progress reports, during or after the fieldwork period or both, and as specified in Special Permit Condition 4.
- r. Permittee shall submit a clean, edited draft final report to the agency official for review to insure conformance with standards, guidelines, regulations, and all stipulations of the permit. The schedule for submitting the draft shall be determined by the agency official.
- s. Permittee shall submit a final report to the approving official not later than 180 days after completion of fieldwork. Where a fieldwork episode involved only minor work and/or minor findings, a final report may be submitted in place of the preliminary report. If the size or nature of fieldwork merits, the approving official may authorize a longer timeframe for the submission of the final report as specified in Special Permit Condition q.
- t. Two copies of the final report, a completed NTIS Report Documentation Page (SF-298), available at <http://www.ntis.gov/pdf/rdpform.pdf>, and a completed NADB-Reports Citation Form, available at http://www.cr.nps.gov/aad/tools/nadbform_update.doc, will be submitted to the office issuing the permit.
- u. The permittee agrees to keep the specific location of sensitive resources confidential. Sensitive resources include threatened species, endangered species, and rare species, archeological sites, caves, fossil sites, minerals, commercially valuable resources, and sacred ceremonial sites.
- v. Permittee shall deposit all artifacts, samples and collections, as applicable, and original or clear copies of all records, data, photographs, and other documents, resulting from work conducted under this permit, with the curatorial facility named in item 12, above, not later than 90 days after the date the final report is submitted to the approving official. Not later than 180 days after the final report is submitted, permittee shall provide the approving official with a catalog and evaluation of all materials deposited with the curatorial facility, including the facility's accession and/or catalog numbers.
- w. Permittee shall provide the approving official with a confirmation that artifacts and samples collected under this permit were deposited with the approved curatorial facility, signed by an authorized curatorial facility official, stating the date materials were deposited, and the type, number and condition of the collected museum objects deposited at the facility.
- x. Permittee shall not publish, without the approving official's prior permission, any locational or other identifying archeological site information that could compromise the Government's protection and management of archeological sites.
- y. For excavations, permittee shall consult the OSHA excavation standards which are contained in 29 CFR §1926.650, §1926.651 and §1926.652. For questions regarding these standards contact the local area OSHA office, OSHA at 1-800-321-OSHA, or the OSHA website at <http://www.osha.gov>.
- z. Special Permit Conditions attached to this permit are made a part hereof.

16. Special Permit Conditions

- a. Permittee shall allow the approving official and bureau field officials, or their representatives, full access to the work area specified in this permit at any time the permittee is in the field, for purposes of examining the work area and any recovered materials and related records.
- b. Permittee shall cease work upon discovering any human remains and shall immediately notify the approving official or bureau field official. Work in the vicinity of the discovery may not resume until the authorized official has given permission.
- c. Permittee shall backfill all subsurface test exposures and excavation units as soon as possible after recording the results, and shall restore them as closely as reasonable to the original contour.
- d. Permittee shall not use mechanized equipment in designated, proposed, or potential wilderness areas unless authorized by the agency official or a designee in additional specific conditions associated with this permit.
- e. Permittee shall take precautions to protect livestock, wildlife, the public, or other users of the public lands from accidental injury in any excavation unit.
- f. Permittee shall not conduct any flint knapping or lithic replication experiments at any archeological site, aboriginal quarry source, or non-site location that might be mistaken for an archeological site as a result of such experiments.
- g. Permittee shall perform the fieldwork authorized in this permit in a way that does not impede or interfere with other legitimate uses of the public lands, except when the authorized officer specifically provides otherwise.
- h. Permittee shall restrict vehicular activity to existing roads and trails unless the authorized officer provides otherwise.
- i. Permittee shall keep disturbance to the minimum area consistent with the nature and purpose of the fieldwork.
- j. Permittee shall not cut or otherwise damage living trees unless the authorized officer gives permission.
- k. Permittee shall take precautions at all times to prevent wildfire. Permittee shall be held responsible for suppression costs for any fires on public lands caused by the permittee's negligence. Permittee may not burn debris without the authorized officer's specific permission.
- l. Permittee shall conduct all operations in such a manner as to prevent or minimize scarring and erosion of the land, pollution of the water resources, and damage to the watershed.
- m. Permittee shall not disturb resource management facilities within the permit area, such as fences, reservoirs, and other improvements, without the authorized officer's approval. Where disturbance is necessary, permittee shall return the facility to its prior condition, as determined by the authorized officer.
- n. Permittee shall remove temporary stakes and/or flagging, which the permittee has installed, upon completion of fieldwork.
- o. Permittee shall clean all camp and work areas before leaving the permit area. Permittee shall take precautions to prevent littering or pollution on public lands, waterways, and adjoining properties. Refuse shall be carried out and deposited in approved disposal areas.
- p. Permittee shall submit the preliminary report monthly.
- q. Permittee shall submit the draft final reports quarterly.
- r. Permittee shall submit progress reports weekly over the duration of the project.
- s. Additional special permit conditions are attached.

Special Permit Continuation Sheet

1. Before beginning fieldwork the Permittee is required to apply for a Special Use Permit from Terry Delaine, Refuge Manager, Sabine National Wildlife Refuge [(337) 452-9163] The fieldwork schedule will be coordinated with the Refuge.
2. If any human remains are discovered fieldwork at that specific location will cease immediately, and the Permittee shall immediately notify the Refuge Manager at (337) 452-9163 and the FWS's RHPO at Savannah Coastal Refuges [(843) 784-6310 (o) or (912) 257-5434 (c)]. See *Special Permit Condition "b."*
3. The Permittee will complete and/or update the State Site Forms for recorded historic properties. The forms will be submitted by the Permittee to the Louisiana Master Site Files for entry in the state's site file. Copies of state site form will be submitted by the Permittee to the FWS's RHPO. The state site number will be used in reference to all FWS owned and/or managed sites referred to in the report.
4. The Louisiana Division of Archaeology is the designated repository for this archaeological collection. Collections will be prepared for curation – bagged, labeled, and stored – according to National Park Service standards. The permit holder will be responsible for these activities.
5. Artifacts and project documents in paper and electronic form (original notes, maps, photographs, records, and any other form of documentation resulting from the archaeological investigations done under the terms of the permit) are the property of the FWS and will be delivered to:
 - Karla Oeuch, Collections Manager, Louisiana Division of Archaeology, P.O. Box 44247, Baton Rouge 70804-4247.at no cost to the government. This includes, but is not limited to, digital photographs, GPS data, CAD drawings, and GIS data layers. These materials will be delivered to the LDOA within 30 days after the submission of the final report to the Service. Catalogs and analytical results associated with the materials deposited at LDOA will be provided to the repository within 60 days after the submission of the final report. Copies of these catalogs and the accession inventory are to be submitted to the FWS's RHPO within 30 days after the submission of the collection to LDOA. See *Standard Permit Condition "v" and "w."*
6. The Permittee shall submit all field drawn and computer generated maps. The Permittee shall provide raw global positioning systems (GPS) data acquired in the field in original formats and along with any post-processed formats and data. The Permittee will furnish the FWS's RHPO and the Refuge with copies of geographic information systems (GIS) data developed from this investigation. All GIS and GPS data must be accompanied by metadata, including equipment, datum, and coordinate systems used. All metadata must be consistent with and meet the most recent FWS and Federal Geographic Data Committee standards.
7. Address for reports:
 - Richard S. Kanaski, RHPO/RA, Savannah Coastal Refuges, 694 Beech Hill Lane, Hardeeville, SC 29927;
 - Terry Delaine, Southwest Louisiana National Wildlife Refuges Complex, 1428 Highway 27, Bell City, LA 70630.
8. Final Reports are to be prepared consistent with the Secretary of the Interior's *Standards for Archaeology* (http://www.cr.nps.gov/local-law/arch_stnds_7.htm). The title page on all reports submitted pursuant to this permit will contain the Permit Number. See *Standard Permit Condition "t."*
9. Site location information developed on lands covered under this permit is the property of the FWS. Restrictions on dissemination of locational information pursuant to the *Archaeological Resources Protection Act of 1979* and the *National Historic Preservation Act of 1966, as amended* shall apply. See *Standard Permit Condition "u" and "x."*

By signing below, I, the Principal Investigator, acknowledge that I have read and understand the Permit for Archaeological Investigations and agree to its terms and conditions as evidenced by my signature below and initiation of work or other activities under the authority of this permit.

Signature and title: **William P.
Athens**

Digitally signed by William P. Athens
DN: cn=William P. Athens, o=RCG&A,
ou, email=bathens@rcgoodwin.com,
c=US
Date: 2020.06.02 10:49:36 -05'00'

Date: 06/02/2020

Paperwork Reduction Act and Estimated Burden Statement: This information is being collected pursuant to 16 U.S.C. 470cc and 470mm, to provide the necessary facts to enable the Federal land manager (1) to evaluate the applicant’s professional qualifications and organizational capability to conduct the proposed archaeological work; (2) to determine whether the proposed work would be in the public interest; (3) to verify the adequacy of arrangements for permanent curatorial preservation, as United States property, of specimens and records resulting from the proposed work; (4) to ensure that the proposed activities would be inconsistent with any management plan applicable to the public lands involved; (5) to provide the necessary information needed to complete the Secretary’s *Report to Congress on Federal Archaeology Programs*; and (6) to allow the National Park Service to evaluate Federal archaeological protection programs and assess compliance with the *Archaeological Resources Protection Act of 1979* (16 U.S.C. 470). Submission of the information is required before the applicant may enjoy the benefit of using publicly owned archaeological resources. To conduct such activities without a permit is punishable by felony-level criminal prosecutions, civil penalties, and forfeiture of property. A federal agency may not conduct or sponsor, and a person is not required to, a collection of information unless it displays a valid OMB control number. Public reporting for this collection of information is estimated to average three hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Departmental Consulting Archaeologist; NPS; 1849 C Street, NW (2275); Washington, D.C. 20240-0001.



Sabine National Wildlife Refuge
General Activities
Special Use Permit
(For Official Use Only)

Permit #: G2020-18

Permit Term: From: 6/19/2020 To: 10/15/2020

1) Permittee Name/Business: William P. Athens/R. Christopher Goodwin & Associates, Inc.

2) Permit Activity Type: Phase I cultural resources survey for CPRA marsh creation project.

2) Permit Status: **Approved** *If approved, provide special conditions (if any) in the text box below.*
 Denied *If denied, provide justification in the text box below.*

Special Use Conditions are attached and on file.

3) Are there additional special conditions attached to the permit? Yes No N/A

4) Are other licenses/permits required, and have they been verified? Yes No N/A

5) Are Insurance and/or Certification(s) required, and have they been verified? Yes No N/A

6) Record of Payments: Full Partial Exempt


7) Is a surety bond or security deposit required? Yes No N/A

This permit is issued by the U.S. Fish and Wildlife Service and accepted by the applicant signed below, subject to the terms, covenants, obligations, and reservations, expressed or implied therein, and to the notice, conditions, and requirements included or attached. A copy of this permit should be kept on-hand so that it may be shown at any time to any refuge staff

8) Permit approved/issued by: (Signature and title)

9) Permit accepted by: (Signature of permittee)

 Date: _____



 Date: 06/17/2020